

BRANCH OF WILDLIFE REFUGES NARRATIVE REPORTS

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REFUGE SHIAWASSEE FLATS WMA

PERIOD MAY-AUGUST 1956

Shiawassee Flats Wildlife Management Area

Narrative Report

May 1 - August 31, 1956

Personnel

Harvey K. Nelson	-	Refuge Manager
S. Sam Poma	-	Refuge Clerk
Louis D. Robinson	-	Operator General
Amos B. Snider	-	Maintenanceman
William French	-	Student Assistant

Temporary Personnel

Kenneth Shelley	-	Laborer
William Roenicke	-	Laborer

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# Shiawassee Flats Wildlife Management Area

## Narrative Report

May 1 - August 31, 1956

### I GENERAL

#### A. Weather Conditions

Weather data presented were obtained from records from the official weather station at St. Charles, Michigan, located at the southwest corner of the project.

Table No. 1 - Weather

<u>Month</u>	<u>Precipitation</u>		<u>Temperature</u>	
	<u>Snow</u>	<u>Rain</u>	<u>Max.</u>	<u>Min.</u>
May	T	6.54	85° (22nd)	31° (8th)
June	-	2.47	95 (12th)	39 (1st)
July	-	4.44	90 (27th)	47 (18th)
August	-	5.23	92 (7th)	44 (18th)
		18.68 Extremes	95°	31°

May was cool, wet and windy, with average temperature considerably below normal. Warmest temperatures occurred May 21-22. Many tornados were reported May 12, with the most damage occurring in the vicinity of the cities of Flint and St. Charles. Other tornados hit this vicinity May 13 and 21. Heavy rains and floods throughout the Saginaw Valley delayed farming operations from 2-3 weeks. June was somewhat warmer and drier. Tornados were again reported in the Saginaw area on June 26. July was cool, cloudy and rainy, with some rainfall recorded in this area on 26 of the 31 days of the month. August continued to be cool and wet, with total rainfall for the month and for the period about twice the normal amount received.

#### B. Water Conditions

Total precipitation for the period was 18.68 inches, as compared to a normal of about 10 inches. Wet, cool conditions delayed the season from 2-3 weeks. Farming operations were started on protected lands about April 10, but many areas with little protection were still inundated on May 1.

Continuous rainfall throughout April and early May saturated the soil and filled rivers and open drainage ditches so that by May 5 most of the rain that fell resulted in direct run-off. A 3.5 inch rainfall occurred in a large portion of the Saginaw river drainage area May 5-7,

which created a major flood in the Saginaw Valley that prevailed from May 7-17.

The level of the Shiawassee River was recorded at 586.5 on May 1. Following the heavy rainfall of May 5-6, levels rose to 587.3 by noon on May 7. Levels continued to rise throughout the day with 588.5 recorded at 1:00 A.M. on May 8 and 589.0 by 8:00 A.M. May 8. Peak levels ranged between 589.0 - 590.0 May 8-9, at which time dikes broke in the Little Prairie area, covering fields with about 7 feet of water. Approximately 95% of all lands within the project were flooded by May 9. Flood conditions prevailed until May 17, after which time levels dropped at about one foot per day. Levels reached 583.0 on June 1. At that time breaks in dikes were filled and dewatering of farming areas started. The level of the Shiawassee River was 580.5 on June 8, at which time fields were drying. Farming operations were resumed on June 12.

Extensive wash-outs occurred in dikes on Service lands and adjacent private lands. All dikes within the project were subjected to severe erosion. Most interior drainage ditches collected a large amount of sediment, particularly in the vicinity of breaks in dikes. All crops planted prior to May 7 were lost. Severe flooding on land surrounding the project as well as in upstream areas. Flood waters covered many state and county highways in the Saginaw Valley for several days to the extent that most were impassable.

The flood occurred at a very opportune time insofar as the Corps of Engineers was concerned. Congressional hearings on the Saginaw Valley Flood Control Program were in session at the time. The project cleared the final hurdles, but of course was one of the many delayed by Presidential veto of the 1956 Omnibus Bill.

River levels have remained low since June 8 as a result of continued low levels of Lake Huron. Heavy rains throughout the summer created local problems on the low farm lands in the project and considerable pumping was required throughout the period to keep ditch levels down. Slow growth resulted in reduced yields for most late planted crops.

#### C. Fire

Cool, wet conditions reduced fire hazards. No fires occurred within the project.

### II. WILDLIFE

#### A. Migratory Birds

##### 1. Population and Behavior

a. Whistling swans. A small group of 10 swans remained on the area until about May 5.



b. Geese. About 300 Canada geese remained until the week ending May 5. A group of 12 were observed periodically throughout the summer. We do not know whether these birds remained after spring migration or moved up from the nearby lakes in the vicinity of Pontiac, Michigan where a number of geese nest.

The State Game Division placed 4 Canada geese (2 pair) in the Crow Island Sanctuary. One reportedly went for a swim in the Saginaw River and promptly ended up on someones dinner table. One female nested in the Crow Island Sanctuary and raised a brood of 4.

A flock of 6 blue geese and 4 snow geese appeared during the period May 27 - June 9. These may have been cripples or stragglers which had been reported around Lake Erie.

c. Ducks. The majority of spring migrants had passed through the Saginaw Valley by May 5, at which time about 2000 ducks remained on the project. Most widgeon, pintails and scaup left prior to the flood of May 7. A few ruddy ducks remained until June 1. The summer population consisted of about 600 black ducks, mallards, blue-winged teal and wood ducks. An occasional pintail and gadwall were seen during the summer.

It is believed that most of the ducks remaining on the area through the summer were non-breeders or perhaps birds that had nesting interrupted by spring floods and didn't renest.

Brood production in this area is relatively low. Breeding pair counts could not be completed on schedule because of spring flood conditions. Brood counts made June 22-26 failed to reveal any broods on established transects. A second series of brood counts were made July 19-21 at which time three broods of blue-winged teal (11-2b, 5-1b, 7-1b) and one brood of coots were recorded. An occasional brood of mallards, black ducks and wood ducks were observed at other periods in various areas of the project along the rivers, but are of little significance in computing total production. It is estimated that about 100 ducks were raised within the project, with blue-winged teal and wood ducks being the dominant species.

d. Coots, Gallinules, Rails.

The summer coot population was about the same as 1955, ranging from 200-300 birds. A number of broods were observed, but complete counts of numbers per brood are difficult to obtain in the dense cattail areas inhabited by coots. Two Florida Gallinules were seen during August. Numerous sora rails were present during the flood period of May 7-10. About 150 individuals were counted along two miles of river as they ran about on floating mats of vegetation carried downstream by flood waters. Several Virginia rails were observed and two king rails were seen in the vicinity of the goose pen throughout the summer. We believe they had a nest there but were not able to locate it.

e. Herons, Egrets, Bitterns. Great blue herons, little green herons and black-crowned night herons were common throughout the period. We had an increase in both species following the flood due to the number of fish that were trapped in ditches and fields. An occasional American egret was seen during May - July. Numbers increased during August as wandering flocks moved up from areas to the south of here. About 30 individuals were observed during an aerial census on September 1.

f. Shorebirds, Gulls, Terns. Annual spring migrants moved through the area during late March through April as indicated in the report for that period. The flood during May changed habitat conditions for the remainder of the migration period. Shallow flooded fields on the perimeter of the project were used extensively by shorebirds during May and early June. Some interesting records included a group of about 2500 red-backed sandpipers in flooded fields along Curtis Road on May 28; 2 Hudsonian godwits and 80 dowitchers in the Little Prairie area on May 31. Black-bellied plovers frequented the area during May and early June. A flock of 12 golden plovers were seen on May 31. Wilson's snipe were first observed April 7, with peak movements occurring April 21-22. Killdeers and spotted sandpipers were present throughout the summer. Lesser Yellowlegs were observed again on August 15, indicating the fall migration of shorebirds had started. Ring-billed gulls, herring gulls, common terns and black terns were present throughout the period.

g. Mourning doves are known to nest in various areas on the project, but apparently the 1956 nesting population was dispersed or discouraged by spring flood waters that covered much of the area with 7-8 feet of water. Only three active nests were found and fewer doves were observed in field areas as compared to previous years. We believe the latter was largely due to the absence of grain crops which were lost in spring floods.

h. Woodcocks. Woodcocks were first seen on April 10. Increased movements were observed on April 21-22, with the first brood of woodcock seen near St. Charles on May 5. A number of woodcock apparently nest within the project, but singing counts have failed to provide any useable index thus far. It may be necessary to sample the more inaccessible areas during years such areas are dry enough.

## 2. Food and Cover

Agricultural crops left for spring food were utilized by ducks, geese and swans during the previous period. Farming activity prevented additional use of waste corn remaining and birds moved into adjacent marsh areas. Following the recession of May floods, ideal growing conditions prevailed for natural aquatics and annual weeds. Excellent stands of smartweeds and wild millet appeared in marsh areas and uncultivated tracts. Low water levels during the remainder of the summer resulted in further encroachment by cattail, willows and cottonwood in interior marshes. We hope we can start construction of the necessary water control structures in these larger pool areas next fiscal year so we can control undesirable vegetation.



Scattered stands of wild rice (Zizania aquatica) appeared this year along the major tributaries entering the project. It appears to be an introduced variety frequently referred to as "giant wild rice". Some stems measured 12 feet in height. We assume the seed was carried in by flood waters as wild rice has not been present for years except for an occasional plant in isolated locations where hunters may have done some planting.

## B. Upland Game

### 1. Population and Behavior

a. Ring-necked pheasant. The pheasant population within the project received a severe set-back by spring floods. Most birds were believed to have moved out ahead of rising water as no dead birds were found, but early nesting was interrupted and few birds moved back into project lands after flood waters receded. As an example only six broods of pheasants were observed within the Trinklein Tract where formerly we would record 30-35 individual broods.

Spring floods together with heavy rainfall and unusually cool temperatures during July and August reduced nesting success throughout the Saginaw Valley. It is anticipated that there will be fewer birds and poorer hunting than in 1954 and 1955. State-wide surveys indicate a slight decrease in most of the pheasant range, with an estimated harvest of about 1,000,000 birds during the 1956 season as compared to hunter kill of over 1,500,000 birds in 1954 and 1955.

b. Bobwhite quail were present prior to the May flood, but no birds have been seen within the project since.

### 2. Food and Cover

Pheasants have little difficulty finding sufficient food and cover on agricultural lands, dikes, ditches and wildland areas within the project during summer and fall months. The excellent volunteer growth of natural foods together with feed left in refuge fields should be quite attractive this year. It is expected that pheasants and quail will move back into project lands once the hunting season opens.

## C. Big Game Animals

White-tailed deer survived spring floods by moving to higher ground around the project and then returning. A number of twin fawns have been observed, some of which were beginning to lose their spots at the end of August. It didn't appear that many fawns, if any at all, were born prior to the May 7 flood.

## D. Fur Animals

Muskrats were severely affected by spring floods. High water during March and April drowned many early litters and subjected animals to exposure. The flood during May proved even more disastrous by flooding



all dwelling houses and bank dens leaving few places for muskrats to go except adjacent uplands or in trees. We observed many temporary shelters in trees built by muskrats. In general we believe the present muskrat population to be very low. Fall house counts will of course reveal what size population we have left.

The red fox population was reduced considerably as a result of spring floods. Animals were forced to travel exposed dike tops or move into adjacent uplands where hunters took their toll. We know of more than 30 fox being killed on dikes in the Little Prairie area alone.

Raccoons continue to be abundant although we believe the floods together with subsequent cold, wet weather conditions resulted in some juvenile mortality as several dead young raccoons were found.

#### E. Predacious Birds

Common species observed include marsh hawk, Cooper's hawk, red-shouldered hawk, red-tailed hawk, rough-legged hawk, sparrow hawk, sharp-shinned hawk, short-eared owl, great-horned owl, crows and bald eagle. During the period May 15 - June 5 a number of bald eagles moved into the project; most likely attracted by the large amount of dead and trapped fish left by receding flood waters. Seven individuals were observed in the "Little Prairie area" on May 28. At least 4 have been present through the summer.

#### F. Fish

Principal species include carp, bullhead, catfish, suckers, perch, northern pike, crappie, small-mouthed bass and "sunfish". Following the flood we found other species such as gar-fish, large-mouth bass and walleyes to be present in limited numbers.

Fishermen speared tons of carp as flood waters receded. Catches of bullheads, catfish, crappies and perch were taken from interior drainage ditches throughout the summer. Fish are generally small in size, although a few northern pike weighing 5-10 pounds were reported.

### III. REFUGE DEVELOPMENT AND MAINTENANCE

#### A. Physical Development

1. Completed fill of Secondary Headquarters Site which involved moving approximately 8000 cubic yards of material to construct an area 100' x 200', requiring 6' - 8' of new fill.

2. Constructed new bridge into Secondary Site.

3. Completed temporary repairs to 5 breaks in riverside dike caused by May flood. Portion of work by refuge equipment and remainder by contracting of small dragline.

4. Completed erection of metal equipment building 28' x 56', with concrete floor at Secondary Headquarters.

5. Repaired bridges and approaches into five farming units.
6. Piled and burned debri left by flood waters along approximately 15 miles of dike and road surface.
7. Installed new corrugated metal (asphalt coated) discharge pipe, 72' x 4' with flap gate; cleaned approximately  $1\frac{1}{2}$  miles of interior drainage ditch; removed old discharge pipe and gate and filled erroded sections of dike on Watson Tract. Dragline work completed under contract.
8. Completed repairs to erroded sections of dike surrounding Peaphon Tract and cleaned 1.8 miles of ditch which involved handling approximately 8450 cubic yards of material with Service dragline.
9. Completed drilling and installation of well at Headquarters Site.
10. Hauled approximately 300 cubic yards of gravel for surfacing Secondary Site and entrance roads.
11. Approximately 15 miles of road and dike surface were sprayed with 2,4-D and 2,4,5-T.
12. All roads on lands acquired to date were graded periodically by refuge personnel.
13. Fill on goose pen dike was leveled and slopes prepared for seeding.
14. Grasses and annual weeds on roadsides, dike surface and erosion control strips were mowed two times or more.
15. Installed additional 20" diameter shallow lift pump for temporary use on Trinklein Tract.
16. Miscellaneous:

Major equipment repairs completed by Mr. Robinson and crew included replacement of adjustment bolts in power unit on TD-18 tractor, new spring leaves in Dodge dump truck, new drive gears installed in pump at Trinklein pumping station, replaced universal points and clutch in Willys pickup, replaced bearings in hoist of Dodge dump truck, replaced king pins in International dump truck.

The administration of the farming program, assistance with land acquisition problems and details involving bids and construction contracts required much additional time by the manager and other refuge personnel.

## B. Planting

### 1. Cultivated Crops

Farmers within the project suffered heavy financial loses when nearly all of the crops planted prior to May 7 were lost due to flooding.



Farming operations were resumed again on June 12, which required that crops having a short growing period be planted at that late date. As a result no small grains were replanted, very few <sup>acres of</sup> sugar beets and field corn were planted, with most of the land planted to white beans, soybeans and sweet corn. Continued rainfall and cool temperatures have restricted growth of many of these crops so yields will be below average this year.

Agricultural lands under control of the Service during 1956 total about 1600 acres, with portions of some fields too wet to permit normal farming operations so that actual operations will be confined to about 1500 acres. An increased portion of the Service's share of crops will be left for feeding purposes, primarily for spring use.

## 2. Experimental Cover Plots

Arrangements were previously made with the Soil Conservation Service to establish a series of trial grass and legume plots along ditch banks and dike slopes to determine relative values for bank stabilization. Some grasses were planted before the flood period, but never germinated. We plan to schedule the seeding of these plots again during the recommended seeding period between September 1-15.

## IV. ECONOMIC USES

No grazing, haying or cutting of timber occurred during this period.

## V. FIELD INVESTIGATIONS

### 1. Ecological Studies

A program was outlined for initiating studies of vegetative succession within the various habitat types found on the project. The major objectives were to establish permanent transects at key points throughout the project; inventory vegetative species present; prepare written and photographic records of species, composition of sample plots; determine relationships between species present and environmental factors such as water depth, soil moisture and soil types; determine effects of river pollution (if any) on aquatic growth; prepare detailed cover maps and experiment with methods for controlling desirable and undesirable vegetation.

A student Assistant, Mr. William French from the University of Michigan, was employed during the period to start the study. It was determined that the work outlined for 1956 should be confined to marsh areas insofar as possible in view of present pollution problems involving the Dow Chemical Company, and the need for information on plant-succession in areas designated for construction of controlled pools. Mr. French established the permanent transects and sample plots on refuge marsh areas, inventoried and photographed species composition, recorded changes that occurred, started a plant collection for a refuge herbarium, prepared cover maps of marsh areas as related to transects and conducted experiments



on cattail control. A separate report of work completed to date will be submitted by Mr. French. It is planned that the study will be continued next year.

## VI. PUBLIC RELATIONS

### A. Recreational Uses

Summer recreational activities are confined primarily to boating and fishing. Some picnics are held along the river areas but suitable sites are lacking. A number of people visit the area during early May to watch the waterfowl and shorebirds that remained, but such activity is confined largely to peak migration periods during April and November.

### B. Refuge Visitors

<u>Name</u>	<u>Affiliation</u>	<u>Purpose</u>	<u>Date</u>
Art Jamieson	Br. Refuges, FWS	Construction work	6/5-29/56
Bert Laugen	Adm., FWS	Bids on Hdqtrs bldg.	5/8-10
W. Thorstenson	Br. Engineering, FWS	Bids on Hdqtrs bldg.	5/8-10
R. Johnson	Seney Refuge, FWS	Pick up seed	5/10
H. Haines	Div. Engr. MCD	Flood inspection	5/18
R. Lentz	Div. Engr. MCD	Flood inspection	5/18
F. C. Gillett	Reg. Refuge Supv., FWS	Flood inspection	5/28-29
R. Dougal	Reg. Engineer, FWS	Flood inspection	5/28-29
Joe Smoke	Br. Lands, FWS	Land acquisition	6/20-29
H. Van Dyke	Br. Engineering, FWS	Dike surveys	6/11
L. Bagley	Asst. Director, FWS	Inspection	6/15
H. J. Miller	Waterfowl Biologist, MCD	Project development	7/2
Harold Burgess	Upper Miss. Refuge, FWS	Visit	7/2
L. A. Davenport	Game Div., MCD	Habitat development tour	7/10-11
H. J. Miller	" " "	" " "	"
L. Ryel	" " "	" " "	"
L. Ruck	" " "	" " "	"
John Kadlac	" " "	" " "	"
Francis Uhler	Patuxent Ref., FWS	" " "	"
C. J. Henry	Seney Refuge, FWS	" " "	"
D. McGlauchlin	Seney Refuge, FWS	" " "	"
G. Pospichal	G.M.A., FWS	" " "	"
Ray Wright	Br. Engineering, FWS	Well inspection	8/7
M. Cooley	Game Div., MCD	Project development	8/15
J. C. Salyer II	Chief, Br. Refuges	Inspection	8/16
F. C. Gillett	Reg. Refuge Supv., FWS	Inspection	8/16
R. Dougal	Reg. Engineer, FWS	Inspection	8/16
Al Boelter	Forestry Div., MCD	Technical information	8/17
K. Black	River Basin Studies, MCD	Visit project	8/22
C. Odin	River Basin Studies, MCD	Visit project	8/22
Marv Johnson	Game Div., MCD	Project development	Frequent
Roger Ashley	Lands Div., MCD	Land acquisition	"

<u>Name</u>	<u>Affiliation</u>	<u>Purpose</u>	<u>Date</u>
E. Spycher	Cons. Officer, MCD	Enforcement	Frequent
C. McClarty	Cons. Officer, MCD	Enforcement	"
G. Pospichal	G.M.A., FWS	Enforcement	"
M. Jensen	G.M.A., FWS	Enforcement	"
Richard Kirch	S.C.S.	Land use problems	"
Dale Pasco	S.C.S.	Soils information	"
Karl Klingelhofer	S.C.S.	Engineering asst.	"

A number of other people stopped by the office or called daily regarding the farming program, hunting and fishing information, employment or just plain curious.

### C. Refuge Participation

The refuge manager participated in the following activities:

- May 6 - Attended annual meeting of Bay City Audbon Society to discuss spring waterfowl migration and Shiawassee project.
- May 9 - Participated in  $\frac{1}{2}$  hour TV program over station WKNX-TV regarding flood control program and Shiawassee project.
- May 15 - Attended meeting with Game Division personnel at Lansing, Michigan regarding Dow Chemical Company plans for use of Shiawassee River.
- June 6 - Attended meeting of Saginaw County Citizens Advisory Council to serve on Land Use Committee.
- June 22 - Participated in joint meeting with technical personnel from Soil Conservation Service and State Game Division to discuss wildlife management and habitat development programs in Michigan. Accompanied by Student Assistant French.
- July 9-12 - Participated in tour of waterfowl habitat development projects in lower Michigan with State and Service personnel.
- August 9-10 - Attended meeting with State personnel at Algonac, Michigan regarding operation plans for Lake St. Clair refuge units.
- August 23 - Met with State Game Division personnel at Lansing to discuss development plans for Shiawassee project.
- August 27 - Attended meeting of Saginaw County Agricultural Council.



## VII. OTHER ITEMS

### A. Report of Activities - Lake St. Clair Refuge

Refuge Manager Nelson and Student Assistant William French visited the area August 9-10 to attend a meeting with State Game Division personnel regarding plan of operations for posting and patrolling refuge units during 1956 hunting season. An inventory was made of all posting materials on hand and orders placed for new materials required. Arrangements were made to hire local laborers in Algonac, Michigan to assist with posting of refuge units and the State agreed to furnish the Wetland work boat for posting and patrol of boundaries as required during the 1956 season.

State waterfowl technicians have submitted a plan to Mr. H. D. Ruhl, Chief of the Game Division, outlining proposed developments on Harsons Island. They would like to acquire additional lands to block in certain areas and then construct a system of low level dikes and shallow lift pumps to permit control of about 2000 acres of sedge meadows. When this is accomplished they would initiate a wetland farming program and then proceed to establish a refuge on portions of the island under State ownership. I believe this plan has considerable merit as it is in an ideal location for such a project. Much of the area could be kept in natural marsh; it would be adjacent to public shooting areas already established and would perhaps influence a greater movement of ducks between marshes on the Canadian side, Harsons Island and existing refuge units in Lake St. Clair. If and when such a program materializes it may be desirable to make some changes in the location of existing Refuge Unit B.

### B. Other Items

1. Mr. Arthur Jamieson spent considerable time at Shiawassee during the period to assist with construction of the equipment building.

2. Attempts to obtain suitable bids or negotiation of a contract for construction of a service-office building and one residence proved futile. Lowest bids exceeded limitations by 25% or more, with little interest shown in the proposed concrete block construction. We hope to try again this fall.

3. The proposed Saginaw Valley Flood Control Program made considerable progress the past spring by clearing hurdles in the Bureau of the Budget, passed by the House and Senate, only to be temporarily halted by the Presidential veto of the 1956 Omnibus Bill for Flood Control and Harbor Developments. Local politicians and the Corps of Engineers feel certain the project will be approved next session of Congress.

4. The land acquisition program has been progressing very slowly the past year. It is anticipated that the spring flood and subsequent



decrease in crop production will induce a few of those "on the fence" to sell. Passage of the flood control project would undoubtedly stimulate additional sales.

Submitted by: Harvey R. Nelson  
Refuge Manager

October 24, 1956

Approved: J. E. Glavin

W A T E R F O W L

REFUGE Shiawassee

MONTHS OF May TO August, 56

(1) Species	(2) Weeks of reporting period									
	1	2	3	4	5	6	7	8	9	10
<u>Swans:</u>										
Whistling	10									
Trumpeter										
<u>Geese:</u>										
Canada	300	30	30	6	12	6	12	12		
Cackling										
Brant										
White-fronted										
Snow					4	4				
Blue					6	6				
Other										
<u>Ducks:</u>										
Mallard	1000	600	200	200	200	200	200	200	200	200
Black	800	400	300	200	200	200	200	200	200	200
Gadwall	T	T								
Baldpate	200	200	100							
Pintail	500	400	100	100	100					
Green-winged teal	T									
Blue-winged teal	200	200	200	200	100	100	100	100	100	100
Cinnamon teal										
Shoveler	T									
Wood		50	50	50	50	50	50	50	50	50
Redhead	T									
Ring-necked	50	50	T							
Canvasback	T									
Scaup	200	100	T							
Goldeneye										
Bufflehead	100	50	50	50						
Ruddy										
Other										
<u>Coot:</u>	500	800	500	300	300	300	300	300	200	200

3 -1750a

Cont. NR-1

(Rev. March 1953)

WATERFOWL  
(Continuation Sheet)REFUGE ShiawasseeMONTHS OF May TO August, 1956

(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			
<b>Swans:</b>											
Whistling									70		
Trumpeter											
<b>Geese:</b>											
Canada		12							2960		
Cackling											
Brant											
White-fronted											
Snow									50		
Blue									100		
Other											
<b>Ducks:</b>											
Mallard	250	300	300	300	300	300	300	300	42,250		
Black	200	200	250	250	250	250	250	250	33,600		
Gadwall											
Baldpate									3,500		
Pintail									8,400		
Green-winged teal	100	150	150	150	150	150	150	150	17,850		
Blue-winged teal											
Cinnamon teal											
Shoveler											
Wood	50	75	75	75	75	75	75	75	7,200		
Redhead											
Ring-necked									1,400		
Canvasback									2,100		
Scaup											
Goldeneye									2,100		
Bufflehead											
Ruddy											
Other									1,750		
<b>Coot:</b>	200	300	300	300	300	300	300	300	42,000		

(over)



	(5) Total Days Use	(6) Peak Number	(7) Total Production	SUMMARY
Swans	70	10	-	Principal feeding areas _____
Geese	3,090	300	-	
Ducks	118,150	3050	100	Principal nesting areas _____
Coots	42,000	800	200	
				Reported by <u>H. K. Nelson</u>

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

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



3-1751

Form NR-1A

(Nov. 1945)

MIGRATORY BIRDS  
(other than waterfowl)Refuge.....Shiawassee.....Months of.....May.....to.....August.....1956..

(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-billed grebe	}	Present throughout period. No definite population data compiled.								
Great-blue heron										
Black-crowned night heron										
Green heron										
American egret										
American bittern										
Least bittern			30	9/1						
II. <u>Shorebirds, Gulls and Terns:</u>										
Killdeer		Present throughout period								
Sanderling					5	5/19				
Spotted sandpiper		Present throughout period								
Semi-palmated sandpiper	30	7/28								
Pectoral sandpiper					12	5/28				
Red-backed sandpiper			2500	5/28	20	6/7				
Lesser yellowlegs	18	7/28								
Greater yellowlegs	2	7/28								
Wilson's snipe		Present throughout period								
Dowitcher			80	5/31						
Hudsonian godwit			2	5/31						
Black-bellied plover					15	6/7				
Golden plover			12	5/31						
Common tern	Present throughout period									
Black tern	Present throughout period									
Herring gull	Present throughout period									
Ring-billed gull	Present throughout period									
(over)										

(over)



(1)	(2)	(3)	(4)	(5)	(6)
III. <u>Doves and Pigeons:</u> Mourning dove White-winged dove	Present throughout period				
IV. <u>Predaceous Birds:</u> Golden eagle Duck hawk Horned owl Magpie Raven Crow Bald eagle Short-eared owl Rough-legged hawk Red-shouldered hawk Red-tailed hawk Marsh hawk Sparrow hawk Cooper's hawk	- - Common resident - - Common resident Observed during period	7	5/28		
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 using the refuge during the period concerned.



UPLAND GAME BIRDS

1613

Refuge Stinson Months of May to August, 1956

(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.
Ring-necked pheasant	Cultivated fields, bottom-land hard- woods, herbaceous growth on dikes & ditches, sedge meadows & cattail marsh. (800+ acres)		6	7						Highest concentration in vicinity of Trinklein & Watson Tracts.
Bob-white quail	Cultivated fields, herbaceous growth along field margins, meadows, dikes & ditches. (5000 acres)	7							30+	<p>At the end of April, 1956 there was an estimated breeding population of 3000 pheasants. A large percentage of this population moved out to higher land ahead of rising flood water during May 5-17. We don't know how many pheasants moved back into the project during the summer, but the number of broods observed was low as compared to 1954 and 1955. Fall hunter pressure may move a lot of birds into the area.</p>

## 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.





Views during flood of May 7-17 showing breaks and wave action on riverside dike, water around secondary site, water over State Highway 13 and weakened section of dike on Peaphon Tract holding 7' head of water.





Break in riverside dike and  
example of erosion on slopes.



Washout and debris in field in  
front of an area where water  
broke through dike.



There is little material within reach  
for fill when breaks occur. Breaks  
closed temporarily with bulldozer and  
later built up by dragline.



Installation of 48" diameter discharge pipe with flap gate on Watson Tract to provide new outlet into the Cass River for water collecting on farm land within protective dikes.



Fish and Wildlife Service and State Game Division personnel  
on field tour of waterfowl development projects in Michigan.  
L - R: L. C. Ruch, Larry Dayton, Dave McGlauchlin, Wm. French,  
Jerry Pospichal, C. J. Henry, L. A. Davenport, Herb Miller,  
Larry Ryel, John Kadlec, Marvin Johnson, Francis Uhler.