

SWAN LAKE

NARRATIVE REPORTS

JANUARY-DECEMBER 1961

X

Narrative Report Routing Slip

Mr. Salyer \_\_\_\_\_

Mr. Ackerman OA

Mr. Crawford                     

Administrative Services

Miss Baum \_\_\_\_\_

Operations

~~Mr. Fennelich~~ \_\_\_\_\_

~~Mr. Began~~ \_\_\_\_\_

Public Use

Mr. DuMont \_\_\_\_\_

Mr. Kubichek \_\_\_\_\_

Mr. Stollberg \_\_\_\_\_

Resource Management

Dr. Morley \_\_\_\_\_

Mr. Hickok \_\_\_\_\_

Wildlife Management

Mr. Banko \_\_\_\_\_

Mr. Stiles S

Mr. Goldman \_\_\_\_\_

Refuge SWAN LAKE

Period September-December 1961

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Narrative Report  
Swan Lake National Wildlife Refuge  
September - December, 1961

PERMANENT PERSONNEL

Leo M. Kirsch .....	Refuge Manager
Marvin F. Lentz .....	Refuge Clerk
William H. Thornsberry .....	Refuge Aid

TEMPORARY AND INDEFINITE EMPLOYEES

Floyd A. Holland .....	Maintenanceman
Benny N. Howerton .....	Operator General
Roy T. Warren .....	Maintenanceman
Ervin Windsor .....	Maintenanceman



Narrative Report  
Swan Lake National Wildlife Refuge  
September - December  
1961

I. GENERAL

A. Weather Conditions.

	<u>Snowfall</u>	<u>Precipitation</u>		<u>Max.</u>	<u>Min.</u>
		<u>This Month</u>	<u>Normal</u>	<u>Temp.</u>	<u>Temp.</u>
September	_____	<u>10.43</u>	<u>4.88</u>	<u>72</u>	<u>36</u>
October	_____	<u>3.76</u>	<u>2.72</u>	<u>66</u>	<u>31</u>
November	_____	<u>5.00</u>	<u>2.32</u>	<u>62</u>	<u>21</u>
December	<u>13.5</u>	<u>1.26</u>	<u>1.65</u>	<u>42</u>	<u>-10</u>
Total	<u>13.5</u>	<u>20.45</u>	<u>11.57</u>	Extremes <u>72</u>	<u>-10</u>
Annual		<u>52.70</u>			
Total	<u>18.5</u>	<u><del>52.70</del></u>	<u>38.27</u>		

Rainfall during the period was almost twice what can normally be expected. Hurrican Carla started the trend when the tail of this storm dumped 7.5 inches of rain on the refuge during a 36 hour period.

## B. Habitat Conditions

### 1. Water

At the beginning of the period water levels in all pools were at or near desired elevations and millet, chufa and smartweed flats on the Swan Lake and South Pools were in perfect condition to receive the fall flight. On September 12 and 13 the tail of hurricane Carla dumped  $7\frac{1}{2}$  inches of rain on us and heavy flooding began.

The flood covered the portion of the refuge below Silver Lake levee to elevation 663.0. At this elevation all but 350 acres in this area are under water. Continued rainy weather during the rest of September kept water levels high. During October rainfall was above normal but we were able to draw all pools down to desired elevations. November rainfall was more than double normal and two major floods passed through the area during this month.

After the November floods had subsided, pools were again pulled to operating levels where they were held until the end of the period.

We thought 1960, when the Grand River flooded nine times and got into the refuge four times was bad, but during 1961 the Grand flooded 13 times and was over the refuge six times. We are planning to program for money to construct an ark if things get worse.

### 2. Food and Cover

Agricultural Crops were adversely effected by the abnormally heavy rainfall and the floods, but in spite of the adverse conditions the amount of corn, milo and beans remaining in the field for geese was equal to the average during the past five years. This was partially because permittee farmers were unable to harvest much of their share of the 1961 crop before the geese and floods got at it. All available grain was cleaned up on those portions of the refuge uneffected by public hunting by mid-November. Some corn too high for the geese to reach or located in the zone effected by hunting was still standing at the end of the period. Deep snow has prevented us from dragging this corn down to make it available.

Browse Crops in the form of ladino clover and wheat were good and bad. Our clover crop was excellent and supported large numbers of geese during October and early November, but almost all of the small amount of wheat planted for browse was destroyed by the September flood before it really got much of a chance to grow.

One item of interest concerning ladino clover is the fact that almost all of our clover survived flooding to depths of from 18" to 36" during the September flood. We were very surprised by this because our experience with other floods indicated that ladino could not withstand complete inundation for even short periods.

Moist soil food production on the Swan Lake Pool was good and it was excellent on the South Pool. The floods during November nullified the value of this food when it was most needed however, and an early freeze up after the floods passed has kept this source of food unavailable. We hope to be able to keep water levels at elevations which will permit the birds to use this food during the spring flight.

Mast production on our pin oak flats was only fair but the mallards apparently made good use of those acorns which were available.

## II WILDLIFE

### A. Migratory Birds

#### Ducks

The fall migration of blue wing teal, pintail, and green wing teal began before the fall narrative period during August. The first duck movement this period occurred during the first four days of September when a flight of shovellers, baldpates, green wings, blue wings, pintails and wood ducks moved in. Duck numbers increased steadily throughout September with the above species all showing increases and a small influx of mallards showing up during the latter part of the month. The duck build up continued during October and during the week of October 15 to 21 redheads, scaup and ring necks made their appearance.

There were probably more ducks on Swan Lake refuge during the first week of November than at any time since the refuge was established. Our estimate of 200,000 birds could be too low but we feel confident that there were at least this many. This unusual build-up was the result of a number of circumstances. First the wet weather during September and October stopped almost all harvest activity and secondly floods during November flooded thousands of acres of unharvested corn, soybeans and milo in this area. This vast area of flooded crops made perfect habitat for migrating ducks and geese and the birds took full advantage of it.

In addition to unusual numbers of ducks we had unusual numbers of birds other than mallards. Green wing teal, pintail, baldpate, scaup, and ring necks remained in the area throughout most of November, and showed up commonly in the hunters bag. This was confusing for the local hunters who seldom have opportunity to shoot anything but mallards and wood ducks. We had to settle many arguments as to the identity of bagged ducks.

#### Geese

The first detectable movement of Canada geese occurred on September 15 and the first significant flight began on September 27th. In contrast to other recent years there was no spectacular movement of geese into

the refuge. The build up was gradual during the first three weeks of October with a peak of approximately 75,000 common Canadas being reached by October 21st. In addition to these there was a number of small Canadas present bringing the total Canada population at peak to between 75,000 and 80,000 birds.

A few white-fronted geese were present on the area from late September until early November. It was impossible to get an accurate estimate of their numbers because they were scattered throughout the goose flock.

A few snow and blue geese began coming in during the week of September 17 to 23. A peak population of 11,400 was reached at the end of October, and all but a few stragglers had moved out by the end of November.

A whistling swan moved into the refuge during late November and was still with us at the end of the period.

#### Waterbirds

Our usual build up of white pelicans occurred during September when approximately 3,000 birds used the area. Other birds in this category using the refuge were pie billed grebes, cormorants, great blue herons, black crowned night herons, sora rails, and American egrets. One great blue heron braved the winter until about Christmas time. This was the latest we have ever noticed this species.

#### Shorebirds

Wilson's snipe were present both on the refuge and in the vicinity in unusual number during late October and most of November. We suspect the wet fall and floods had something to do with the concentrating of these birds in this area.

#### Doves

Doves were plentiful throughout September and early October, and a few small flocks may still be found wintering on the area. One flock of 21 wintering doves is staying in the headquarters area feeding on grain spilled when we get the feed truck stuck.

Dove shooting in the vicinity of the refuge was exceptionally good late in the season when a few farmers were able to cut some corn silage between the rains. Large concentrations built up in such areas because very few fields were opened up.

#### B. Upland Game

Bob white have made a good come back since the severe winter losses of 1959-60. Local populations are again near the level of 1959. This



would have been a tough winter on quail had it not been for the fact that much of the crop is still unharvested in the fields and the birds have no trouble feeding in spite of the deep snows.

One of the 25 pinnated grouse which were released on the refuge last spring was seen during November flying into the refuge from an adjacent farm field. We hope the goose hunters didn't shoot any of these birds but after seeing them shoot meadow larks, pelicans, cormorants, and gulls for geese we would not be surprised if they tried a prairie chicken.

C. Big Game Animals

The refuge white-tailed deer population is estimated to be about 200 animals. This is an all time high for the area. The deer were forced to yard up because of the deep snow during December. There are three large concentrations on the refuge all of which are doing some depredating in neighboring corn fields.

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

Our red fox population has remained very low since the die-off during 1958 and 1959. Coyotes are present but not plentiful. Three were sighted during the period.

Beaver are becoming more numerous each year but are as yet causing little trouble.

E. Hawks, Eagles, Owls, Crows, Ravens and Magpies

We were never able to get a good bald eagle count because of floods and snow but it appears as if the population may be a little smaller than that of a year ago. The number of young per adult is high however, indicating that the birds are reproducing.

Two golden eagles were noted during November. One of these birds was observed trying to catch a mallard drake in the timber. He did a fancy job of dodging through the trees but the drake did even better and made his escape.

Marsh hawks, red tailed hawks, duck hawks, red shouldered hawks, broad winged hawks, and Cooper's hawks were present on the refuge during the period.

G. Fish

Heavy snow cover on the ice may result in some winter kill of fish this year but we doubt that this will occur in our major pools.

I. Disease

No major die-off from lead poisoning or crop impaction occurred

this year.

### III REFUGE DEVELOPMENT AND MAINTENANCE

#### A. Physical Development

No major physical development work was in progress this period.

#### B. Plantings

##### 1. Aquatic and Marsh Plants

No plantings of this type were made.

##### 2. Trees & Shrubs

A few small pecan trees were dug and moved to the headquarters area. At the time of freeze up it looked as if only three were surviving.

##### 3. Upland Herbaceous Plants

The refuge crew seeded 242 acres to ladino clover last spring, permittee farmers planted an additional 98 acres and the Missouri Conservation Commission put in 124 acres. Most of this clover was doing nicely at the beginning of the period. The refuge also put in 90 acres of Reed's canary grass during late August and early September. We have little hopes for the survival of the planting because it was flooded immediately after seeding and heavily trampled by geese after the flood.

Plantings of native grasses which have been made during the past four years are doing very well. We now have all of the dominant grasses formerly present on the Missouri prairies growing on our grassland area near Secondary Headquarters. These are switch grass, big blue stem and Indian grass.

##### 4. Cultivated Crops

A total of 635.8 acres of corn was planted on the refuge this year. Yields ranged from as low as nothing, on areas effected by floods, to as high as 90 bushels per acre on the better farming ground.

Soybeans were planted on 271 acres. The bean crops were good with yields running from 15 bus hals to 30 bushels per acre.

Milo was planted upon 77 acres, some of which was flooded out. The milo which matured produced about 50 bushels per acre.

The 1961 crop year can be summed up as bad. Early spring rains

made planting difficult. Excessive summer rains made cultivation almost impossible, and heavy fall rains accompanied by flooding prevented most farmers from harvesting their share of the crop.

Wheat was planted on 223 acres by refuge and State personnel. All of this wheat was flooded during September and again during November, and produced very little browse for the goose flock.

C. Collections and Receipts

Seed wheat was hauled from Kerwin Refuge in Kansas for fall wheat planting. Only 300 bushel of the 920 bushels hauled were planted because of the wet fall.

D. Control of Vegetation

The 416 acres of ladino clover grown by the refuge was periodically clipped during the growing season to control foxtail.

E. Planned Burning

None to report.

F. Fires

The refuge Ford tractor caught fire while being used to knock down corn. The fire did almost \$100.00 worth of damage before it could be put out.

D. Timber Removal

Our wood cutting permittee cut fire wood in the refuge picnic area again this fall. This man does a real nice job and has greatly improved this area during the past two falls.

## V FIELD INVESTIGATIONS OR APPLIED RESEARCH

A. Banding

A pre hunting season sample of 986 Canada geese were banded and at the close of the period a post season sample of 193 geese had been banded.

## VI PUBLIC RELATIONS

A. Recreational Uses

Sightseers made heavy use of the tower area during the period. On October 22 the refuge held an open house and tour which attracted heavy crowds. A total of 985 cars were counted going past the check in table. We know some cars got by without being counted during rush

periods and some went around us so we are confident that over 1,000 cars went through the refuge that day. Hand outs consisting of the refuge leaflet and bird list were given to each driver and a photo display and net trap set-up were available for inspection on the refuge lawn. Most of the visitors made favorable comment on the open house and we plan to make it an annual affair.

B. Refuge Visitors

<u>Name</u>	<u>Address</u>	<u>Purpose of Visit</u>	<u>Date</u>
Dick Vaught	Columbia, Missouri	Banding	9/8
Kenneth Krumm	Mound City, Mo.	Conference	9/17
Robert Meyerding	St. Joseph, Mo.	Conference	9/17
Robert Meyerding	St. Joseph, Mo.	Law Enforcement	9/26-27
Don Grey	Winona, Minn.	Adding Machines	9/28
Loyd Merhoff	Quincy, Illinois	Adding Machines	9/28
Don Schooler	Brookfield, Mo.	Tour Refuge	10/3
Rollins Brownlee	Brookfield, Mo.	Tour Refuge	10/3
Troop 267 Boy S.	Kansas City, Mo.	Visit Refuge	10/18
C. E. Shanks	Jefferson City, Mo.	Buy Corn	10/5
Dick Vaught	Columbia, Mo.	Buy Corn	10/5
Harris White	Salisbury, Mo.	Blind Drawings	10/11
Bart Rice	Keytesville, Mo.	Blind Drawings	10/11
Vic Thate	Norborne, Mo.	Blind Drawings	10/11
Ref. Faust Matthews	Springfield, Mo.	See Geese	10/17
Clifford Reisinger	Macon, Mo.	See Geese	10/18
Robert Meyerding	St. Joseph, Mo.	Depredations	10/18
Herb Dill	Holt, Minnesota	Visit	10/22
Callao High School	Callao, Mo.	See Geese	10/24
Marshall School			
Crippled Children	Marshall, Mo.	See Geese	10/27
C. E. Shanks	Jefferson City, Mo	State Area	10/27
Carl Gruener	Jefferson City, Mo.	Opening Hunting Season	10/29-11/4
Chas Kniffin	St. Charles, Mo.	Opening Hunting Season	10/29-11/4
Robert Meyerding	St. Joseph, Mo.	Opening Hunting Season	10/29-11/4
C. E. Shanks	Jefferson City, Mo	Opening Hunting Season	10/29
Dick Vaught	Columbia, Mo.	Opening Hunting Season	11/1
John Lewis	Columbia, Mo.	Opening Hunting Season	11/1
Bob Dunkenson	Columbia, Mo.	Opening Hunting Season	11/1
Harold Hanson	Havana, Illinois	Opening Hunting Season	11/1
Harvey Nelson	Minneapolis, Minn	Opening Hunting Season	11/1
Gene Hlavka	Des Moines, Iowa	Visit Shooting Area	11/9
Bill Ackelmeier	Des Moines, Iowa	Visit Shooting Area	11/9
Dan Nichols	Des Moines, Iowa	Visit Shooting Area	11/9
Ralph Von Dane	Minneapolis, Minn	Depredations	11/28
Charles Lawrence	Washington, D. C.	Depredations	11/28
Carl Gruener	Jefferson City, Mo	Depredations	11/28
Flick Davis	Minneapolis, Minn	Depredations	11/28
Chas Steine	Quincy, Illinois	See Geese	12/7
Bob Crouse	Quincy, Illinois	See Geese	12/7



<u>Name</u>	<u>Address</u>	<u>Purpose of Visit</u>	<u>Date</u>
Wm. Ackerknecht	Washington, D. C.	Refuge Inspection	12/7
Harvey Nelson	Minneapolis, Minn	Refuge Inspection	12/7
Kermit Dybsetter	Elair, Nebraska	Refuge Inspection	12/7
Ray Heddy	Kansas City, Mo.	Story on Refuge	12/13
Paul Renshaw	Kansas City, Mo.	Photographer	12/13
Holger Larsen	Ketchikan, Alaska	Depredations	12/13-20
Morgan Wilson	Sikeston, Mo.	Depredations	12/13-20
Harry Pinkham	Grand Rapids, Minn.	Pick up Holger	12/20

#### C. Refuge Participation

Marvin Lentz the refuge clerk at Swan Lake continued arranging movies for the monthly meetings of the Swan Lake Sportsmens Club. Two movies were shown at the Summer school and the refuge manager appeared on a St. Joseph television program where goose hunting prospects were discussed.

#### D. Hunting

Canada goose hunting lasted only 25 days this year. The Bureau and State agreed prior to the opening that the season would be closed when 20% of a peak flock of 80,000 or less geese had been killed. It was agreed that if the peak was more than 80,000 birds a harvest of 40% of those birds in excess of 80,000 would be permitted. As it turned out only 75,000 Canadas were present in the peak flock, providing for a kill of 15,000 birds.

Hunting success was high from the beginning until the end of the 1961 hunt. On the managed hunting area within the boundaries of the refuge 3,483 hunters killed and retrieved 3,381 geese during the 25 day period. Road block hunter checks plus club reports showed that the kill off the refuge was almost four times as heavy as that on the refuge and at the time of season closing our estimates showed a kill of between 14,600 and 15,200 birds.

Heavy goose kill occurred in the flooded Grand River bottoms area where hunting is ordinarily poor. One farmer reported that hunters killed 371 geese on his flooded cornfield during the season. The kill in another nearby field was very near this figure. Some of the areas which have for years had excellent goose hunting did not fair so well. The Johnson place where 1,536 geese were killed during the 30 day season in 1960, accounted for only 362 geese in 25 days this year.

Many of the blinds on the refuge were flooded during most of the season making it necessary to refill blinds on the refuge to take care of hunters who had reservations. Chain shooting public area blinds probably had some influence upon goose movement off the refuge, but we believe the greatest factor in the changed use pattern was the floods which made the Grand River bottoms a waterfowl paradise. Thousands of acres of corn, soybeans and milo plus other thousands of acres of pin oak timber were flooded to varying depths during the entire waterfowl

season.

Duck hunting on areas near the refuge was also exceptionally good. Many hunters complained about the two bird bag limit and it was pretty difficult to convince them that ducks were down in view of the local populations.

The heavy goose kill during 1961 can be attributed to the floods which made much of the refuge food unavailable as well as making off refuge areas very attractive and to the scarcity of agricultural crops on the refuge. If we would not have had the fall floods we believe the kill would have taken place at a much slower rate and that the season would have lasted at least 35 to 40 days.

The age ratio of the geese checked from the hunters bag was only 1.4 young per adult. During the 1960 season this ratio ran 4.13 young per adult. The geese apparently had very poor reproductive success during 1961. Age ratio data from trapping samples also indicated that there were few young among the 1961 flock.

#### E. Violations

The following violations were found on or in the vicinity of the refuge during the 1961 season.

<u>Violation</u>	<u>Number</u>	<u>Fine and Court Cost</u>
Unplugged Gun	7	\$124.00
Over Limit of Geese	5	\$195.00
Early Shooting	4	\$84.00
Closed Season Hunting	2	\$42.00
No License	3	\$64.00
Hunting Geese with Rifle	1	\$21.00
Improper Permit	11	\$291.00
Hunting on Refuge	2	\$24.00
Hunting Out of Blind	5	\$105.00
Late Shooting	1	\$26.00
Using Buck Shot	1	\$26.00
Total	42	\$1,002.00

In addition to these there are a number of cases pending in Federal Court which will not be settled until Spring.

#### F. Safety

Refuge Manager Kirsch and Refuge Aid Thornsberry met head on on the trail to the banding site one icy morning. This accident did more damage to our egos than the vehicles.

### Depredations

Some depredations complaints were registered before the goose season opened when geese from the refuge began feeding in unharvested flooded corn in the Grand River bottoms. During the season when two major floods passed down the river a good deal of damage was done to flooded crops and more complaints were registered. At the time of the season closing approximately 75% of the corn and perhaps 50% of the soybeans on farms near the refuge were still in the field. With 40,000 geese and very little food on the refuge we had a real problem on our hands.

Immediately following the season a flood of depredations complaints began coming in. It was decided that the only method of coping with the problem would be to feed the birds on the refuge. A request was submitted for Commodity Stabilization Service corn and a crew of Game Management Agents and refuge personnel went to work with the farmers giving them aid and advise in attempting to chase the geese back to the refuge. A little corn remained on the refuge at this time. This was knocked down as rapidly as possible but heavy snows and muddy fields prevented us from completing the job.

A total of 16,142 bushel of CSS corn was hauled and spread on refuge roads and levees for the geese during December. This coupled with the scaring program was successful in getting the geese back on the area and holding them there.

Heavy snows fell throughout the month of December preventing farmers from harvesting their crops and at the end of the period it looks like we will be feeding geese until spring.

### VIII Other Items

#### A. Items of Interest

##### Hunting Accident

A goose hunter was killed by a hunting companion near the refuge early in the season. This accident occurred when one hunter swung and shot at a low flying goose which was passing the opposite end of the blind. His hunting companion was shot back of the head and killed instantly.

##### Hunter Killed

Another goose hunter was killed in a fight with State Manager Fred Veach. This fight began as an argument over blind assignments at the State Hunting Headquarters. The hunter was struck and fell on the concrete floor of this building. He died the next day of a fractured skull without regaining consciousness.



No criminal action was taken in the case but the widow has filed suit for \$25,000 in civil court.

This incident has resulted in a good deal of ill will toward Swan Lake and some very bad publicity for us. All the newspapers carried the story stating that the refuge manager of Swan Lake National Wildlife Refuge killed this man. By the time we get the papers set right the story had cooled off and very few corrected articles appeared in the papers.

### Robberies

On the night of December 8th while the refuge manager and his family were away, robbers broke into the refuge office and shop and the refuge managers residence. The robbers gained admittance by breaking the window from the door at the refuge house and by breaking the hasp off of the lock on the shop door.

Federal property taken included two sets of 7 x 50 binoculars, four pairs of hip boots, a 35 mm camera and a set of end wrenches. Private property taken included a 30-30 Winchester model 94 rifle, a 220 Swift, Winchester rifle with scope, case and 100 rounds of ammunition and an unknown quantity of 22 rifle ammunition.

On the night of January 14th robbers were seen, near one of the hunting cabins on the north side of the refuge, by Mr. Gerald Foster one of our neighbors. He followed their car and got the license number. He then picked up the refuge manager and the car tracks were followed to a point within the refuge on State Highway EE. Here the robbers had apparently become frightened because they knew Mr. Foster had read their license numbers and they abandoned the car and ran into a patch of woods on the refuge. The County Sheriffs office and Highway Patrol were called. The robbers escaped into the night but the authorities have their automobile and the identity of one of the robbers. We believe these may be the same robbers who robbed the refuge during December.

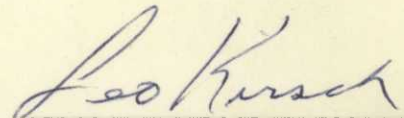
### B. Photographs

The photographs on the following pages were taken by the refuge manager with the refuge 35mm camera. We had some <sup>film</sup> showing large concentrations <sup>of 60055</sup> in the camera when it was stolen.



SIGNATURE PAGE

Submitted by:



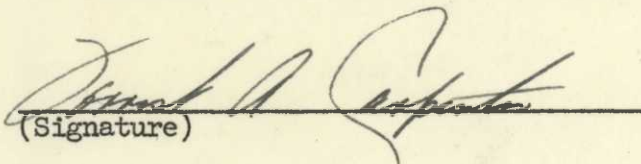
(Signature)  
Leo M. Kirsch

Date: February 8, 1962

Refuge Manager  
Title

Approved, Regional Office:

Date: 2-12-62

  
(Signature)

Regional Refuge Supervisor



Trapping and Banding - 1961



State Agent White and Federal Agent Meyerding - Plotting.



Part of 1,000 car cavalcade on "Open House" day.



Refuge Clerk, Lentz and Refuge Aid Thornsberry passing out handouts.



Visitors viewing net trap display.



He didn't believe it - locked antlers!





Visitors at information desk.



Typical fall day at refuge tower.



Tall corn - refuge farming unit.



Wild millet and chufa - South Pool.



Canadas on ladino clover field.



Canadas leaving flooded corn. Levee No. 5 in background nearly inundated.

W A T E R F O W L

REFUGE Svan Lake

MONTHS OF September TO December, 1962

(1) Species	(2) Weeks of reporting period									
	: 9/1-2 1	: 9/3-9 2	: 9/10-16 3	: 9/17-23 4	: 9/24-30 5	: 10/1-7 6	: 10/8-14 7	: 10/15-21 8	: 10/22-28 9	: 10/29-11-4 10
<b>Swans:</b>										
Whistling										
Trumpeter										
<b>Geese:</b>										
Canada	100	100	350	1400	12900	44025	73600	75000	75000	61300 ✓
Cackling										
Brant										
White-fronted				4	20					
Snow and				10	80	500	3865	5000	10000	11400
Blue										
Other										
<b>Ducks:</b>										
Mallard	150	300	500	700	1000	2500	2500	5000	12000	25000
Black	Insignificant numbers from time to time during fall									
Gadwall						500	500	90	200	500
Baldpate		100	400	400	500	500	500	500	400	500
Pintail	200	500	10000	10000	12000	10000	9500	7000	5700	12000
Green-winged teal	200	200	600	500	600	500	500	400	3000	1500
Blue-winged teal	550	4000	4000	4500	3000	1500	1500	500	300	
Cinnamon teal										
Shoveler		100	100	200	100	500	500	500	100	
Wood	200	300	400	400	400	500	500	500	300	300
Redhead								10	500	200
Ring-necked								500	500	1000
Canvasback	Insignificant numbers present when major diver flight was in progress									
Scaup								4000	4000	3000
Goldeneye										
Bufflehead	Insignificant numbers present in early November									
Ruddy	Insignificant numbers noted during migration period									
Other										
<b>Coot:</b>		50	500	850	1350	1100	600	1500	3300	3000



3 -1750a

Cont. NR-1

(Rev. March 1953)

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

REFUGE Svan LakeMONTHS OF September TO December, 19 62

(1) Species	(2) Weeks of reporting period								(3) Estimated waterfowl days use	(4) Production Broods: Estimated seen : total
	11/5-11	11/12-18	11/19-25	11/26-12	12/3-9	12/10-16	12/17-23	12/24-31		
	11	12	13	14	15	16	17	18		
<b>Swans:</b>										
Whistling					1	1	1	1		29
Trumpeter										
<b>Geese:</b>										
Canada	48265	45000	38000	42000	40000	40000	40000	40000	4,546,580	
Cackling										
Brant										
White-fronted										168
Snow and	11400	10000	5500	3500					428,785	
Blue										
Other										
<b>Ducks:</b>										
Mallard	170000	85000	58000	70000	5000	15000	10000	10000	3,317,800	
Black									Godwall 12,530	
Gadwall									12,530	
Baldpate	1000								33,600	
Pintail	10000	3000	500	1000					638,800	
Green-winged teal	10000	3000	500	1000					156,500	
Blue-winged teal										
Cinnamon teal										
Shoveler									14,800	
Wood	500	500							32,600	
Redhead									4,970	
Ring-necked	3500	250	500	1500					54,250	
Canvasback										
Scaup	5000	250	500	1500					127,750	
Goldeneye										
Bufflehead										
Ruddy										
Other										
<b>Coot:</b>									85,750	

(over)

	(5)	(6)	(7)
	Total Days Use	Peak Number	Total Production
Swans	29	1	
Geese	4,975,533	85,000	
Ducks	4,393,500	200,000	
Coots	85,750	3,300	

# SUMMARY

Principal feeding areas Refuge agricultural fields, refuge moist soil feed production areas, and neighboring farm lands.

Principal nesting areas \_\_\_\_\_

Reported by Lee Kirsch

## 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 Swan LakeMonths of September to December 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>										
White pelican	9	9/7	3,000							
Pied-billed grebe			100							
Great blue heron	Summer res.		300							
Green heron	Summer res.		10							
Little blue heron			1							
American egret			150							
Snowy egret			10							
D. Crested Cormorant			30							
Black Crowned n. heron			20							
American bittern			10							
Sora rail	Abundant during early September									
II. <u>Shorebirds, Gulls and Terns:</u>										
Killdeer	Summer resident									
Wilson snipe	Heavy concentration during late October and November - most seen in recent years.									
Spotted sandpiper	Common									
Ring billed gull	Common fall migrant									
Common tern	Common fall migrant									
Caspian tern			6	9/28						

(over)



(1)	(2)	(3)	(4)	(5)	(6)
III. <u>Doves and Pigeons:</u> Mourning dove White-winged dove	Year around resident - abundant during spring summer and fall				
IV. <u>Predaceous Birds:</u> Golden eagle Duck hawk Horned owl Magpie Raven Crow		2 2			
	Common resident				
	Common resident				
Bald eagle	Peak count 36 birds of those identified as to age 8 were adults and 20 were young. Estimated peak refuge population 60 to 70 birds.				
				Reported by <u>Lee Kirsh</u>	

#### 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.



3-1750c  
Form NR-1C  
(Sept. 1960)

WATERFOWL HUNTER KILL SURVEY

Refuge Saga Lake

Year 196 2

(1) Weeks of Hunting	(2) No. Hunters Checked	(3) Hunter Hours	(4) Waterfowl Species and Nos. of Each Bagged	(5) Total Bagged	(6) Crippling Loss	(7) Total Kill	(8) Est. No. of Hunters	(9) Est. Total Kill
1.	1,078		C. geese 954 Blue & Snows 5 White P. 1	960	162	1,122	These are total check figures	
2.	1,088		C. geese 1,385 Blue & snows 11	1,396	211	1,607		
3.	876		C. geese 772 Blue and Snows 8	780	151	931		
4.	443		C. geese 245	245	33	278		
* Four days								
Total 3,485								
			C. Geese 3,356, Blue & Snows 24, W. Front 1	3,381	557	3,938		

(over)

## INSTRUCTIONS

- (1) The first week of hunting begins with opening day and ends at the close of hunting 6 days later. Successive weeks follow the same pattern.
- (2) The goal is to survey a minimum of 25 percent of refuge hunters each week and to record data only from those who have completed their day's hunting. This information should be collected during each day of the week and in each area hunted in relative proportion to the hunter effort expended. When the 25 percent goal cannot be achieved, particular care should be taken to collect representative data.
- (3) Record the total number of hours the hunters spent hunting on the refuge.
- (4) List waterfowl species in decreasing order of numbers bagged. Sample entry: Mallard (61), Pintail (36), Redhead (16), Gadwall (11), Widgeon (6), Coot (4), Canada Goose (3), Green-winged Teal (1).
- (5) Record total numbers of waterfowl bagged.
- (6) Record total numbers of waterfowl reported knocked down but not recovered.
- (7) Total of Columns 5 and 6.
- (8) Estimate the total number of hunters who hunted on the refuge during the week, including hunters checked (Column 2).
- (9) Kill sample projected to 100 percent.  $\text{Column 9} = \frac{\text{Column 8}}{\text{Column 2}} \times \text{Column 7}.$



## UPLAND GAME BIRDS

1613

Months of **September** to **December**, 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'vd.	Estimated Total	Percentage	Hunting	For Re- stocking	For Research	Estimated number using Refuge	Pertinent information not specificioally requested. List introductions here.
<b>Bob-white</b>									<b>200 - 225</b>	<b>12 to 15 coveys</b>
<b>Pinnated grouse</b>	<b>Only 1 of the prairie chickens released last spring was observed during the period. We hope there are more than this.</b>									

## 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 Swan Lake

Calendar Year 1962

(1) Species	(2) Density	(3) Young Produced	(4) Removals				(5) Losses			(6) Introductions		(7) Estimated Total Refuge Population		(8) Sex Ratio
Common Name	Cover types, total Acreage of Habitat	Number	Hunting	For Re- stocking	Sold	For Research	Predation	Disease	Winter Loss	Number	Source	At period of Greatest use	As of Dec. 31	
White-tail deer												190-210	190-210	

Remarks: No accurate deer census has been made and our figures could be low.

Reported by Lee Kirsch

## 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 Swan Lake

Year 1962

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 \_\_\_\_\_

Lead Poisoning or other Disease

Kind of disease Lead poisoning

Species affected Canada geese and Mallards

Number Affected

Species	Actual Count	Estimated
<u>Canada geese</u>	_____	<u>200</u>
<u>Mallards</u>	_____	<u>100</u>

Number Recovered unknown

Number lost unknown

Source of infection unknown

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

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

Remarks A certain amount of lead poisoning occurs each fall on Swan Lake Refuge. We suspect the birds may be picking up the lead on the refuge in areas where spent shot from perimeter hunting falls in the water.

PUBLIC USE

Refuge Swan Lake

Calendar Year 1962

Total Use Visitor-Days	Hunting Use	Fishing Use	Miscellaneous Use
46,983	3,483	9,000	34,500

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	100	3,483	1,000	Recreation *	98.6	34,000
Upland Game				Official	.3	100
Big Game				Economic Use	.8	300
Supervised by refuge		by State <u>X</u>	No. of blinds <u>65</u>	Other	.3	100

Hunting (off  
refuge lands): Estimated man-days of hunting on lands  
adjacent to the refuge 12,200 (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:

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



3-1757  
Form NR-7  
(April 1946)

PLANTINGS  
(Marsh - Aquatic - Upland)

Refuge Swan Lake Year 1956 62

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
Ladino Clover		4 lbs./ac	242		early spring	good	none	
Reeds' canary grass		12 lbs./ac	90		Fall	?	Flooded and perhaps all lost.	

TOTAL ACREAGE PLANTED:

Marsh and aquatic.....  
Hedgerows, cover patches.....  
Food strips, food patches 332.....  
Forest plantings.....

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

Fish and Wildlife Service Branch of Wildlife Refuges

CULTIVATED CROPS - HAYING - GRAZING

Refuge Swan Lake County Shariton State Missouri

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 *	87	6,230			548.8	17,600	635.8	Wheat	223	
Mile *	30	1,500			14.0	700	77.0	Ladino clover	638.8	
Soybeans *	127	2,700			144.0	2,880	271.0			
Totals	244	10,430			706.8	21,180	983.8		861.8	
*Wet weather prevented permittees from harvesting much of their share of these crops and the geese used them up. We ended up getting about 4,000 bushels which would have gone to the permittees had they been able to harvest.										
									Fallow Ag. Land	

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				1,915.8
Hay - Wild				2. Acreage Cultivated as Service Operation				867.0

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 Swan Lake

Months of September through December, 19561

(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	920 bu.		920.0 bu.		300 bu.			620 bu.	x	x	
Corn	21,442 bu.		21,442 bu.			16,142 bu.		5,300 bu.		x	

(8) Indicate shipping or collection points \_\_\_\_\_

(9) Grain is stored at Wheat at white barn Corn at Chariton Co. Grain Co., Sumner, Mo.

(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 Swin Lake Year 1956

Species	Collections				Receipts		Total Amounts on Hand	Amount Surplus
	Amount	Date or Period of Collection	Method	Unit Cost	Amount	Source		
None to report								



3-1760  
Form NR-10  
(April 1946)

HAYING AND GRAZING

Refuge... Svan Lake ..... Year 1962

Permittee	Permit No.	Unit or Location	Actual Acreage Utilized	Animal Use Months	Tons of Hay Harvested	Period of Use From - To	Rate	Total Income	Remarks
None to report									

Totals:

Acreage grazed.....

Animal use months.....

Total income Grazing.....

Acreage cut for hay.....

Tons of hay cut.....

Total income Haying.....



TIMBER REMOVAL

Refuge Swan Lake

Year 1962

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
George Tremaine	22258	Picnic area	5		0.0			Elm, Osage orange, and locust
		To thin stands and improve picnic area.						

Total acreage cut over 1.5

Total income.....

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

Cords.....

Ties.....

.....

Method of slash disposal piled brush and burned same.