

OTTAWA

NARRATIVE REPORTS

JANUARY-DECEMBER 1962

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NARRATIVE REPORT ROUTING SLIP

REFUGE OTTAWA PERIOD September-December 1962

CHIEF'S OFFICE: Mr. Gillett _____ Mr. Ackerknecht _____
Mr. Fermanich _____ Mr. Goldman _____

WILDLIFE MANAGEMENT: Mr. Banko _____ Mr. Stiles WBS _____

RESOURCE MANAGEMENT: Dr. Morley _____ Mr. Stollberg _____ Mr. Lumb _____

OPERATIONS: Mr. Hickok [Signature] _____ Mr. Regan _____

PUBLIC USE: Mr. Dumont PAJ _____ Mr. Monson gm. _____

ADMINISTRATIVE SERVICES: Miss Baum _____

OTTAWA NATIONAL WILDLIFE REFUGE

Narrative Report

September 1, 1962 - December 31, 1962

Alfred O. Manke

Refuge Manager

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Narrative Report OTTAWA REFUGE September 1, through December 31, 1963

I. GENERAL

A. Weather Conditions.

	<u>Snowfall</u>	<u>Precipitation</u> <u>This Month</u>	<u>Normal</u>	<u>Max</u> <u>Temp.</u>	<u>Max.</u> <u>Temp.</u>
September	<u>0.0</u>	<u>4.00</u>	<u>2.77</u>	<u>92</u>	<u>39</u>
October	<u>tr.</u>	<u>2.54</u>	<u>2.05</u>	<u>86</u>	<u>25</u>
November	<u>tr.</u>	<u>2.98</u>	<u>2.27</u>	<u>58</u>	<u>26</u>
December	<u>17.7</u>	<u>2.69</u>	<u>2.06</u>	<u>60</u>	<u>- 4</u>
Total:	<u>17.7</u>	<u>12.21</u>	<u>9.15</u> Extremes	<u>92</u>	<u>- 4</u>
Annual Total	<u>49.4</u>	<u>31.76</u>	<u>34.05</u>		

Weather data as recorded at the United States Department of Commerce Weather Bureau, Post Office Building, Sandusky, Ohio, about 25 miles ESE of the refuge area. Weather conditions at Sandusky are believed close enough to those on the refuge to be considered one and the same.

A rather cool, wet fall prevailed. Average temperatures were near normal for October and November, but well below normal for September and December. December 1962 is described as one of the "roughest" on record.

Precipitation for the period was three inches more than normal. This was needed to bring the annual total somewhat near normal. Precipitation was lagging about five and one-half inches below normal at the beginning of this reporting period.

The first killing frost occurred October 25, ending a 191-day growing season which began April 17. This is three days less than the average.

B. Habitat Conditions.

1. Water. No water-management plan was in effect during the reporting period. At the beginning of the period, many of the marsh areas within the proposed refuge boundary were dry. Water-pumping began just about that time, and by mid-October most of the "marsh" areas were restored to a wet condition.

Pintail Marsh was the only marsh that the refuge controlled. The water level in it was held low to reduce dike erosion until about the first of November. At that time a strong northeast wind backed a lot of water in to the marsh. The water was then trapped and held. Also, some water was pumped into the marsh chiefly on an experimental basis to gain knowledge and check pump repairs. The water that was pumped into the marsh flooded a lot of millet and smartweed and provided a lot of food that otherwise would not have been available to the waterfowl. Several breaks in the dike of the old Crane Creek Club marsh (tract 23) prevented its being flooded.

2. Food and Cover. By the beginning of this reporting period, nature had renewed much of the food and cover that had been destroyed by deliberate spring-burning of marsh, wood, and field. Food and cover seemed more than adequate for all wildlife concerned until December 7. From that time on ice and deep, blowing, crusting snow greatly reduced available food and cover. Upland game and dickie birds have had a particularly hard time. No artificial feeding was done on the refuge, but the State of Ohio distributed corn in several other areas.

Many ducks, several hundred Canada geese, and about two dozen swans fed and rested in refuge marsh areas. Many of the geese fed for several weeks in a harvested soybean field now a part of the refuge. These and other geese fed for over a month in alfalfa, corn, and winter grain fields that will be a part of the refuge.

The "Lake Erie" portion of the Pintail Marsh and hence refuge also harbored many ducks, geese, and swans. Many seemed content to stay there day and night. Another favorite resting area was just off the mouth of Crane Creek. Most of these birds, however, flew inland to feed and provided the "bulk" of the hunting.

II. WILDLIFE

A. Migratory Birds.

1. Waterfowl. The peak number of fall migrants did not drop-off as drastically here as it did in some other areas. There were many comments that there were as many ducks this year as last. Censuses did not confirm this, but the waterfowl drouth was not as severe here as continent-wide figures indicated.

The build-up of ducks was slower and later than normal. A drop in the number of geese, however, was much more noticeable. In contrast, it seemed we had more swans for a longer period than usual. Several dozen swans remained in the area until freeze-up, about December 10. After that date, almost all waterfowl remaining in the area headed for the open water of the "Blue Holes" at Castalia, Ohio.

2. Other Waterbirds. A gradual departure of these birds began at just about the beginning of this reporting period. No mass or spectacular movements were observed. By mid-October, however, the major portion of these birds were gone. The hardy individuals that were still present by mid-October, remained here well into November, and almost all species common to the area were represented. Some great blue herons were here until the deep-freeze set-in about December 10. Rail, gallinule, and coot populations were below expectations.
3. Shorebirds. This group with the exception of gulls followed much the same pattern as the previous group, other waterbirds. Gulls are present year-round and can be seen at any open water area or where they can get a free hand-out, often frequenting city dumps and harbors.
4. Doves. Dove migrations also followed much the same pattern as the previous groups. No mass movements were observed. By mid-October, however, the number of birds were pretty much reduced to those individuals that winter in the area. A surprisingly large number of doves remain in the area year-round.

- B. Upland Game Birds. Pheasants were more plentiful this fall than last despite all the burning that occurred. Food and cover were considered normal and adequate until about December 10. From then on through the end of the reporting period food was scarce and pheasants were hard pressed. A large percentage concentrated around barns and feedlots, and were dependant upon "waste" grains for survival. Some 35 birds concentrated around the refuge's shop area, a previous farm house and barn.

- C. Big-Game Animals. This group is represented by only a few white-tailed deer. The refuge area is within the range of about a dozen individuals.

The entire State of Ohio was open to deer hunting this fall. One buck was taken less than a mile from the refuge area, and another was wounded on property that is to be acquired. This latter animal was not reported found and its fate is unknown.

- D. Fur Animals, Predators, Rodents, and other Mammals. The muskrat population seems to be a little below normal. Unless something unexpected develops, however, a better than average carry-over is expected. The harsh winter weather being experienced has greatly curtailed trapping operations and success. On the other hand, some losses are expected because shallow marshes are frozen solid and undoubtedly some animals are "trapped" in their dens, or their movements are so restricted that they will starve. Muskrats and groundhogs continue to damage dikes, particularly the narrow dikes.

Although predators are continually being condemned for shortages of game animals by sportsmen, they do not seem to be abnormally abundant. Continual snow cover since December 7, has enabled good and prolonged track observations. Tracks and paths do not indicate an overpopulation of predatory species.

Conditions must have favored our arithmetically inclined bunnies. There are plenty of cottontails where ever habitat seems even half-way adequate.

- E. Hawks, Eagles, Owls, Crows, Ravens, and Magpies. The migration of hawks this fall was not nearly as noticeable as it was last spring. Evidently this was because northbound migrants were halted by weather last spring, whereas no such barrier occurred in the fall. At no time during this reporting period did the hawk population build-up to present a problem by creating an undue pressure upon other species. Populations of crows and owls are small enough to present no problems.

Observations of eagles are frequent enough to indicate that at least a few pairs in the area do not make a true migration. Although they seem to move in and out of the area and are not observed daily, they are seen frequently enough to be considered year-round residents. One pair of bald eagles are already working on their nest near Crane Creek.

- F. Other Birds. No unusual observations were noted. As was reported in the previous Narrative Report, there was a significant reduction in the number of blackbirds in the area. Although several large flocks were seen, they were much smaller and fewer than in previous years.
- G. Fish. No significant changes were noted regarding conditions affecting fish life. Refuge waters continue to be badly roiled by carp and wave action.
- H. Reptiles. No unusual observations or significant changes ~~were~~ noted.
- I. Diseases. No outbreaks of disease noted this period.

III. REFUGE DEVELOPMENT AND MAINTENANCE

- A. Physical Development. A hunting lodge was converted to a residence and became Q-1 at Ottawa Refuge September 18, 1962. Work done included insulation, storm doors and windows, plumbing and heating repairs, and partial reflooding. Four pumps and pump-houses ~~were~~ repaired and rejuvenated. A small, temporary "shop" was set-up and equipped almost entirely with army surplus property. Approximately 1,250 acres were posted and/or reposted, and about 1,500 feet of snow fence erected.
- B. Plantings.
1. Aquatics and Marsh Plants. None.
 2. Trees and Shrubs. None
 3. Upland Herbaceous Plants. None.
 4. Cultivated Crops. None.
- C. Collections and Receipts.
1. Seed or other Propagules. None.
 2. Specimens. None.
- D. Control of Vegetation. None.
- E. Planned Burning. None.
- F. Fires. None.

IV. RESOURCE MANAGEMENT

- A. Grazing. None.
- B. Haying. None.
- C. Fur Harvest. One permit to trap was issued to cover a contingency specified in a purchase agreement. The purchase agreement gave one caretaker of a marsh the right to finish this trapping season. The refuge will receive no part of the harvest.
- D. Timber Removal. None.
- E. Commercial Fishing. None, in fact the State of Ohio requested that that portion of the refuge inundated by Lake Erie (part of the Pintail Marsh) be closed to commercial fishing. The portion lies adjacent to State Owned property where commercial fishing is prohibited. The request was honored by our Service.
- F. Other Uses. A permit granting a commercial fisherman to hold fish in a 7-acre pond on the refuge expired December 31, 1962. Another permit was issued to grant this privilege again in 1963. The pond rental-rate is \$25.00 per month.

Permission was granted the State of Ohio to trap and remove approximately 200 pheasants from the refuge. Trapping was greatly facilitated by the inclement conditions in December. Almost all of the 35 birds concentrated near the shop have been captured. By the end of the reporting period, 48 pheasants had been taken from the refuge. Several "trap tragedies" would make the total removed somewhat higher. The birds are being sought to infuse "new, wild blood" into game-farm progeny.

V. FIELD INVESTIGATION OR APPLIED RESEARCH

- A. Progress Report. A waterfowl production study of the Lake Erie Marshes is being conducted by a graduate student, Don Thompson, under the guidance of the Ohio Cooperative Wildlife Research Unit. No reports or progress have been reported this period.

VI. PUBLIC RELATIONS

- A. Recreational Uses. Recreational use at Ottawa Refuge is confined almost entirely to pole-and-line fishing at one spot. Use has been normal for the period.

B. Refuge Visitors.

DATE	NAME	ADDRESS	PURPOSE
9/1	L. Van Camp (Cons. Off.)	Genoa, Ohio	Showing films to Sportsmn. Clubs
9/4	Topog Map Crew	Regional Office	Title & Ownership info.
9/5-6	Nelson & Smith	Regional Office	Planning and Orientation
9/6	Beyer, Luedder, Fries	Clev., Det., Tol.	Pintail Marsh appraisal
9/18	S. Poma	Shiawassee Refuge	Diorama & Surplus Property
9/21	Personnel	Hebron Fish Hatch.	Pickup surplus property
9/25	L. Van Camp	Genoa, Ohio	SCS Field Day preparations
10/8	Appling	Oak Harbor, Ohio	Hunting & Refuge info.
10/8-12	E. Larie	Regional Office	Land Acquisition
10/15	Conover, Wheeler, VonDane, Bosak		Courtesy & Law Enforce. Plans
10/27	E. R. France	Toledo, Ohio	Payment for property
11/1	McAllister & Schaffer	Cent. & Reg. Offices	Boundary and realty problems
11/27-			
12/4	Larie & Mundinger	Regional Office	Land Acquisition
	Numerous Bosak & Conover	Law enforc., censuses, checks, surplus property, etc.	
	Numerous E. R. Walz, GSA Area Util. Off.	Surplus property	

C. Refuge Participation.

9/12	Manke & Bosak	Contacted Outdoor Ed., L. Klewer, Toledo Blade re showing films, regulations, info re refuge.
9/19-22	Manke	Diorama Exhibit, Oak Harbor Fair, Oak Harbor, Ohio
9/25	Manke & VanCamp	Briefing for Ottawa County 6th Grade Field Day, SCS Offi.
10/2	Manke & VanCamp	Ottawa County 6th Grade Field Day participation
10/8	Manke	Show films to Oak Harbor Conservation Club.
10/9	Manke	Show films to Ottawa County Conservation Club
10/10	Manke & Bednarik	Films and talk, Ohio Div. Wldlf. Dist. 4, Cambridge, Ohio
10/18	Manke & Bednarik	Films and talk, Vol. Fire Depts. Rocky Ridge, Ohio
11/6	Manke & Bosak	Spy blind, McGee Marsh, Ohio
11/10	Radsick	Spy blind, McGee Marsh, Ohio

D. Hunting. None on Refuge.E. Violations. None notedF. Safety. No accidents occurred. This makes a total of 442 calendar days and 564 man-days without an accident at this station. Six informal safety discussions were held during the period.

VII. OTHER ITEMS

A. Items of Interest. Our land acquisition program received a much desired shot-in-the-arm this period. Payment was made on two properties with a combined area of 719 acres, of which about 600 acres are marsh. Another property of 290 acres, of which about half is marsh, will be paid for very soon. Only one minor detail is holding back final approval and payment.

A purchase agreement was signed for what is considered one of the most important, if not the most important, property of the refuge area. It is in the center of the refuge and contains some 574 acres. This property lies between the two properties described in the previous paragraph, and gives us a solid block of some 1,615 acres and a total ~~of~~ about 2,075 acres.

In addition to these concrete transactions, several other negotiations progressed rather well. All in all a very satisfactory period for the land acquisition program.

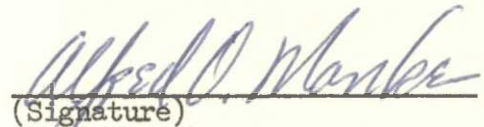
One of the properties on which payment was made included a large, rather plush hunting lodge. This lodge will serve for office space, visitors center, and headquarters. Refuge headquarters will be moved to this building as soon as an adequate heating system can be installed. Game Management Agent Bosak will also move his office from his home to refuge headquarters.

Another fine "acquisition" was made during the period. Mr. Alson J. Radsick of Rural Route No. 3, Oak Harbor, entered on duty as maintenanceman, October 1, 1962. Mr. Radsick's past experience, industrious nature, and conscientious attitude well qualifies him for the position. He came to us highly recommended, and no doubt he will be a valuable asset to the refuge program for many years. Alson and his wife, Joann, have two children, Kathy, age 5 and Tommy, age 1.

SIGNATURE PAGE

9.

Submitted by:


(Signature)

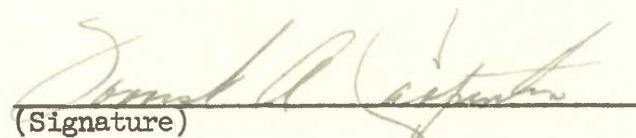
Alfred O. Manke
Refuge Manager

Title

Date: January 30, 1963

Approved, Regional Office:

Date: 2-5-62


(Signature)

Regional Refuge Supervisor

W A T E R F O W L

REFUGE Ottawa

MONTHS OF September TO January, 19 62

(1) Species	(2) Weeks of reporting period									
	1	2	3	4	5	6	7	8	9	10
Swans:										
Whistling Trumpeter										15
Geese:										
Canada			100	100	250	800	1000	1000	500	500
Cackling										
Brant										
White-fronted										
Snow							10	40	25	25
Blue							10	10	75	75
Other										
Ducks:										
Mallard	500	500	500	500	1000	1000	1000	1000	1000	1000
Black	100	100	200	200	500	500	500	500	2000	2000
Gadwall	100	100	100	200	300	500	500	500	50	50
Baldpate	50	100	100	300	700	2000	2000	1000	300	500
Pintail	100	100	200	200	1000	1000	1000	1000	1000	500
Green-winged teal			100	100	100	200	200	200	100	100
Blue-winged teal	300	300	200	100	200	100	100	100		
Cinnamon teal										
Shoveler					100	100	100	100		50
Wood	500	500	300	200	400	500	1000	1000	500	300
Redhead							10	10	50	50
Ring-necked									50	100
Canvasback									50	50
Scaup						10	25	50	100	500
Goldeneye										
Bufflehead										
Ruddy								15	300	200
Other Hooded Merg.							15	25		
Red-Br.Merg.									500	500
Coot	500	500	500	500	100	50	200	800	500	500

WATERFOWL
 (Continuation Sheet)

REFUGE Ottawa MONTHS OF September TO January, 1962

(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	25	25	25	100	25				1,500		
Trumpeter											
Geese:											
Canada	500	500	500	300	150				43,400		
Cackling											
Brant											
White-fronted											
Snow	25	25	25	25	5				1,400		
Blue	75	75	75	75	20				3,400		
Other											
Ducks:											
Mallard	1000	1500	2000	2000	1000	100	50		109,500		
Black	2000	2500	2500	2000	1500	100	150		124,200		
Gadwall	100	100	100						10,900		
Baldpate	200	200	200	200	200	100	50		57,400		
Pintail	500	300	200	200	100				51,800		
Green-winged teal	100								8,400		
Blue-winged teal									9,800		
Cinnamon teal											
Shoveler		100							3,500		
Wood	200	200	100	100	25				40,800		
Redhead	50	50	100	50	50				2,900		
Ring-necked	100	200	200	100	100	50			6,300		
Canvasback	50	50	100	50	50				3,500		
Scaup	1000	2000	4000	8000	2000	200			125,200		
Goldeneye			100	100	200	100	50		3,800		
Bufflehead											
Ruddy	200								5,000		
Other									300		
Hooded Merg.									7,000		
Red-Br.Merg.									13,900		
Common Merg.	500	200	500	300	200				30,400		
Coot:	200										

(over)

	(5) Total Days Use	(6) Peak Number	(7) Total Production	SUMMARY
Swans	1,500	100		Principal feeding areas
Geese	48,200	1,050		
Ducks	592,200	13,100		Principal nesting areas
Coots	30,400	800		

Reported by Alfred O. Manke

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

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

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

MIGRATORY BIRDS
(other than waterfowl)

Refuge.....Ottawa..... Months of September..... to December..... 1952.....

(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. <u>Water and Marsh Birds:</u>										
Pied-bill Grebe	present		25	various	3	11/5				
Great blue heron	present		500	various	18	12/7				
Black-crowned night heron	present		200	various	5	11/5				
Green heron	present		100	various	7	10/20				
American egret	present		300	various	2	10/20				
American bittern	present		25	various	2	10/20				
Sora rail	present		5	various	5	10/20				
Florida gallinule	present		50	various	3	10/20				
II. <u>Shorebirds, Gulls and Terns:</u>										
Herring & ring-billed gulls	present		3000	various	present					
Common tern	present		300	various	5	11/5				
Black tern	present		5	various	1	10/20				
Bonapartes gull	present		300	various	12	11/5				
Sandpipers spp.	present		300	various	10	10/20				
Killdeer	present		50	various	5	10/20				
Ruddy turnstone	present		20	various	20	9/15				
Greater yellow-legs	present		30	various	10	10/20				

(over)

(1)	(2)	(3)	(4)	(5)	(6)
III. <u>Doves and Pigeons:</u> Mourning dove White-winged dove	year-round	5000	September		
IV. <u>Predaceous Birds:</u> Golden eagle Duck hawk Horned owl Magpie Raven Crow Bald eagle Red-tailed hawk Red-shouldered hawk Sparrow hawk Sharp-shinned hawk Marsh hawk	year-round present present present present present present 10/20	50 500 3 25 5 25 10 5	various various various various various various various various	12 12 present present present present 1 1 11/30 11/30 11/5	
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 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 during the reporting period.

3-1752
Form NR-2
(April 1946)

UPLAND GAME DS

Refuge Ottawa Months of September to January, 19 62

(1) Species	(2) Density		(3) Young Produced		(4) Sex Ratio	(5) Removals			(6) Total	(7) Remarks
Common Name	Cover types, total acreage of habitat	Acres per Bird	Number broods obs'd.	Estimated Total	Percentage	Hunting	For Re- stocking	For Research	Estimated number using Refuge	Pertinent information not specifically requested. List introductions here.
Pheasant	Ag. 2000 ac., Cattail marsh 2000 Mixed hardwoods 100	5				250	50		500	Hunting occurred on land within proposed boundary but not yet acquired. Estimated total at beginning of period, 800.
Bob-white Quail	same as above	50							80	No legal removals.

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 G

Refuge Quittawa Calendar Year 1962

(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		At period of Greatest use	As of Dec. 31	
White-tailed deer	Cover types, total Acreage of Habitat	2	2								12	10	1:3
Hunting occurred on land within and bordering proposed boundary but not yet acquired.													

Remarks:

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 Ottawa Year 19 62

Botulism

Lead Poisoning or other Disease

Period of outbreak _____

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 _____

Kind of disease Lead Poisoning

Species affected Primarily whistling swans and few ducks

Number Affected	Actual Count	Estimated
Species		
<u>whistling swan</u>	<u>23</u>	<u>100</u>
<u>blue-winged teal</u>	<u>8</u>	<u>50</u>
<u>mallard & black</u>	<u>3</u>	<u>25</u>

Number Recovered none

Number lost 175

Source of infection Lead shot

Water conditions normal, no unusual conditions noted.

Food conditions Poor, outbreak occurred early in spring before much food and open water avail.

Remarks The area had an unusual buildup prior to spring thaw, swans were swans stopped here than normal, and they seemed particularly susceptible. Over 20 swans were autopsied, all contained ingested shot, 4 to 38 pellets.

PUBLIC USE

Refuge OttawaCalendar Year 1962

Total Use Visitor-Days	Hunting Use	Fishing Use	Miscellaneous Use
500	none	none	500

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				Recreation*		
Upland Game				Official	100	500
Big Game				Economic Use		
Supervised by Refuge		By State	No. of Blinds	Other		

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

Adjacent to the refuge 10,000 (These figures

should not be included in hunting-use totals above).

Fishing:

Acres of ponds or lakes _____ and miles of streams

_____ open to fishing.

Comments: The small amount of area
under the control of the refuge in
1962 was not open to public use.

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

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

Fish and Wildlife Service Branch of Wildlife Refuges

CULTIVATED CROPS - HAYING - GRAZING

Refuge Ottawa County Lucas and Ottawa State Ohio

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	Acres	Bu./Tons			
No crops planted or harvested on land under control of Ottawa National Wildlife Refuge in 1962.									
								Fallow Ag. Land	

No. of Permittees:	Agricultural Operations	Haying Operations	Grazing Operations
1			
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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 Ottawa

Months of September through December, 1952

(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
No seed received, disposed, or on hand in 1962.											

(8) Indicate shipping or collection points _____

(9) Grain is stored at _____

(10) Remarks _____

*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 Ottawa Year 195⁶²

Species	Collections				Receipts		Total Amounts on Hand	Amount Surplus
	Amount	Date or Period of Collection	Method	Unit Cost	Amount	Source		
None in 1962.								

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

TIMBER REMOVAL

Refuge Ottawa Year 195⁶²

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
No timber removed from land under the control of the refuge in 1962								

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

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

Cords.....

Ties.....

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