

TAMARAC

NARRATIVE REPORTS

JANUARY-DECEMBER 1959

BRANCH OF WILDLIFE REFUGES

Narrative Report Routing Slip

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Refuge TAMARAC

Period Sept-Dec. 1959

TAMARAC NATIONAL WILDLIFE REFUGE  
NARRATIVE REPORT  
SEPTEMBER, OCTOBER, NOVEMBER, DECEMBER  
1959

U.S. DEPARTMENT OF THE INTERIOR  
BUREAU OF SPORT FISHERIES AND WILDLIFE  
ROCHERT, MINNESOTA

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# TAMARAC NATIONAL WILDLIFE REFUGE

## NARRATIVE REPORT

SEPTEMBER, OCTOBER, NOVEMBER, DECEMBER

1959

### I. GENERAL

#### A. WEATHER CONDITIONS

Following is a table showing weather conditions as compared to normal for the period:

<u>Month</u>	<u>Snowfall</u>	<u>Precipitation</u>		<u>Maximum Temperature</u>	<u>Minimum Temperature</u>
		<u>This Month</u>	<u>Normal</u>		
September	0	1.14		87	24
October	5.6	1.09		72	20
November	7.0	.74		43	-9
December	T	.33		42	-3
Total	12.6	3.23	Extremes	87	-9

It appears as if we are again falling behind in expected snowfall and eventual moisture for the spring run-off. It is also possible that heavier snowfall in the period of December-March could occur and produce the run-off required for filling marshes and potholes, and result in approaching the average annual in precipitation and run-off.

Temperature-wise the weather has been on the moderate side, although the month of November did seem raw and cold.

#### B. Habitat Conditions.

##### 1. Water

Sufficient rain was received in August (7.26 inches) and September so that marshes, potholes, lakes and streams were at or above normal levels on Chippewa and other lakes throughout the fall months. In fact late August rains raised levels on Chippewa to a point where some damage occurred to rice because of concurrent high winds. Many potholes that had receded to near dry conditions were restored to attractive waterfowl habitat and thereupon received regular use by wood duck, mallards, teal and lesser numbers of other species.

##### 2. Food and Cover

Wild rice fields were again productive, although not quite so prolific as in 1958 - heavy use by large numbers of mallards, scaup, coots and ring-necks, and token numbers of redheads and canvasbacks. Other types

of submerged aquatics had produced very well and attracted large numbers of waterfowl - Tamarac, Egg Lakes, Chippewa, Booth and other refuge lakes and marshes were utilized heavily in the period of September 15 to October 20 especially. Refuge grain fields between Squaw and Chippewa were again visited daily by a flock of 6,000 - 8,000 mallards. Canada goose observations were less than in 1958, but largely due to the fact that the Chippewa grain fields and decoy flock were not checked as frequently and at as favorable times as they were in 1958 - the largest migration of Canada geese in memory passed over the refuge and area, and several flocks did sit in refuge waters.

## II. WILDLIFE

### A. MIGRATORY BIRDS.

#### Waterfowl

Increased populations of mallards, blue-winged teal, ring-necked, and wood ducks, in order of abundance, were utilizing the refuge prior and during the first week in September. Wood duck and blue-winged teal populations approximately doubled those observed in 1958. Since most of these birds were local ducks, the increased refuge production is quickly noted. This increased production is mainly attributed to the influx of waterfowl from the drought-stricken prairie pothole region. From 25 - 40 wood ducks were observed daily on the small marsh one-fourth mile west of headquarters.

Redheads reached the approximate low concentration noted in 1958; however, canvasback and ruddy duck populations decreased even lower, with no reports of these two species in the hunter's bag.

Coot began arriving the second week of September and increased to the highest concentration observed thus far on the refuge. Large rafts of coot were observed on Tamarac, Flat, Little Flat, Chippewa, and the Egg Lakes during the month of September and October.

Large flights of approximately 8,000 geese, Canadas, Blues and Snows, and also divers were observed throughout the days of October 11 and 12. Small flights of Canada geese continuously utilized the fields between the refuge and Ponsford during the latter part of September and the first part of October. The best goose hunting in many years was experienced in fields near Ponsford and fields approximately 10 miles west of the refuge.

With the exception of the American coot, the ring-necked duck accounted for the highest "estimated waterfowl days use" on the refuge. On October 18, an estimated 5,000 were observed from the cabin point of Flat Lake and 6,000 on Wauboose Lake.

Complete freeze-over of all waters on the refuge occurred November 6, with observations after that date limited to an occasional cripple. An additional chart (See Appendix) gives a comparison between the 1958 and 1959 waterfowl populations.

### Waterbirds, Shore Birds, and Others

The small pieb-billed grebe was observed daily on many of the lakes, but observations on the red-necked and eared grebes were occasional and lacking respectively. Great Blue Herons built to a peak concentration during late September and as many as eight could be counted from the Chippewa Lake bridge. Approximately 1,500 Hooded Mergansers utilized Wauboose and Dry Lakes collectively, during the last half of October.

The number of shore birds utilizing the refuge is conspicuously small due to the lack of extensive mud flat habitat. Most observations were recorded on the shore lines of the rivers and potholes. Wilson snipe especially made use of the small wooded potholes which did not hold sufficient water to attract waterfowl.

In comparison to the past years, only a small token number of gulls, mostly ring-billed, were observed during the fall migration.

The mourning dove population appears to have increased slightly this year as compared with that of 1958, and a tremendous increase has been noted over the last 7-8 years.

### B. UPLAND GAME BIRDS.

The ruffed grouse is the only upland game bird of any number now found on the refuge. The population has remained fairly stable for the past five years, with the last peak recorded in 1953. They should be building to a new peak, but observations do not support this belief.

Wild turkey remain in critically low numbers; however, there appears to be a slight increase this year. A local farmer watched a fox chase and catch an adult gobbler, which was released apparently unharmed upon the intrusion of the observer.

Observations are lacking for the sharp-tail grouse, Hungarian partridge, and the prairie chicken for this period or this year.

Ring-necked pheasants are decreasing in number and are now most frequently seen in the vicinity of the headquarters, where the captive goose pens afford these birds an available food supply throughout the winter months.

### C. BIG GAME ANIMALS.

Black bear are slowly increasing with an estimated 5-10 utilizing the refuge now. There were many signs in the Chippewa cornfield area this summer and two groups of cubs were observed. On one occasion, two students canoeing through the refuge were chased out of their camp and suffered considerable loss and damage to food, tent, and other supplies. It is our desire that licensed deer hunters may be allowed to harvest bear during the 1960 season, in order to reduce damage to the refuge grainfields and possible loss of livestock by neighboring farmers.

No sign of moose has been noted since the hunting season; however, tracks of two moose were reported along the northern boundary of the refuge immediately prior to the season. It would appear that the moose have either moved out of this area or were harvested illegally.

The white-tailed deer population has remained quite stable for the past four years. An estimated 328 deer were reported in the aerial winter big game counts of March 4. 285 deer were estimated to have been taken during the season and an estimated population of approximately 200 are now utilizing the refuge.

Deer checked through the check station all appeared to be in very good condition and 42% of these were fawn, indicating good reproduction. Although pine reproduction has made a remarkable come-back on many parts of the refuge, new damage to young pine is still evident in the more inaccessible areas.

#### D. FUR ANIMALS, PREDATORS, RODENTS AND OTHER MAMMALS

Beaver remain plentiful on the refuge despite fall and spring trapping for the past several years. 24 were removed this fall after a removal of 70 during the spring trapping program. Because of continual harassment by plugged controls and washed out roads, it now seems necessary to continue the trapping program both spring and fall.

Mink remain in low numbers as the trapping pressure does not allow the valuable fur species to increase to large numbers. Only 10 mink were removed this fall and the average pelt price was \$17.50 for the permittee's share.

The otter population is low and there has been no great increase during the closed seasons for the past several years. Three were accidentally trapped, of which two were released.

Raccoon are far too numerous and caused extensive damage to the Chippewa cornfield this summer. Because of their predatory activity among nesting waterfowl, they are removed at every opportunity. It was hoped that their increased pelt value would attract their removal by the permittee trappers, but adverse weather conditions kept them denned up during most of the season.

Red fox are common and attracted a few trappers on the southern portion of the refuge during the month of September. No wolves have been seen or heard of this year. Coyote are few and one was removed during the deer season. Because of possible loss of livestock belonging to neighboring farmers, coyote should not be allowed to increase within the refuge.

No bobcat or lynx were observed this period and their number is estimated to be very few. Their population, as coyote, should be kept low to avoid criticism from neighboring farmers.

Skunk remain in very low numbers and are disposed of by refuge personnel whenever the opportunity permits.



Snowshoe rabbits are present in fair numbers but do not appear to have reached a peak. Snaring of snowshoes is one primary diversion of the Indian permittee cutters. Snowshoes have destroyed hundreds of jack, white, and red pine seedlings in some of the good pine areas, and Indian cutters have been urged to remove these rodents throughout the cutting areas. Cottontails are commonly seen around the residences and abandoned farm buildings.

Squirrels are very abundant on the refuge with the red squirrel the most frequently observed. Gray squirrels are also very common in the hardwood stands. Flying squirrels are rarely observed owing to their nocturnal habits, but three were accidentally trapped from the captive goose pens. Two fox squirrels were seen this period - this species is rarely observed on the refuge.

Porcupine are abundant in some locations and cause extensive damage to the more valuable pine species. Refuge personnel constantly dispose of individuals whenever possible. Porcupine have girdled and killed many white and jack pine trees, ranging from pole size through old mature seed trees.

#### E. HAWKS, EAGLES, OWLS, CROWS, RAVENS, AND MAGPIES.

Hawks were generally abundant with representative numbers of many species utilizing the refuge this fall. Redtail and Marsh Hawks were the most frequently observed species, and Sparrow and Pigeon hawks migrated through the refuge during October. Although some depredation undoubtedly exists, hawks are not considered to present a serious threat to the important game species.

The bald and golden eagles were observed in greater numbers than in recent years. Golden eagles were attracted by the captive decoy goose flock at Chippewa Lake, but no loss occurred. It was noted on several occasions that golden eagles would be setting among the artificial goose decoys.

Great Horned Owls and Barred Owls were common in the early fall. Three captive geese killed in their winter holding pens, characterized by the loss of only the head and neck, is thought to have been the result of Great Horned Owl predation. Three Great Horned Owls were trapped and eliminated with the use of pole traps within the captive goose pens. One snowy owl was reported east of Ponsford, but none have been noted on the refuge yet.

Very small migration of crows occurred this fall and only occasional observations of ravens and magpies was noted. Turkey vultures were observed daily during the summer and early fall but most individuals had left the refuge by the first of October.

#### F. OTHER BIRDS.

Large flocks of blackbirds were noticed building up around the Chippewa Lakes in early September - slight damage to the wild rice.

Large numbers of flickers were readily flushed along the refuge roads during September and October. On the evening of October 27, a long continuous flight of starlings, many thousands, passed over the refuge.

#### G. FISH.

Although a heavy winter kill was experienced at Wauboose Lake, summer fishing on the entire refuge was generally considered better than in 1958. Good populations of bullheads and northern pike accounted for successful fishing at the Chippewa Lake bridge, especially early in the season. Tamarac Lake received tremendous fishing pressure throughout the summer with a great number of northern pike being taken; however, they were noticeably smaller than those taken in Chippewa Lakes. Many small walleyes were also taken in Tamarac with an average weight between  $1\frac{1}{2}$ -2 pounds. Summer fishing was also reported to be quite good on Rice and Blackbird Lakes.

Ice fishing is open on Tamarac and Chippewa Lakes but early fishing appeared to net little success, however it appears to be becoming increasingly successful on both Tamarac and Chippewa Lakes now.

#### H. REPTILES.

Observations were mainly limited to the spotted salamander which was occasionally seen crossing the roads following the first cold spell. Snakes and turtles have not been observed this period with the exception of the emergence of 24 young snapping turtles from their nest on September 7.

#### I. DISEASE.

No evidence of disease has been found in animals on the refuge.

### III. REFUGE DEVELOPMENT AND MAINTENANCE.

#### A. PHYSICAL DEVELOPMENT.

Following are listed the more important development and maintenance accomplishments for the period.

1. Operated four weighing stations, checked in, shared, sold on bid, patrolled, issued permits, etc during the ricing season - August 29 - September 17; 10 lakes, 108 Indian permittees, over 40,000 lbs. rice.
2. Planted winter wheat.
3. Bladed boulevard road four times; Little Flat road.
4. Assembled dragline after delivery to the refuge.
5. Constructed drain boards for post treating plant.
6. Mowed access trails into Tamarac, and Mud Lake - for public hunters.
7. Constructed new two-acre pen for new flock of geese.
8. Received 5 Canada geese from Mgr. Norman, ~~two~~ from Agent Ellerbrock, clipped and released into pens.
9. Mowed barley, corn, and alfalfa between Chippewa and Squaw Lakes.

10. Posted newly acquired farm tracts for public hunting (1800 acres).
11. Erected 4 new wood gates for controlling access on new tracts.
12. Mowed entrance roads and "areas" around both headquarters.
13. Took bids and sold surplus barley in Detroit Lakes.
14. Constructed new septic tank for clerk's dwelling.
15. Renovated old barn at Peabody residence for use as garage for refuge pickup and personal car.
16. Constructed two new shelters in goose pens.
17. Pulled pump at Burnard residence, hauled straw for winterizing.
18. Re-posted tract around Blackbird lake to clarify boundaries.
19. Checked and commenced clearing area on northeast side of Squaw Lake - cleared about 6 acres.
20. Constructed special crate and made trip to LaCrosse, Wisconsin for delivery of 25 Canada geese (clipped, recorded, etc.).
21. Re-plumbed and installed new water softener at secondary.
22. Salvaged electric wiring, etc. from buildings before sale to public.
23. Set up deer checking station at junction of Bruce Boulevard - operated during the deer season from 6:00 am - 6:00 pm - November 7 - 11, 1959.
24. Re-posted for deer hunting season.
25. Scouted for timber, post materials, rails, firewood, etc through several sections southeast of the Ottertail River.
- ✓ 26. Set up "forestry" project with Becker County Welfare and commenced employment of Indian relief workers.
- ✓ 27. Marked all timber to be removed - cut, dozed and plowed all haul and skid roads and trails.
- ✓ 28. Dozed for setting up portable sawmill - arranged permit for sawmill operator.
- ✓ 29. Hauled "cull" posts from site to headquarters as needed - about 10,000 posts as of December 31.
- ✓ 30. Hauled marketable posts for Indians from site to Park Rapids - when other trucking not available. (they pay \$3.00 per cord per trip)
- ✓ 31. Skidded all sawlogs for Indian cutters (they pay \$2.00 per hour.)
- ✓ 32. Scaled all materails plus dead and down for use as fuelwood.
33. Authorized snaring of rabbits and the shooting of porcupines (by foreman) in the cutting area.
34. Ran lines around cutting area near Blackbird Lake.
- ✓ 35. Authorized three timber permits (other than County) - checked areas, scaled products when needed, etc.

## B. PLANTING.

### 1. Aquatics and Marsh Plants.

Only 200 pounds of wild rice was planted in refuge waters this year. Approximately 87 pounds were planted in Evans Lake where the existing stand was quite thin and scattered. 113 pounds were planted in the large marsh approximately one-fourth mile east of the refuge headquarters. Water level and bottom conditions appeared favorable in this marsh, but there will be great competition from the other existing aquatic plants. All rice was planted within two days after harvesting to prevent the deterioration of the seed.

### 2. Trees and Shrubs.

None planted this period, and only a few planted for landscaping earlier in the year.

### 3. Upland Herbaceous Plants.

None planted this year.

### 4. Cultivated Crops.

Refuge cultivated crops provided food for many species of wildlife on the refuge. The alternate strips of barley, millet, and corn, planted between Chippewa and Squaw Lakes, received heavy utilization from mallards. Bear, raccoon, and deer had completely harvested the corn in this field.

Permittee's crops were generally fair to poor. The one corn field cultivated by permittees, northwest of Flat Lake, yielded approximately 86 bushels to the acre.

## C. COLLECTIONS AND RECEIPTS.

### 1. Seeds and other Propagules.

The only collection was 4,913 pounds of wild rice collected as the 12% government share. The collection of rice is covered later in this report.

### 2. Specimens.

Aquatic and marsh vegetation specimens were collected by Messrs. Burnard, Refuge Aid, in relation to the pothole reclamation program.

## D. CONTROL OF VEGETATION.

In addition to the cultivation of certain fields, a Hanson "Brodjet" sprayer was used to apply Low Volatile 2,4-D Ester formulation on the corn, wheat, and barley fields. This application was completed too late in the summer to attain the desired results.

*Not enough to record* *WBS*

The County and R.E.A. conducted chemical spraying operations on the roadways and beneath power lines, respectively.

#### E. PLANNED BURNING.

None attempted.

#### F. FIRES.

We experienced no fires within refuge boundaries this year. Fall rains kept the fire danger low during the normal critical period.

### IV. RESOURCE MANAGEMENT.

#### A. GRAZING.

No grazing permits on the refuge.

#### B. HAYING.

Ten permittees harvested a total of 480.2 tons of hay from approximately 422 acres on the refuge. Stumpage price for tame hay was increased from \$1.00 to \$1.50 per ton. The refuge received an income of \$669.60 from the haying operations.

#### C. FUR HARVEST.

Three permittee trappers removed a total of 153 muskrats, 10 mink, 24 beaver, 2 raccoon, and 1 otter from the refuge during the fall trapping season. The refuge received as its share: 5 mink and 77 muskrats which were shipped to market December 1, 1959. 70 beaver were previously removed during the special spring trapping program.

#### D. TIMBER REMOVAL.

Three regular timber permits were issued for removal of materials in accordance with the approved Timber Management Plan. The operators are old hands and no special problems are anticipated under these permits.

The "Forestry" project which is an operation designed to help out the financial problems of Becker County by employing Indian relief clients on an approved project of timber harvest involving thinning over stocked stands, removal of mature trees and general approved TSI operations.

All details have not as yet been worked up, as the project is in the "borning" process. Briefly, however it operates in this way:

The refuge employs a foreman who also doubles by transporting the workers from Ponsford - the foreman acts as record keeper, and sometimes operates the refuge Cletrac for skidding, besides general supervision and marking trees for cutting.

The cutters are on a "piece-work" basis. They market their products either by delivery to a buyer in Park Rapids, or (in the case

of sawlogs) by delivery on skidways in the refuge, where a portable sawmill operator (permittee Carl Jensen) buys the logs and saws them into lumber on the spot.

The refuge scales the truckloads as they leave the refuge, or at such time as the skidways are filled. The cutters pays the approved stumpage rates.

The County credits each cutter with \$.05 for each "cull" post produced. The refuge hauls the posts to headquarters, and thereupon charges the County \$.01 per post for handling. Refuge personnel sell the posts for the County - direct to buyers.

In the event the local markets do not purchase posts throughout the usual relief months of December-March, the refuge will purchase the posts from the cutters. These posts have to be then peeled, seasoned, treated and sold to various buyers. Over 3,000 posts have in this way been contracted for.

The Becker County Sportsmen Club, and the local chapter of the Isaac Walton League both took part in a salvage of balsam tops, resulting from permittee Carl Jensen's logging operations.

Club members cut off tops of large balsam that had been cut by Jensen, dragged them through the woods to the haul road, and transported them to Detroit Lakes. One of the Club members handled sale of the tops through his lumber yard. Each organization realized about \$15.00 from the operations. They paid Mr. Jensen \$.15 per top.

In another year we may have these two clubs undertake some actual thinning in balsam and spruce stands - enough so they both can get a little "cash" into their treasuries.

#### E. COMMERCIAL FISHING.

Bullhead netting operations in Tamarac Lake yielded only 4,000 pounds of non-salable small bullheads in two weeks and the operation was discontinued. The same contractor plans to resume operations on Tamarac Lake later this winter if the oxygen content remains sufficient.

#### F. OTHER USES.

##### Wild Rice Program.

Despite considerable loss of wild rice due to rains and strong winds, the 1959 ricing season on the refuge was quite successful. This has been a very poor year for wild rice throughout much of the state and many natural excellent ricing areas did not produce a harvestable crops.

Unless rejected because of recent ricing or game law violations, all old ricers were allowed to renew their permit. New pickers were selected by recommendations of the old ricers and endorsement by the County Welfare Office which gave priority to "hardship" cases



and those families on relief.

To aid in the enforcement of ricing regulations and in the weighing of rice at the end of each day, the refuge employed Indian permittees as rice wardens on the different lakes. This arrangement proved quite satisfactory in most cases and we hope it may continue.

In the order of pounds of rice harvested, the following lakes were open to the Indian permittees: Flat Lake (11,689), Little Flat (10,501), Lower Chippewa (4,836), Upper Chippewa (4,547), Egg Lakes and Carmine (3,789), Booth Lake (3,178), Two Island (3,161), and Wauboose (550). A record number of '53 permittees and their helpers harvested a total of 42,251 pounds. The refuge's share of 12% amounted to approximately 4,913 pounds. 200 pounds of this was planted in refuge waters and 4,067 pounds was sold. Loss of approximately 646 pounds of the refuge's share is credited mainly to the drying of excess moisture before sale.

3,984 pounds of the refuge's share was sold by writte bid for an average of \$.52 per pound - total of \$2,014.11. An additional 83 pounds was processed and the finished 39 pounds sold for \$78.00. Daily auctions were held at headquarters to sell the refuge's share, and this competitive gathering of the buyers tended to increase the price received by the Indian permittees for their unfinished rice. The average price for unfinished rice was the highest on record and reflected the poor production throughout much of the state.

No accurate records were kept on the exact time each picker spent ricing, so a full day (6 hours) was credited to each man that spent any time ricing. Total average man hours spent ricing was 46.5. Using the previously mentioned \$.52 per pound as the average price received by the pickers, the total average income was \$173.25 and the average hourly income was \$3.83. The amounts harvested by the pickers varied considerably, with a difference of \$7.23 - \$1.80 earned by the individual ricer per hour.

There is some dissatisfaction among the ricers - especially the tribal officials- with our present ricing agreements, especially the proposed 15% refuge share in 1960. These differences are being used by officers campaigning for re-election, who propose that the tribal committee have more power in determining the rules and regulations governing the harvesting of the rice on the refuge. Since these individuals fail to consider many factors, such as the position of the Becker County Welfare Office, prior game law violations, residency in Becker County, waterfowl use, and even State Ricing Laws, we feel that their control must be kept limited. The most pressing of all plans for future ricing activities is to reach a reasonable agreement with the pickers and the tribal council.

As previously stated, 39 pounds of finished rice, processed at a cost of \$.15 per pound, was sold for \$2.00 per pound. We think that we can substantially increase the refuge income by having the refuge's share processed before sale. There is also the possibility of

constructing our own processing plant at a nominal cost and processing both our own and some of the permittee's share.

With the desired acquisition of the entire shore line of several lakes and the subsequent ability to regulate the water level within these lakes, we hope to produce new rice beds within the refuge. With the eventual opening of these new areas and allowing a greater number of permittees, we could substantially increase the revenue for the pickers, County, and the refuge.

#### V. FIELD INVESTIGATION OR APPLIED RESEARCH

##### Fall Pothole Use Determination

Two systematic counts were made of all numbered potholes that could be located. Summarized data from these two counts is given in the table below:

Dates of Counts	Number Potholes Checked	Potholes in Good Condition	Potholes Waterfowl Flushed	Total Waterfowl Observed	General Weather Conditions
9/30-10/2	145	93	26	153	Cool, calm and overcast
10/19-22	142	98	14	88	Cool, windy & scattered clouds

Considering that the potholes were actually visited for only a few minutes during the day, estimated waterfowl use would be correspondingly higher for the fall period. In order of abundance, the following species of waterfowl were observed: Mallard (178), blue winged teal (32), wood duck (17), scaup (10), and single observations of baldpate, green-winged teal, black duck, and redhead. Many potholes which did not have sufficient water for waterfowl use were utilized by shorebirds, especially the Wilson snipe.

In addition to the systematic counts, random observations revealed daily or frequent use by waterfowl.

Due to the concentration of the waterfowl on the larger lakes for migration, determination of increased use due to hunting pressure could not be checked. For greater success in obtaining this data in the following years, we will strive to begin the second count immediately after the opening of the hunting season.

##### Aerial Spray Plots

A five year study is in progress on the effects of the aerial application of 2,4D to improve deer browse. Herbicide was applied on 8 two-acre plots, two each in the following cover types: aspen, jack pine, oak, and upland brush. The following information is summarized from Mr. Lauritz Krefting's report of January 4, 1960. The findings reported



here represent the results one year after spraying; and although the conclusions must be regarded as tentative, many findings are significant.

There was a marked difference of the effects of the herbicide by cover type, browse preference groups, and within each cover type and preference group. Under the aspen and jack pine canopies the kill of stems was significantly less and the regrowth significantly more than in the oak and upland brush types. Generally for all cover types, mortality was considerably higher for the groups of species rated as low in preference, and regrowth of sprouts and suckers was significantly greater for the preferred group of browse species.

Observations thus far indicate that the herbicide has no killing effect on herbaceous plants.

From a deer habitat improvement standpoint, the results are quite encouraging. Mr. Krefting commented at Regional Conference that he desired to expand the spraying operation on a larger scale this summer.

## VI. PUBLIC RELATIONS

### A. RECREATIONAL USES

With the exception of Wauboose and North Tamarac, all picnic areas remained open for the entire year. Wauboose was closed August 30 in conjunction with the wild ricing season, and North Tamarac was closed September 30, at the end of the fishing season on the refuge. Most of the picnic areas received very light use, however, the combination boat landing and picnic area at East Tamarac received heavy use on the weekends.

Sightseeing and photography attracted a few visitors, especially during the first weekend of the ruffed grouse season. Most amateur ornithologists are disappointed in the limited number of shorebirds utilizing the refuge.

For hunting and fishing use, refer to Section D under Public Relations and Section G under Wildlife, respectively.

### B. REFUGE VISITORS

<u>Date</u>	<u>Name of Visitor</u>	<u>Organization or Address</u>	<u>Purpose of Visit</u>
9/2	Audrey Walk	Mingo Refuge	Deliver equipment
Periodical	N. Blixt	State Warden	Law enforcement
9/9	Art Hawkins	FWS, Mpls., Minn.	" "
9/9	Dave Fisher	GMA, Fergus Falls, Minn.	" "
9/9	Forrest Lee	Minn. Cons. Dept.	Status Waterfowl
	Mr. Johnson	" " "	" "
	Mr. McArdle	" " "	" "
9/14	Mr. Norman	Chautauqua Refuge	Deliver geese
9/14	Grady Mann	WHP biologist	Waterfowl problems
Periodical	Ted Abrahamson	State Warden	Law enforcement

<u>Date</u>	<u>Name of Visitor</u>	<u>Organization or Address</u>	<u>Purpose of Visit</u>
10/1	J.P. Liemandt	State Warden Svc.	Law enforcement
10/7	Geological Service	Personnel	Boundary lines
10/7	Grady Mann	WHP biologist	Refuge income
	Periodical N. Blixt	State warden	Deer season
	Periodical T. Abrahamson	State warden	" "
11/17	H. Dill	Mud Lake Refuge	Deliver 40 geese
11/24	A. Hoghaug	Becker Co. Welfare Bd.	Indian relief project
11/24	J. Wallace	" " " "	" " "
12/7	A. Hoghaug	" " " "	" " "
12/8	L. Higdem	Wilcox Lumber Co.	Obtaining posts
12/29	Grady Mann	River Basins	Refuge operations

C. REUSE PARTICIPATION.

A number of appearances were made before various groups as follows:

Organization	Material Used	Attendance	Presentation Made By
Kiwanis Club Detroit Lakes	Slides Talk	50	9/8 R. Burnard
Isaak Walton Detroit Lakes	Slides Talk	20	R. Hunt 12/1
Becker Co. Sports men - Detroit Lakes		8	12/5
Isaak Walton Detroit Lakes		6	12/6
Chippewa Tribal Council	Discussed Rice operation	35	R. Hunt 12/29
Lake Sybil Sportsmen Vergus	Movie	50	Hunt Peabody 12/7

Salvaged  
Balsam tops

Salvaged  
Balsam tops

D. HUNTINGDeer

With the exception of two closed areas as indicated on the map (See Appendix) the entire refuge was open for hunting of deer during the regular State season of November 7 - 11, 1959.

Data in the chart below gives a comparison between the last three hunting seasons on the refuge; all of which were five days in length, and with the same approximate open area.

Year	Estimated No. Hunters	Estimated No. Deer Harvested	Hunting Success
1957	3,000	361	12%
1958	2,185	230	10%
1959	1,611	285	18%

A total of 120 deer, taken on the refuge, were checked through the single check station operated by refuge personnel. Composition was as follows:

Total adult bucks	30		
Total adult does	40	Total adults	70
Total buck fawn	30		
Total doe fawn	20	Total fawns	50

The sex ratio, 100:100, indicates a favorable balance. 42 percent of the deer checked through the station were fawns, indicating a good reproduction for this year. This may be attributed to the relative mild winter and the improved forage conditions.

Waterfowl

With the exception of the first few opening days, hunting pressure was extremely light on the refuge and it became increasingly difficult to locate hunters in the field in order to determine hunting success. Tamarac, Pine, Mud, and Evans Lakes were open to the public and several new access trails were provided where needed. The majority of the hunters utilized Tamarac throughout the season. Pine Lake remained practically barren of waterfowl with the exception of small flights of scaup late in the season, and received very little hunter use. Although Mud Lake usually held a representative number of waterfowl daily, very little use was made of it other than opening day.

The first few days found mallards comprising the majority of the bags, with ring-necked ducks and scaup replacing it one week later.

Very little use was made of the potholes, however, for individuals without the use of boats or dogs, the small potholes offer the most suitable habitat.

### Upland Game

The opening weekend attracted a good number of hunters but few were observed after that date. Despite a good population of ruffed grouse throughout the open area, very few were taken. It appears as though very little interest is taken in the hunting of squirrels and rabbits and no hunters were seen with these species in their bag.

### E. VIOLATIONS

Refuge personnel were greatly aided in law enforcement by the commendable cooperation of Norman Blixt and Ted Abrahamson, State wardens from Osage and Detroit Lakes, respectively.

Manager Hunt, utilizing a commercial plane from Detroit Lakes to cover the refuge on two rest days, observed no ricing violations. Evidence indicated that night ricing was being committed on the refuge, but organized stake outs on two favorable nights failed to yield any apprehensions. Ricing violations were reported in the May - August narrative report, but are listed again since they occurred during this period.

Gun clubs on Rice, Blackbird, and Tamarac Lakes were checked but revealed no evidence of waterfowl hunting violations. It is the opinion of refuge personnel that very little violation occurred during the waterfowl season.

Deer shining was common throughout this area prior to the deer season, and refuge personnel worked with state wardens five nights, both on and around refuge lands. The use of a two-way radio, rented one month from the state, proved quite satisfactory in this dual cooperation.

A list of violations apprehended either on refuge lands or by refuge personnel is found in the following table:

<u>Name</u>	<u>Address</u>	<u>Violation</u>	<u>Court Action</u>	<u>Warden</u>
Everett McMillen	Park Rapids	Ricing	\$10.00/4.00	Peabody
John Ryllonen	" "	in	\$10.00/4.00	& Stone
Earl Hawkins	" "	Restricted	\$10.00/4.00	"
Harry McMillen	" "	Waters	\$10.00/4.00	"
Maurice Jackson	Ponsford	Rice w/o permit	10.00/4.50	Blixt
Isabel Stone	Texas	Fraudulent		
		License Appl.	10.00/4.50	"
			(suspended)	
Theodore Allen	Rochester	1 extra duck	\$15.00/4.50	Ellerbrock
Arthur Wiegele	St. Paul	" " "	50.00/4.50	Hunt/Bonde
Ray Knajdel	"	" " "	50.00/4.50	" "
Ray Knajdel	"	Transport		
		loaded firearm	50.00/4.50	" "
			(\$40.00 suspended)	
Chester Field	Detroit Lakes	No plug in gun	10.00/4.50	Bonde

<u>Name</u>	<u>Address</u>	<u>Violation</u>	<u>Court Action</u>	<u>Warden</u>
Geo. Courneya	Detroit Lakes	Deer in closed area	\$25.00/4.50	Stillings & Schmidt
Donald Wanek	Doran, Minn.	Trans. loaded firearm	25.00/4.50	Stillings & Schmidt
Herman Bottin	Fulda, Minn.	Trans loaded firearm	25.00/4.50	Stillings & Schmidt
Neil Nelson	Moorhead, Minn.	Trans. loaded firearm	25.00/4.50	Peabody & Stillings
John E. Baker	Wichita, Kans.	Trans. loaded firearm	25.00/4.50	Stillings & Schmidt
John E. Baker,	Wichita, Kans.	Illegal resident license	25.00/4.50 (suspended)	Stillings & Schmidt
Roy J. Warren	Park Rapids	Trans. loaded firearm	25.00/4.50	Peabody & Stillings
Roy J. Warren	Park Rapids	Aid/assist taking deer w/o license	25.00/4.50 (15.00 suspended)	Peabody & Stillings
Mrs. John Johnson	Ogema, Minn.	Illegal possession of Deer	10.00/4.50	Blixt, Stillings, Hunt

## VII. OTHER ITEMS

### A. ITEMS OF INTEREST

Owners of hunting lodges and gun clubs have been going "all out" in their efforts to prevent acquisition of remaining private-owned lands within the authorized boundaries.

We certainly do not believe we should make any efforts, or take any action that would be deliberate inciting of these groups. On the other hand we believe we should tell the public (at Sportsmen Club meetings, etc.) that the Service has definite plans toward completion of the acquisition of remaining lands, and that the purchase of these lands will be accomplished as soon as funds become available.

We have had numerous occasions when we have been asked point-blank just why the Service has been so slow in acquiring the gun clubs lands when they moved rather quickly on the farm owners property. We do realize the problems the Service has in this case but we, at the same time, are rather hard put to offer a reasonable sounding reply to these queries.

Sections II, III - B, C, D, E, F, IV - A, B, C, E, F, V, VI - A, D, E, NR forms by Assistant Manager Peabody (Trainee).

Sections I, III - A, IV - D, VI - B, C, VII by Manager Hunt.

NR forms and typing by Clerk-Typist Wayne Schmidt and Assistant Manager Peabody (Trainee).

SIGNATURE PAGE

Submitted by:

R. M. Hunt  
(Signature)

Date: 2/12/60

Ref. Mgr.  
(Title)

Approved, Regional Office:

Date: 2-23-60

James H. Carpenter  
(Signature)

Regional Refuge Supervisor



WATERFOWL

REFUGE TAMARAC NATIONAL WILDLIFE REFUGE

MONTHS OF September TO December, 1959

(1) Species	(2) Weeks of reporting period									
	: 9/5 : 1	: 9/12 : 2	: 9/19 : 3	: 9/26 : 4	: 10/3 : 5	: 10/10 : 6	: 10/17 : 7	: 10/24 : 8	: 10/31 : 9	: 11/7 : 10
Swans:										
Whistling Trumpeter										
Geese:										
Canada	35	35	35	35	35	35	75	50	50	----
Cackling Brant										
White-fronted Snow							500			
Blue Other							500			
Ducks:										
Mallard	3,500	4,000	4,000	7,000	7,000	7,000	15,000	7,000	2,500	1,000
Black	----	10	10	10	100	100	250	250	250	50
Gadwall										
Baldpate	70	70	70	70	100	200	350	500	-----	-----
Pintail	10	10	10	10	10	300	300	50	50	-----
Green-winged teal						50	200	200	300	100
Blue-winged teal	3,200	3,500	3,500	2,000	1,500	1,200	300	-----	-----	-----
Cinnamon teal										
Shoveler	30	30	30	30	----	----	50	-----	-----	-----
Wood	1,000	1,200	1,200	1,200	1,200	1,200	400	50	-----	-----
Redhead	50	50	50	50	50	200	700	2,000	500	100
Ring-necked	2,300	2,300	2,300	2,500	10,000	15,000	28,000	25,000	15,000	3,000
Canvasback				10	10	50	50	50	50	50
Scaup	10	10	10	10	50	200	350	20,000	25,000	5,000
Goldeneye	60	----	60	60	----	50	50	50	-----	-----
Bufflehead							150	100	50	-----
Ruddy	140	150	150	150	50	50	50	-----	-----	-----
Other										
Coot:		2,500	7,000	40,000	50,000	55,000	50,000	25,000	5000	500

WATERFOWL  
 (Continuation Sheet)

REFUGE TAMARAC NATIONAL WILDLIFE REFUGE

MONTHS OF September TO December, 1959

(1) Species	(2) Weeks of reporting period								(3) Estimated waterfowl days use	(4) Production Broods: Estimated seen : total
	11	12	13	14	15	16	17	18		
Swans:										
Whistling										
Trumpeter										
Geese:										
Canada	NO WATERFOWL PRESENT								3,695	
Cackling										
Brant										
White-fronted										
Snow									3,500	
Blue									3,500	
Other										
Ducks:										
Mallard									406,000	
Black									7,210	
Gadwall										
Baldpate									10,010	
Pintail									5,250	
Green-winged teal									5,950	
Blue-winged teal									106,400	
Cinnamon teal										
Shoveler									1,190	
Wood									52,150	
Redhead									26,250	
Ring-necked									737,800	
Canvasback									1,890	
Scaup									354,480	
Goldeneye									2,310	
Bufflehead									2,100	
Ruddy									5,180	
Other										
Coot:									1,613,500	

(over)

	(5) Total Days Use	(6) Peak Number	(7) Total Production
Swans	:	1	:
Geese	10,695	1,075	:
Ducks	1,724,170	55,250	:
Coots	1,613,500	55,000	:

# SUMMARY

Principal feeding areas Wild rice beds in Little Flat, Chippewa, Carmine, Booth, and Squaw Lakes; aquatics in Flat, Tamarac, Egg Lakes, Wauboose, and Dry Lakes; and the grain fields between Chippewa and Squaw Lakes

Principal nesting areas

Reported by Ned I. Peabody, Asst. Refuge Mgr.

## 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).



### COMPARISON of 1958 and 1959 WATERFOWL POPULATIONS

	Mallards		Blue-winged teal		Woodduck		Ring-necked		Scaup		Coot	
Dates	1958	1959	1958	1959	1958	1959	1958	1959	1958	1959	1958	1959
9 - 6	2,200	3,500	1,800	3,200	500	1,000	2,000	2,300	-	10	1,000	-
9 - 13	2,200	4,000	1,800	3,500	500	1,200	2,000	2,300	-	10	17,000	2,500
9 - 20	3,000	4,000	1,800	3,500	500	1,200	2,000	2,300	-	10	17,000	7,000
9 - 27	3,500	7,000	200	2,000	600	1,200	3,000	2,500	-	10	30,000	40,000
10 - 4	12,000	7,000	-	1,500	400	1,200	22,000	10,000	500	50	40,000	50,000
10 - 11	15,000	7,000	20	1,200	50	1,200	30,000	15,000	200	200	40,00	55,000
10 - 18	15,000	15,000	-	300	50	400	25,000	28,000	400	350	30,000	50,000
10 - 25	15,000	7,000	-	-	50	50	20,000	25,000	3,000	20,000	30,000	25,000
11 - 1	2,000	2,500	-	-	-	-	10,000	15,000	8,000	25,000	15,000	10,000
11 - 8	400	1,000	-	-	-	-	3,500	3,000	7,000	5,000	700	500
11 - 15	100	-	-	-	-	-	200	-	1,500	-	-	-

[illegible]

## (Proposed NR Form)

REFUGE WATERFOWL HUNTING BAG AND SPECIES CHECK

(1) Weeks of Hunting	(2) No. Hunters Checked	(3) Hunter Hours	(4) Waterfowl Species and Nos. of Each Bagged	(5) Crippling Loss	(6) Total Kill	(7) Est. No. of Hunters	(8) Total Est. Kill
10/7 - 11	29	187	Mallard (27), Pintail (9), Blue-winged teal (6), Scaup (6), Ring-necked (6), Baldpate (5), Green-winged teal (3), Redheads (2), Wood duck (2), and Coot (1)	9 recorded for 19 hunters	76 Partial	285	745 Partial
10/12 - 18	17	167	Ring-necked (26), Scaup (23), Redhead (9), Bufflehead (2), Mallard (1), Baldpate (1), Pintail (1), Hooded Merganser (1)	4 recorded for 9 hunters	68 Partial	175	700 Partial
10/19 - 25	4	10	Scaup (1), Red-breasted merganser (1)	1	3	90	68
10/26 - 11/1	3	9	Scaup (1), Green-winged teal (1)	0	2	70	47
11/2 25	0	0		0	0	20	10
TOTALS	53	373	Ring-necked (32), Scaup (31), Mallard (28), Redhead (11), Pintail (10), Baldpate (6), Blue-winged teal (6), Green-winged teal (4), Wood duck (2), Bufflehead (2), Coot (1), Hooded merganser (1), Red-breasted merganser (1) <u>Total of 135</u>	14 recorded for 35 hunters  <u>Partial</u>	149  Since the crippling loss was partial, this also <u>partial</u>	640	1,660

3-1751

Form NR-1A

(Nov. 1945)

MIGRATORY BIRDS  
(other than waterfowl)Refuge Tamarac National Wildlife Refuge Months of September to December 1959

(1) Species  Common Name	(2) First Seen		(3) Peak Numbers		(4) Last Seen		(5) Production			(6) Total Estimated
	Number	Date	Number	Date	Number	Date	Number Colonies	Total # Nests	Total Young	Number
<b>I. <u>Water and Marsh Birds:</u></b>										
Pied-billed Grebe	Present		200	9/10-20						300
Eared Grebe		None	Observed							10
Red-necked Grebe										10
Common Loon	Present				3	11/5				50
Great Blue Herron	"		300	9/10-30	1	10/27				400
American Bittern	"				1	10/23				50
Hooded Mergansers	1,000	10/19	1,500	10/19-31	1,128	10/27				1,500
Common Mergansers	1	10/18	50	10/18-31	2	11/5				100
Sora Rail	Present		800	9/1-20						800
Cormorant	"									10-20
<b>II. <u>Shorebirds, Gulls and Terns:</u></b>										
Killdeer	Present				4	10/11				30
Sandpiper	"				1	10/20				50
Wilson Snipe	"				6	10/21				100
Ring-billed Gull	"		300	10/11-20						500
Herring Gulls										75
Franklin Gull	Present		50	10/11-20						75

(over)



(1)	(2)	(3)	(4)	(5)	(6)
III. <u>Doves and Pigeons:</u>					
Mourning dove	Present		1	10/1	500
White-winged dove					
IV. <u>Predaceous Birds:</u>					
Golden eagle	1	10/6			25
Duck hawk					
Horned owl	Present				50
Magpie	1	10/23			75
Raven	9	11/9			Increasing
Crow	Present	1,000	9/20-30	1	11/14
Turkey Vulture	"			1	10/5
Marsh Hawk	"	50	9/1-20		
Red-tailed Hawk	"	75	9/1-20		
Rough-legged Hawk	"				
Broad-winged Hawk	"				
Copper's Hawk	"				
Sparrow and Pigeon Hawk		40 & 30	10/1-10		
Bald Eagle	Present		1	11/2	40 & 30
Osprey	1	9/9			10-20
Barred Owl	Present				40

#### 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.

Refuge Tamarac National Wildlife Refuge Months of September to December, 1959

[illegible]



## 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.

3-1753  
Form NR-3  
(June 1945)

# BIG GAME

Refuge Tamarac National Wildlife Refuge Calendar Year 1959

(1) Species	(2) Density	(3) Young Produced	(4) Removals				(5) Losses			(6) Introductions		(7) Estimated Total Refuge Population		(8) Sex Ratio
			Hunting	For Re- stocking	Sold	For Research	Predation	Disease	Winter Loss	Number	Source	At period of Greatest use	As of Dec. 31	
Common Name	Cover types, total Acreage of Habitat	Number												
White-tailed Deer	30,000 acres	135	285									465	*180-200	100:100
Black Bear		2-3										5-10	5-10	
Moose												2	No evidence	

Remarks: Reports of signs indicates two moose were utilizing an area adjacent to the north boundary of the refuge immediately prior to the hunting season. No further signs have been observed.

\* Pending completion of winter inventory.

Reported by \_\_\_\_\_

## INSTRUCTIONS

### Form NR-3 - BIG GAME

- (1) SPECIES: Use correct common name; i.e., Mule deer, black-tailed deer, white-tailed deer. It is unnecessary to indicate sub-species such as northern or Louisiana white-tailed deer.
- (2) DENSITY: 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 total number of young produced on refuge.
- (4) REMOVALS: Indicate total number in each category removed during the year.
- (5) LOSSES: On the basis of known records or reliable estimates indicate total losses in each category during the year.
- (6) INTRODUCTIONS: Indicate the number and refuge or agency from which stock was secured.
- (7) TOTAL REFUGE POPULATION: Give the estimated population of each species on the refuge at period of its greatest abundance and also as of Dec. 31.
- (8) SEX RATIO: Indicate the percentage of males and females of each species as determined from field observations or through removals.

DISEASE

Refuge Tamarac National Wildlife Refuge Year 1959

Botulism

Period of outbreak None

Period of heaviest losses \_\_\_\_\_

Losses:

	Actual Count	Estimated
(a) Waterfowl	_____	_____
(b) Shorebirds	_____	_____
(c) Other	_____	_____

Number Hospitalized	No. Recovered	% Recovered
(a) Waterfowl	_____	_____
(b) Shorebirds	_____	_____
(c) Other	_____	_____

Areas affected (location and approximate acreage) \_\_\_\_\_

Water conditions (average depth of water in sickness areas, reflooding of exposed flats, etc.) \_\_\_\_\_

Condition of vegetation and invertebrate life \_\_\_\_\_

Remarks No evidence

Lead Poisoning or other Disease

Kind of disease None

Species affected \_\_\_\_\_

Number Affected Species	Actual Count	Estimated
_____	_____	_____
_____	_____	_____
_____	_____	_____

Number Recovered \_\_\_\_\_

Number lost \_\_\_\_\_

Source of infection \_\_\_\_\_

Water conditions \_\_\_\_\_

Food conditions \_\_\_\_\_

Remarks No evidence



## PUBLIC USE

Refuge Tamarac National Wildlife RefugeCalendar Year 1959

Total Use Visitor-Days (20,771)	Hunting Use (2,751)	Fishing Use ( 3,000)	Miscellaneous Use (15,020)
---------------------------------------	---------------------------	----------------------------	----------------------------------

Where practical, by means of occasional spot checks, or other methods, show by percent and visitor-days the breakdown of the above figures and other related information:

Hunting (on refuge lands):	Percent	Visitor-Days	Acres	Miscellaneous	Percent	Visitor-Days
Waterfowl	<u>3.1</u>	<u>640</u>	<u>3,340</u>	Recreation*	<u>57.8</u>	<u>12,000</u>
Upland Game	<u>2.4</u>	<u>500</u>	<u>4,300</u>	Official	<u>1.0</u>	<u>200</u>
Big Game	<u>7.7</u>	<u>1,611</u>	<u>28,300</u>	Economic Use	<u>8.8</u>	<u>1,820</u>
Supervised by Refuge		By State	No. of Blinds	* Other *	<u>4.8</u>	<u>1,000</u>

Hunting (off  
refuge Lands: Estimated man-days of hunting on lands

Adjacent to the refuge 5,000 (These figures  
should not be included in hunting-use totals above).

Fishing:

Acres of ponds or lakes 3,000 and miles of streams  
           open to fishing.

## Comments:

Economic use includes the Indian Ricers--- 106  
with an average of 7.8 days for each  
ricer = 826 visitor-days

Decrease in waterfowl hunting partly due to  
the early freeze.

\*\* Others\*\* includes visits and tours and lecture  
for scouts, 4-H groups etc.

\* including picnicking, swimming, boating, camping,  
viewing wildlife, and photographing.

3-1756  
Form NR-6  
(April 1946)

FISH

Refuge.....Tamarac National Wildlife Refuge.....Year 194~~4~~59

Species	Relative Abundance	Sport Fishing		Commercial Fishing		Restocking		Number removed for Restocking
		Man days Fishing	Number Taken	No. of Permits	Pounds Taken	Number Stocked	Area Stocked	
Northern Pike	Abundant	Chippewa Tamarac	2,000					None
Walleye Pike	Common but small	Tamarac	500			400,000	Tamarac	"
Bullheads	Abundant	Most Lakes	2,000	1	4,000 too small for sale value			"
Suckers	Abundant	Most Lakes	400*					"
Pumpkinseed )	Common							"
Crappie )	Few	Rice Lake	Negligible					"
Bluegill )	Few							"

REMARKS: \*\*\* Taken on spring spawning run up the creeks

PLANTINGS  
(Marsh - Aquatic - Upland)

Refuge.....Tamarac National Wildlife Refuge.....Year 1959

Species	Location of Area Planted	Rate of Seeding or Planting	Amount Planted (Acres or Yards of Shoreline)	Amount & Nature of Propagules	Date of Planting	Survival	Cause of Loss	Remarks
Red Pine	Headquarters	30		3-5' trees	May	All		
Red Cedar	Clerk's residence	8		4-5' trees	May	5	Deer browsing	
Hardstem Bulrush	4 Potholes on the Warnke group	Plants divided equally between 4 potholes approx. .10 - .05 acres in size		30 clumps	Aug. 13	To be determined in 1960		Aquatic plantings made in 1958 show good survival and growth
Lemna minor				50 gallons	"			
Lemna triselca				30 gallons	"			
Wild Rice	Jim's Marsh	11 lbs. per acre	10 acres	113 pounds	Sept. 10	To be determined in 1960		Scattered stands of wild rice in Evans from 1958 plant
	Evans Lake	4 lbs. per acre	20 acres	87 pounds	Sept. 11	"		

TOTAL ACREAGE PLANTED:

Marsh and aquatic.....30.3  
Hedgerows, cover patches.....None  
Food strips, food patches.....None  
Forest plantings.....None

3-1758  
Form NR-8  
(Rev. Jan. 1956)

Fish and Wildlife Service Branch of Wildlife Refuges

CULTIVATED CROPS - HAYING - GRAZING (Permittee)

Refuge Tamarac National Wildlife Refuge County Becker State Minnesota

Cultivated Crops Grown	Permittee's Share Harvested		Government's Share or Return				Total Acreage Planted	Green Manure, Cover and Water- fowl Browsing Crops Type and Kind	Total Acreage
	Acres	Bu./Tons	Harvested		Unharvested				
			Acres	Bu./Tons	Acres	Bu./Tons			
Wheat	13	195	33	530			46		
Oats	104	4,035					104		
Barley	37	717	21	422	9	180	67		
Corn	3	258					3		
Millet			7	25			7		
Totals	157		61		9		227	Fallow Ag. Land	

No. of Permittees: Agricultural Operations 6 Haying Operations 10 Grazing Operations None

Hay - Improved (Specify Kind)	Tons Harvested	Acres	Cash Revenue	GRAZING	Number Animals	AUM'S	Cash Revenue	ACREAGE
Clover and Alfalfa (Mixed)	378.8	329.5	568.20 (1.50 per ton)	1. Cattle				
				2. Other				
				1. Total Refuge Acreage Under Cultivation				527
Hay - Wild	101.4	92.2	101.40	2. Acreage Cultivated as Service Operation				300



DIRECTIONS FOR PREPARING FORM NR-8  
CULTIVATED CROPS - HAYING - GRAZING

Report Form NR-8 should be prepared on a calendar-year basis for all crops which were planted during the calendar year and for haying and grazing operations carried on during the same period.

Separate reports shall be furnished for Refuge lands in each county when a refuge is located in more than one county or State.

Cultivated Crops Grown - List all crops planted, grown and harvested on the refuge during the reporting period regardless of purpose. Crops in kind which have been planted by more than one permittee or this Service shall be combined for reporting purposes.

Permittee's Share - Only the number of acres utilized by the permittee for his own benefit should be shown under the Acres column, and only the number of bushels of farm crops harvested by the permittee for himself should be shown under the Bushels Harvested column. Report all crops harvested in bushels or fractions thereof except such crops as silage, watermelons, cotton, tobacco, and hay, which should be reported in tons or fractions thereof.

Government's Share or Return - Harvested - Show the acreage and number of bushels harvested for the Government of crops produced by permittees or refuge personnel. Unharvested - Show the exact acreage and the estimated number of bushels of grain available for wildlife. If grazing is made available to waterfowl through the planting of grain, cover, green manure, grazing or hay crops, estimate the tonnage of green food produced or utilized and report under Bushels Unharvested column.

Total Acreage Planted - Report all acreage planted, including crop failures.

Green Manure, Cover and Waterfowl Grazing Crops - Specify the acreage, kind and purpose of the crop. These crops and the acreage may be duplicated under cultivated crops if planted during the year, or a duplication may occur under hay if the crop results from a perennial planting.

Hay - Improved - List separately the kinds of improved hay grown. Annual plantings should also be reported under Cultivated Crops, and perennial hay should be listed in the same manner at time of planting.

Total Refuge Acreage Under Cultivation - Report total land area devoted to agricultural purposes during the year.

3-1758  
Form NR-8  
(Rev. Jan. 1956)

Fish and Wildlife Service Branch of Wildlife Refuges

CULTIVATED CROPS - HAYING - GRAZING (Refuge Personnel)

Refuge Tamarac National Wildlife Refuge County Becker State Minnesota

Cultivated Crops Grown	Permittee's Share Harvested		Government's Share or Return				Total Acreage Planted	Green Manure, Cover and Water- fowl Browsing Crops Type and Kind	Total Acreage
	Acres	Bu./Tons	Harvested		Unharvested				
			Acres	Bu./Tons	Acres	Bu./Tons			
Corn					25	1,250	25	Soybeans	103
Barley					12	240	12	Grasses	38
Millet					3	12	3	Rye	20
Wheat			9	80 (Mixed Rye)			9	Winter Wheat	70
Totals			9		40		49		231
								Fallow Ag. Land	20

No. of Permittees: Agricultural Operations \_\_\_\_\_ Haying Operations \_\_\_\_\_ Grazing Operations \_\_\_\_\_

Hay - Improved (Specify Kind)	Tons Harvested	Acres	Cash Revenue	GRAZING	Number Animals	AUM'S	Cash Revenue	ACREAGE
				1. Cattle				
				2. Other				
				1. Total Refuge Acreage Under Cultivation				
Hay - Wild				2. Acreage Cultivated as Service Operation				

DIRECTIONS FOR PREPARING FORM NR-8  
CULTIVATED CROPS - HAYING - GRAZING

Report Form NR-8 should be prepared on a calendar-year basis for all crops which were planted during the calendar year and for haying and grazing operations carried on during the same period.

Separate reports shall be furnished for Refuge lands in each county when a refuge is located in more than one county or State.

Cultivated Crops Grown - List all crops planted, grown and harvested on the refuge during the reporting period regardless of purpose. Crops in kind which have been planted by more than one permittee or this Service shall be combined for reporting purposes.

Permittee's Share - Only the number of acres utilized by the permittee for his own benefit should be shown under the Acres column, and only the number of bushels of farm crops harvested by the permittee for himself should be shown under the Bushels Harvested column. Report all crops harvested in bushels or fractions thereof except such crops as silage, watermelons, cotton, tobacco, and hay, which should be reported in tons or fractions thereof.

Government's Share or Return - Harvested - Show the acreage and number of bushels harvested for the Government of crops produced by permittees or refuge personnel. Unharvested - Show the exact acreage and the estimated number of bushels of grain available for wildlife. If grazing is made available to waterfowl through the planting of grain, cover, green manure, grazing or hay crops, estimate the tonnage of green food produced or utilized and report under Bushels Unharvested column.

Total Acreage Planted - Report all acreage planted, including crop failures.

Green Manure, Cover and Waterfowl Grazing Crops - Specify the acreage, kind and purpose of the crop. These crops and the acreage may be duplicated under cultivated crops if planted during the year, or a duplication may occur under hay if the crop results from a perennial planting.

Hay - Improved - List separately the kinds of improved hay grown. Annual plantings should also be reported under Cultivated Crops, and perennial hay should be listed in the same manner at time of planting.

Total Refuge Acreage Under Cultivation - Report total land area devoted to agricultural purposes during the year.



## REFUGE GRAIN REPORT

Refuge Tamarac National Wildlife RefugeMonths of September through December, 1959

(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
Wheat	374					192	192	182		X	
Barley	436			346 (sold)		50	396	40		X	
Corn (Cob)	20	139	159			50	50	109		X	
Soybeans	16							16	X		
Millet	25							25	X		

(8) Indicate shipping or collection points Detroit Lakes, Minnesota(9) Grain is stored at Headquarters granary(10) Remarks 139 bu. of ear corn received from Union Slough Refuge December 18, 1959

\*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.

3-1759  
Form NR-9  
(April 1946)

COLLECTIONS AND RECEIPTS OF PLANTING STOCK  
(Seeds, rootstocks, trees, shrubs)

Refuge Tamarac National Wildlife Refuge Year 1956

Species	Collections				Receipts		Total Amounts on Hand	Amount Surplus
	Amount	Date or Period of Collection	Method	Unit Cost	Amount	Source		
Wild Rice	4,913 lbs.	8/29 - 9/15	Ind. harvested				None	
Red Pine	30	May	Dug and				"	
Red Cedar	8	May	Transplanted				"	
Hardstem Bulrush	30 clumps	August 13	Dug by hand	Free labor by			"	
Lemna minor	50 gallons	"	Collected	Boy Scouts			"	
Lemna triselca	30 gallons	"	with screen nets	Transportation			"	
				provided by				
				the Service				

Interior Duplicating Section,  
Washington 25, D.C. 84267

TIMBER REMOVAL

Refuge.....Tamarac National Wildlife Refuge..... Year 1959.....

Permittee	Permit No.	Unit or Location	Acreage	No. of Units Expressed in B. F., ties, etc.	Rate of Charge	Total Income	Reservations and/or Diameter Limits	Species Cut
Robert Larson **	25680			8 cords	1.50	12.00	Selective (82" post)	Jack Pine
Hank Smith **	25679			6 cords	1.50	9.00	" "	"
				13.05 cords	4.00	52.20	" Bolts	"
				2 M.B.F.	10.00	20.00	" Saw Logs	"
Wilbur Wilkins **	30662			8.3 cords	1.50	12.50	" 82" post	"
George Martin **	30663			3 cords	1.50	4.50	" "	"
Peter Ellis **	30661			3.5 cords	4.00	14.00	" Bolts	"
				6.6 cords	1.50	9.85	" 82" post	"
Edwin Janson	25675	12	40	20.6 cords	3.00	61.80	"	Balsam
				81.4 cords	4.00	325.60	"	Spruce
				9 cords	1.00	9.00	None	Aspen
				1 cord	1.00	1.00	None	Tamarac
Tom Jones	30664	30	40	3.15 M.B.F.	10.00	31.50	Selective SawLogs	<del>Balsam</del> Jack Pine
				40.225 cords	4.00	160.90	" Bolts	Jack Pine
Carl Jenson	25678	12, 14, 39, 40	30	14.7 cords	2.00	29.40	None	Tamarac
Robert Eliason	25676	28, 38	(1)	12.75 cords	3.00	38.25	Selective	Balsam
Bernard Rock **	30672			5.5 cords	1.50	8.25	" 82" post	Jack Pine
Harry Rock **	30671			4.75 cords	1.50	7.15	" "	"

Total acreage cut over.....

Total income.....

No. of units removed B. F. ....

Method of slash disposal.....

Cords.....

Ties.....

TIMBER REMOVAL

Refuge.....Tamarac National Wildlife Refuge..... Year 1952

Permittee	Permit No.	Unit or Location	Acreage	No. of Units Expressed in B. F., ties, etc.	Rate of Charge	Total Income	Reservations and/or Diameter Limits	Species Cut
Roger Boswell **	30667			4.5 cords	1.50	6.75	Selective (82" post)	Jack Pine
Frank Bigbear **	25679			2 cords	1.50	3.00	" "	"
				1 M.B.F.	10.00	10.00	" Saw Logs	"
				1 cord	4.00	4.00	" Bolts	"
Simon Bellanger **	30669			5.58 cords	1.50	8.40	" 82" post	"
George Stone **	30665			4 cords	1.50	6.00	" "	"
Charles Bigbear **	30668			4.3 cords	1.50	6.50	" "	"
				6.5 cords	4.00	26.00	" Bolts	"
Sam Stone **	30661			3.5 cords	1.50	5.25	" 82" post	"
Gordan Goodman **	30670			6.75 cords	1.50	10.10	" "	"
John Burnette **	30674			3.25 cords	1.50	4.85	" "	"
Ruben Rock **	30673			1.06 cords	1.50	1.60	" "	"
Hank Smith	33664	19	(2)	13.6 cords	4.00	54.40	" Bolts	"
Becker Co. Welfare	33663	16, 19	150	10.00 cords	1.50	15.00	" 82" posts	"
				18 cords	0.50	9.00	" 82" culls	"

Total acreage cut over..... Total income.....

No. of units removed B. F. .... Method of slash disposal.....

Cords.....

Ties.....



TIMBER REMOVAL

Refuge Tamarac National Wildlife Refuge Year 195<sup>9</sup>

Permittee	Permit No.	Unit or Location	Acreage	No. of Units Expressed in B. F., ties, etc.	Rate of Charge	Total Income	Reservations and/or Diameter Limits	Species Cut
E.J. Puttbrase	30678	26, 27	(1)	22 cords 1.5 18.5 cords	3.00 4.00 1.00	66.00 6.00 18.50	Selective " None	Balsam Spruce Aspen
** Indian cutters all removed timber from Unit No. 16 in an area of approximately 50 acres.								
(1) Permit issued to remove timber cut previous year								
(2) Acreage cut is the same as recorded for Becker County Welfare (150 acres)								

Total acreage cut over 310 Total income \$1,068.25

No. of units removed B. F. 6.15 Method of slash disposal Lopped and scattered  
Cords 364.415  
Ties None

DEER SEASON ON TAMARAC REFUGE - NOVEMBER 7-11, 1959

ALL HUNTERS TAKING OR ATTEMPTING TO TAKE DEER ON THE OPEN PORTION OF TAMARAC REFUGE MUST COMPLY WITH THE FOLLOWING REGULATIONS:

1. DEER HUNTING WILL BE PERMITTED ON THE OPEN PORTION OF TAMARAC REFUGE AS DESIGNATED.
2. DEER MAY BE TAKEN BY FIREARMS OR BOW AND ARROW FROM SUNRISE TO SUNSET DURING THE PERIOD NOVEMBER 8 THROUGH 12, 1958, ONLY.
3. HUNTERS MUST POSSESS A 1958 STATE BIG GAME LICENSE, AND COMPLY WITH ALL STATE HUNTING LAWS.
4. HUNTERS WILL NOT BE ALLOWED TO ENTER REFUGE BEFORE 6:00 A.M., AND MUST LEAVE REFUGE BY 6:00 P.M., EACH DAY.
5. ALL VEHICLES MUST REMAIN ON THE MAIN HIGHWAYS OR PARKING AREAS DESIGNATED BY THE REFUGE MANAGER. NO VEHICLES PERMITTED ON REFUGE TRAILS.
6. BE SURE IT IS A DEER BEFORE YOU SHOOT. SHOOTING OF DEER ONLY PERMITTED. AVOID ACCIDENTS. NO SHOOTING ON OR ACROSS ROADS.
7. ALL HUNTERS MUST AGREE TO WEIGHING OF DEER, INSPECTION OF DEER LIVERS, AND EXAMINATION OF DEER TEETH FOR AGE IF REQUESTED.
8. NO CAMPING OR FIRES PERMITTED ON REFUGE.

■ CLOSED AREA  
□ OPEN AREA

