BRANCH OF WILDLIFE REFUGES

Narrative Report Routing Slip Date Sept. 15, 1953

~~Mr. Salyer~~ _____ ~~Mr. DuMont~~ PRD

~~Mr. Krummes~~ _____ ~~Miss Baum~~ _____

Section of Operations

~~Mr. Ball~~ _____ ~~Dr. Morley~~ Lew

~~Mr. Regan~~ MJR

Section of Habitat Improvement

Mr. Griffith _____ Mr. Kubichek _____

~~Dr. Bourn~~ WSP Mr. Stiles _____

Section of Land Management

~~Mr. Aldrich~~ ~~Hecht~~ ECA ~~Mr. Davis~~ AOD

Carter

Stenographers

_____ _____

_____ _____

_____ _____

Refuge MISSISQUOI

Period May-August 1953

REFUGE STAFF

Permanent

Ralph H. Minns	-	Refuge Manager
Aldolph A. Vanslette	-	Refuge Maintenance Man

Temporary

Rolla H. Banyea	-	Laborer
Morris F. Partlow	-	Laborer
Howard J. Vanselette	-	Truck Driver
Phillip V. Vanselette	-	Laborer

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NARRATIVE REPORT

MISSISQUOI NATIONAL WILDLIFE REFUGE

MAY, JUNE, JULY, AND AUGUST, 1953

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, Vt., about 40 miles south of the refuge. As a general rule the reports for the current month are received too late for inclusion in the report for this period, therefore the months of April through July are reported on at this time.

	Precipitation		Snowfall		Temperatures			
	Total	Normal	Total	Normal	Max.	Min.	Mean	Normal
Apr.	3.51	2.63	4.6	4.1	63	26	43.9	42.3
May	3.31	2.89	T	0.1	86	34	57.9	55.4
June	2.67	3.57	0	0	95	35	67.2	65.5
July	1.29	3.75	0	0	99	46	71.2	70.4
Total	10.78	12.84	4.6	4.2	Ave. 85.7	35.2	60.0	58.4

Temperatures throughout the period averaged slightly above the average but high humidity made it appear warmer than it actually was. According to Weather Bureau figures, this season averaged only .9 of a degree warmer than the same period last year, but many people will swear that it was much hotter than the past few years. The early period was interspersed with real cool weather, which made the fluctuations from heat to cold, more pronounced.

B. Water Conditions

With higher than normal rainfall during the early part of the period, it gradually tapered off to much less than normal, and crops started to show the effects of the dry spell. When it did rain, which was every few days during July, such a small amount fell that it did no good. August was very dry also, but we do not have figures for that month yet.

Water levels kept dropping steadily, with several small rises caused by local showers or winds. During June and July the water guages showed the water to be from 6" to 9" below levels of last year. How-ever by mid-August this had closed to only 2 or 3 inches difference.

C. Fires

No fires occurred on or near the refuge. The fact that we are on an island for the most part, makes this hazard nearly nil. We are in hopes of getting a dry enough season for some controlled burning.

II. WILDLIFE

A. Migratory Birds

1. Populations and Behavior

a. Waterfowl - We experienced better than average nesting on the refuge this year because of the lower than normal water levels along during the nesting season. Some birds started nesting during the latter part of the trapping season, about mid-April, but nesting didn't get really started until about a month later. The nesting season was spread out over a considerable period when some nests were lost because of high water levels, and general re-nesting for all ground nesters was evident.

As usual, we saw very few Wood ducks during the nesting season, but the increase in this species became very noticeable as soon as the hatch started in late June and early July. The peak of the Black duck hatch occurred the first week in June, as did the few Mallards which we have here. How-ever, we saw very few Blacks until they had reached the flying age, because of the high water conditions which prevailed earlier. Blue-winged Teal were, as usual, the last to bring off their broods, many not showing until mid-August.

After the post-nuptial moult had begun, very few ducks could be found, unless they were chased out of the tall vegetation along the shorelines where they had retired for security during the flightless period. During this time, we can get a pretty good index to the numbers of yound birds on the refuge, as most of the flying birds can be classed as birds of the year. This appears to be an average year for most species except Wood ducks, for which there is a decided increase.

Several small flocks of Canada Geese spent the summer in the vicinity of the refuge, the result of several years of spring releases of this species. No broods have been noted by refuge personnel, and none have been reported so far this year. Several pairs have been noted which have kept by themselves, how-ever, and it is hoped that these birds may have nested.

b. Other Waterbirds - Great Blue Herons, American Bitterns, Black-crowned Night Herons, Eastern Green Herons, Florida Gallinules, and Wilson's Snipe have been present in their usual numbers. No American Egrets have been seen for the past two seasons. We had one report of an Egret being seen, but can not depend on it. Black Terns showed an increase.

c. Shore Birds - Very few birds in this category are seen here, the only ones being an occas ional Spotted Sandpiper, White-rumped Sandpiper, or Wilson's Snipe. Signs of snipe feeding on the mud flat areas were in evidence, how-ever, so this bird perhaps is more plentiful than we imagine. Limited opportunities for observation are perhaps a factor.

2. Food and Cover

Duck food plants made good growth this year. The water lowered early, and most plants got a good start. How-ever, continued water lowering is drying up the wild rice crop along the perimeters and many plants will

produce only dried hulls. But to offset the lessened rice crop, we have an abundant ly increasing supply of Sago Pondweed, which is the favorite of the puddle ducks as long as it lasts. The beds have increased each year for several years now, and apparently the supply is only limited by the available area of suitable water depth. The deeper water in our marsh is being gradually covered by Water Shield, which, although being accepted as a desirable duck food plant, is crowding out the beds of Sago which used to grow there. Several small beds of American Pondweed, Floating-leaved Pondweed, and Three-square Bulrush are producing some food. Wild Celery didn't grow as well this year as for the past few seasons, but still will produce an abundance of food.

Ample cover is provided by all emergents mentioned under foods, as well as River Bulrush, Round-stem Bulrush, Three-way Sedge, and Bur-reed

B. Upland Game Birds

The usual 4 pair of Ruffed Grouse complete our representation in this category. These birds manage to maintain a population but are limited by a lack of winter cover. Food is adequate at all seasons.

C. Big Game Animals

Our herd of White-tailed Deer numbers approximately 16 to 18 at this time, including the fawn crop for this year. More fawn signs were seen this summer than ever before in this writers experience at this refuge. Heavy swarms of deer flies drove the animals into the open quite often and we saw them at frequent intervals. Much feeding was enjoyed by deer in our buckwheat and clover fields, with regular paths being worn in the vicinity of these fields. Some feeding was noted on the tops of trees which had been felled by our clearing crew, and also on the tender tops of annual growth along the perimeter of the marsh.

NoBlack Bear were reported in the general area this summer. They usually make an appearance during the time when the blue-berries are ripe in Maquam Swamp. One Bobcat was reported in Swanton, but we cannot vouch for it's authenticity.

D. Fur Animals, Predators, and Other Mammals

1. Fur Animals

Muskrats have spent a good summer, with plenty of food and water high enough to enable them to raise at least some of their litters back in the brushy perimeters. We know of two litters being produced, with a good possibility of a third also. Adjoining marshes owned by private parties had been dammed last season, and are holding water at a high enough level so that a portion of it seeps through the narrow ridge separating the properties, into our marsh. This has kept the water in our marsh, away from the open water areas, at a higher level, with many little potholes and low spots being kept flooded or at least wet throughout the greater part of the summer. This has tended to spread out the breeding stock instead of confining them to the edge of our

Big Slough as here-tofore. This is indicative of the results which we should expect when we have completed the installation of the dams in the channels which now drain the Big Marsh Slough and Goose Bay areas.

A few skunks and weasels are known to be present but these are not nearly so noticeable now as during the spring when they are concentrated by high water. Beaver are making a nuisance of themselves on local farms but none have been seen in the vicinity of the refuge.

2. Predators

Raccoons have made a considerable increase this season, judging by the numerous tracks seen every where along water courses. They seem to be out hunting during the day as well as the night time, as we have found their footprints in our own, which we had made that same day. If prices do not improve in the fur market, we may have to do something about reducing the numbers of den trees on the refuge.

Foxes are present, but are not much trouble at this season of the year. Snapping Turtles are becoming quite plentiful and should be controlled as opportunity presents itself. Several were disposed of this spring during the egg-laying period, when they were out looking for nests on our agricultural fields bordering the river.

3. Other Mammals

Grey Squirrels are occasionally seen alongthe hardwood ridges, but these are becoming scarcer as the red squirrel increases. Food in the form of mast is plentiful enough for the present population. The usual numbers of meadow mice and white-footed mice are present.

E. Predacious Birds, including Crows.

The usual 30 to 40 Crows spent the summer here raising their broods, which could be heard back in the timber uttering their hoarse calls. Marsh Hawks were most abundant, with only an occasional Duck Hawk, and one or two Red Tails. One immature Bald Eagle was seen on several trips along the river. We have heard the call of a Horned Owl several times.

E. Fish

The usual fish life was present in the marshes during the spring high water period, such as Bull-heads, Perch, Gr. Norther Pike, Pickerel, Carp, and Garpike. As the water recedes, most of these fish leave the shallow waters of the refuge, and all that is left is a few fish in a narrow channel leading to Big Marsh Slough.

III. REFUGE DEVELOPMENT, MAINTENANCE

A. Physical Development

A meter was installed at the gasoline tank early in the period. Now we don't have to measure gas in five gallon cans anymore. This saves much time and labor.

To start off the farming program this spring, we broke up 17 acres of new land with a rented breaking plow, which was far from satisfactory in operation. Seven acres of this field were sown to buckwheat and 10 to soybeans. The buckwheat grew luxuriantly but the soybeans were a disappointment. The pigweed and thistles grew well though. This was on field #4. On field #5, we planted 10 acres to clover, 10 acres to buckwheat, 2 acres to corn, and the remainder to soybeans. Everything grew well, with the exception of the soybeans. If the mice in our grain bin hadn't mixed a quantity of buckwheat with the soybeans, we would have had a very poor crop. As it was, there was a fair scattering of buckwheat in the soybean field. We also had a good volunteer growth of smartweed in this field. Field #3 was fallowed all summer. Field # 1 had clover in it from last years planting, but it didn't do too well on the low, wet side, so we plowed up 5 or 6 acres and planted it to millet(wild and Jap mixed). This has grown well and has an abundance of seed on it now. Field #2 also was in clover from last years planting. We bull-dozed an acre or so of brush along the border of this field in order to widen it a bit, and planted the new land to buckwheat.

Lime and fertilizer was applied to 10 acres of field #4, 10 acres of field #5, and a couple of acres of field #3 will be limed this fall.

Mowing was accomplished on 25 acres of clover land in fields #1 and #2, 8 acres of ladino clover on fields #3 and #4, 10 acres of clover on field #5, and 10 acres of field #4 which had been planted to soybeans and which never grew anything but weeds. Even so, this land is now in shape for plowing with regular plows this fall.

Doors, clapboards, and painting was done on the equipment shed this period, so that now the building looks more complete. Two doors remain to be built, a chimney to be built, and insulation installed.

Water guages were set up, boundary posts cut and erected all around the water boundary. Signs were affixed at strategic intervals.

Timbers were taken to the mill and cut to size for mats to be built for the construction work in the marsh this fall. Two mats were completed before our drill failed and work had to be stopped. We have arranged for the loan of a drill to complete the job while ours is being repaired.

Hardwood cleats were installed on the Oliver OC3-68 tractor, and it was taken to the marsh for a trial run. It stayed up on surprisingly soft ground, even with a slight water coverage, but it didn't have sufficient traction to pull any sort of an implement. Some cleats were removed, which improved traction but lessened flotation somewhat. Water coverage remained high on the marshes this year, making it difficult to accomplish anything with a harrow. Brush was merely bent, not broken. We will try it again this coming month, when the ground will be drier, and we hope, the brush will cut up better.

The clearing crew was put to work this summer, cutting out the tree growth in and around the borders of agricultural fields. Good progress was made despite the heat and humidity, and greatly improved conditions are present. The work is nearly completed on this project, with the exception of one or two small areas which we plan to cut over later in the season after the rank annual growth has been killed by frost.

Two Special Use Permits were issued this period, one for the cutting of hay on two of our clover fields, which had grown so rankly while we were engaged in spring farming, that it was not possible to mow them and leave the cutting lie for a mulch. This hay was traded for some plowing to be done this fall. The other permit was issued for the cutting of wood along the border of one of our agricultural fields which we plan to open up eventually for waterfowl.

A half dozen cedar poles were procured for use in erecting a telephone line to the refuge. This will save considerable shuttling back and forth between the refuge and the office.

A ditch was blasted from Dead Creek to the brushy area of Big Marsh Slough, for the purpose of trapping water rises in the creek and filling our marsh area after the dams are in place. We plan to install a check-gate type of water control structure. The water sometimes rises 4 to 6 inches after a heavy rain or strong south wind, and this amount of water may be just what we need to replenish the water in the marsh.

A spray rig was received this period, so after we obtained some herbicide, we sprayed the sprout growth along the river, which had grown from last year's cutting. These new shoots apparently are very susceptible and are killed easily. A mixture of 2,4-D in water was used, 10 lbs acid equivalent per acre. This was only done last week, and results look good already. The area which we sprayed last year, has only had about a half dozen stumps which re-sprouted.

A survey line was run from the river at Mac's Bend to the marsh, to serve as a guide for the clearing crew in cutting the lanes, which are to be cleared between the marshes and the agricultural fields.

The D-4 Caterpillar was stripped down and starting engine and tracks taken to a dealer in Barre for repairs. We now have it back at work and a great improvement is noted. It how-ever, still does not fill our needs for a tractor at this refuge, the narrow guage working very poorly in soft ground, especially with a cable operated angle-dozer, which tends to make the entire machine nose-heavy.

We had to have our chain saw overhauled last month. It finally gave out after extremely heavy use. It has cut many acres of trees to date.

B. Plantings

1. Cultivated Crops

The farming program was covered pretty thoroughly under the prededing section in the 2nd, 3rd, and 4th paragraphs. This season we had 35 acres of clover(red and alsike) planted, 19 acres of buckwheat, 30 acres of soybeans, 2 acres of corn, and 5 acres of millet. There was a good volunteer growth of smartweed in field 5. Twenty tons of lime were applied, and 2 tons of fertilizer were put on a clover and a buckwheat field. So far we cannot see any difference in land which had fertilizer applied , and that which had none, except for the magnificent crop of weeds on fertilized land. The land generally is quite rich, being on a delta and receiving quite a lot of deposits each spring during flood waters.

Crops generally did quite well with the exception of the soybeans. These have never produced a crop, and usually they do not grow well, the season being too short for a good growth.

C. Receipts of Seed and Nursery Stock

We received the following quantities of Millet seed from the following refuges this period:

Sand Lake Refuge	30 Bushels wild millet
Parker River Refuge	30 bushels wild millet
Moosehorn Refuge	12 bushels wild and Jap millet

We also purchased the following seed locally for planting refuge fields:

Red Clover	100 lbs
Alsike Clover	80 lbs
Field Corn	20 lbs
Kale	7 lbs

IV ECONOMIC USE OF REFUGE

A. Haying

We had one cooperative agreement in force during the period for the cutting of hay on fields #1 and 2, in return for which the permittee will plow 25 acres of field #5 this fall. This hay, which was largely clover, averaged about 1 ton per acre. The clover fields would ordinarily have been mowed at intervals during the summer, but due to our planting program this spring, we didn't get around to the mowing until the growth on the clover fields was pretty rank. Mowing under these conditions without raking off the hay, would have left a heavy mat on top of the field and probably would have killed off part of the clover.

B. Fur Harvest

To date we haven't received word from the New York Auction Company, that the 118 muskrat skins which we shipped them on April 21st, have been sold.

C. Timber Removal

About 70 poles were cut for use in posting our water boundary this spring. No other poles or logs were cut by refuge personnel. We did how-ever, clear cut trees and brush around the perimeters and within fields 4 and 5. Several channels which bisected the fields, had tree growth bordering them. These were all cut to open up the fields for waterfowl use. About 3 or 4 acres were cleared in this manner.

We have one Special Use Permit in force for the cutting of cord-wood between field 2 and the river. This will save labor costs to us for this clearing, as the tree growth at this point is somewhat wider than what we have been cutting to date. Some cutting has been done so far under this permit, but nothing has been removed yet. The permittee started cutting in very hot weather and finally had to stop because of the heat. Then his "doodle-bug" broke down when he started to get some of the wood out to his skid-way.

V. FIELD INVESTIGATION OR APPLIED RESEARCH

A. Woodcock Census

The annual census of woodcock singing grounds was taken again this year between April 24 th and May 19th. The Swanton area showed 7 occupied singing grounds as compared to 6 last year. The Highgate area showed 5 occupied singing grounds as compared to 7 last year. These figures cannot be used for comparative purposes, as routes have been lengthened this year, and new census techniques have been putninto operation.

B. Goose Project

The following bands were attached to birds received from the Blackwater and Bombay Hook Refuges on 4/1/53: (61 birds)

Clipped and released 4/6/53	Pinioned and penned 4/17/53	
498-83402	498-83403	498-83434
405	404	435
408	406	436
409	407	437
414	410	438
415	411	441
419	412	442
422	413	443
424	416	444
426	417	445
429	418 *	446
432	420	449
439	421	450
440	423	452
447	425	453
448	427	455
451	428	458
454	430	460
456	431	461
457	433	498-71512 **
		498-90276 **

* killed by predator night of 4/1/53
** Banded at either Bombay Hook or Blackwater Refuges

The five old birds which we had remaining from last year's decoy flock, were released in the vicinity of the pen on 4/17/53. The band numbers were: 498-71036
055
072
086
90007

On May 20th we saw 18 geese in field #1, where they stayed all day long. These were comparatively tame, and turned out to be part of the flock which were released on April 6th. The following day, there were still 12 in the field. These left sometime during the night of the 22nd.

On May 6th there were 5 geese seen in field 5. These stayed there until the 21st. These birds were not those which were released from our decoy pen on the 17th of April, as they had full wings. The decoy flock were all pinioned.

Several times during the summer, people have reported seeing 18 of our released flock in Maquam Swamp. In mid-August, a man reported seeing 7 of the released flock in the lake south of Maquam Swamp. Occasionally during the summer, we have seen one or two geese flying over the refuge or feeding in the river. On two occasions, we saw 9 and 6 flying over in flocks. These were quite possibly, part of the released birds turned out on 4/6/53.

To date we haven't seen or heard of any goose broods in this area, but we feel confident that there must have been some nesting, because of several pairs which we saw last spring that appeared to have nests in the area. We didn't look for these nests, preferring to leave the birds undisturbed.

VI. PUBLIC RELATIONS

A. Recreational Uses

There were 16 free use permits in force during the period for travel through a portion of the refuge for the purposes of fishing and boating, 3 for the picking of herbs, 1 for cutting of fire wood, and one for plant study.

There is no fishing or boating on the refuge, but persons going to the lake by boat use a part of the refuge to get to their boats after low water stage in summer has exposed mumerous sand bars above the refuge portion of the river.

B. Refuge Visitors

Besides the following listed visitors, there are always many people who drop into the office for information of various kinds.

5/6	Frank Edminster	SCS	Soil Conservation
5/7	C.E. Brooks	FWS	Law Enforcement
6/16	W.P. Howrigan	Contractor	Dam Project
6/17	W. Miller	State Cons. Dept.	Brood Surveys
7/16	A.F. Miller	FWS	Inspection
8/5	W. Miller	State Cons. Dept.	Visit
8/5	F.B. Schuler	FWS	Visit

Respectfully submitted,

Sept. 9, 1953

Ralph H. Minns, Refuge Manager

Approved:

_____ _____

Regional Refuge Supervisor Date

_____ _____

Regional Director Date

WATERFOWL

Refuge _____ Months of _____ to _____ 19____

(1) Species		(2) First Seen		(3) Peak Concentration		(4) Last Seen		(5) Young Produced		(6) Total
	Common Name	Number	Date	Number	Date	Number	Date	Broods Seen	Estimated Total	Estimated for period
										Waterfowl Days
I.	Swans:									
	Whistling swan									
II.	Geese:									
	Canada goose			5	5/5					10
	Cackling goose									
	Brant									
	White-fronted goose									
	Snow goose									
	Blue goose									
III.	Ducks:									
	Mallard			60	8/26			1	6	2304
	Black duck			300	8/26			7	36.75	10953
	Gadwall									
	Baldpate									
	Pintail									
	Green-winged teal									
	Blue-winged teal			60	8/12			2	?	2280
	Cinnamon teal									
	Shoveller									
	Wood duck			150	8/26			8	54	5660
	Redhead									
	Ring-necked duck									
	Canvas-back									
	Scaup									
	Golden-eye			5	7/9			1	4	464
	Buffle-head									
	Ruddy duck									
	A. Merganser			1	5/6					1
IV.	Coot:									

(Sept.1950) Interior - Duplicating Section, Washington, D.C. 82449

SUMMARIES

Dates waterfowl counts made 5/5, 5/6, 5/15, 7/9, 8/8, 8/12, 5/15, 5/25

Percent of waterfowl area covered 100%

Dates brood counts made 6/25, 7/9

Percent of area covered in brood counts 50%

Total production:

Geese

Ducks 99.75

Coots

Total waterfowl usage during period 21681

Peak waterfowl numbers 581

Areas used by concentrations Shallow water feeding areas in Goose Bay, Gander Bay, and Big Marsh Slough

Principal nesting areas this season River ridges and higher areas in Big Marsh Slough.

Reported by Ralph H. Manns

INSTRUCTIONS

(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) First seen: The first refuge record for the species during the season concerned in the reporting period, and the number seen. This column does not apply to resident species.

(3) Peak concentration: 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 in the reporting period.

(5) Young produced: 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.

(6) Total: Estimated total number of the species using the refuge during the period. This figure may or may not be more than that used for peak concentrations, depending upon the nature of the migrational movement.

Note: Only columns applicable to the reporting period should be used. It is desirable that the Summaries receive careful attention since the data are necessarily based on analysis of the rest of the form.

3-1751
Form NR-1A
(Nov. 1945)

MIGRATORY BIRDS
(other than waterfowl)

Refuge Missisquoi Months of May to August 1953

(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			20	8/6					?	24
Eastern Green Heron			3	8/12					?	3
Bl. C. Night Heron			2	8/26					?	2
American Bittern			18	8/12					?	18
Florida Gallinule			16	6/23					?	16
II. Shorebirds, Gulls and Terns:										
Wilson's Snipe			2	6/23					?	2
Herring Gull			18	8/26						18
Black Tern			40	7/9					?	40

(over)

(1)	(2)	(3)		(4)	(5)	(6)
III. Doves and Pigeons:						
Mourning dove		2	8/18			2
White-winged dove						
IV. Predaceous Birds:						
Golden eagle						
Duck hawk		1	8/4			1
Horned owl						
Magpie						
Raven						
Crow		80	8/18			40
Bald Eagle		1	7/15			1
Marsh Hawk		10	8/18			10

Reported by.....

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 Gruiiformes)
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.

INT.-DUP. SEC., WASH., D.C.

3-1752
Form NR-2
(April 1946)

UPLAND GAME BIRDS

1613

Refuge Missisquoi Months of May to August, 1943

(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'v'd.	Estimated Total	Percentage	Hunting	For Re-stocking	For Research	Estimated number using Refuge	Pertinent information not specifically requested. List introductions here.
Ruffed Grouse									8	Static population

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.