

BRANCH OF WILDLIFE REFUGES NARRATIVE REPORTS

MR. SALYER _____

MISS BAUM _____

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Operations

~~MR. REGAN~~ _____

✓ ~~MR. DUMONT~~ PAJ

Land Management

~~MR. ACKERLYN~~ wa

~~DR. MORLEY~~ Rm

Habitat Improvement

DR. ERICKSON _____

MR. STILES es

MR. KUBICHEK _____

Stenographers

REFUGE SNAKE CREEK

PERIOD SEPT - DEC 1957

SNAKE CREEK NATIONAL WILDLIFE REFUGE
BOX K-31, RIVERDALE, NORTH DAKOTA

PERSONNEL

Refuge Manager - - - Jerald J. Wilson

Refuge Clerk - - - - Blaine G. Meier

September 1 to December 31, 1957

CONTENTS

I GENERAL

- A. Weather Conditions
- B. Habitat Conditions

II WILDLIFE

- A. Migratory Birds
- B. Upland Game Birds
- C. Big Game Animals
- D. Fur Animals, Predators, Rodents and other Mammals
- E. Hawks, Eagles, Owls, Crows and Magpies
- F. Other Birds
- G. Fish
- H. Reptiles
- I. Disease

III REFUGE DEVELOPMENT AND MAINTENANCE

- A. Headquarters Development
- B. Miscellaneous Maintenance and Development
- C. Plantings
- D. Collections and Receipts
- E. Control of Vegetation
- F. Planned Burning
- G. Fires

IV RESOURCE MANAGEMENT

- A. Grazing
- B. Haying
- C. Fur Harvest

V FIELD INVESTIGATION OR APPLIED RESEARCH

- A. Captive Goose Flock

VI PUBLIC RELATIONS

- A. Recreational Uses
- B. Refuge Visitors
- C. Refuge Participation
- D. Hunting
- E. Violations

VII OTHER ITEMS

- A. Items of Interest
- B. Credits

APPENDIX

- NR Forms
- Graphs
- Map
- Photographs

NARRATIVE REPORT
 SNAKE CREEK NATIONAL WILDLIFE REFUGE
 September-October-November-December-1957

I GENERAL

A. WEATHER CONDITIONS

	Precipitation	Max. Temp.	Min. Temp.
September	.62	85	28
October	.87	87	11
November	.22	58	5
December	.25	48	-19
Total	1.96	High 87above	Low -19below

Weather conditions were above normal for the period. December was an unusual month with high temperatures and very little snow. On December 29 and 30 we received 2 inches of snow. (Temperature readings and precipitation data received from the Corps of Engineers Weather Station, Riverdale, North Dakota.)

B. HABITAT CONDITIONS

Water: No major change in the pool level of the Snake Creek Reservoir took place during the period. The Snake Creek pool level at time of freeze up was 1802.3 m.s.l. Calculated level of the reservoir for the next calendar year has been established by the Hydraulics Branch, Corps of Engineers at 1834. (see enclosed sketch map)

Fresh water potholes upon the project were eliminated with exception of two east of Mud Lake because of the dry season.

Food and Cover: A large percentage of the present Refuge has been under grain cultivation for many years. Several areas were seeded to grass in the spring of 1957 and three other farm units or parts of units were allowed to revert to natural cover. This growing season was a particularly good year for sweet clover; a large portion of this retired cropland resulted in heavy volunteer sweet clover stands mixed with pigeon grass, mustard and quack grass.

Eleven field areas were used by mallard concentrations. The barley and wheat stubble was most widely used of all the grains available. Corn became an important mallard food item as ice formed along the shore edges. Large feeding flocks moved north of the Snake Creek Arm searching out corn fields during this period prior to total freeze up.

II WILDLIFE

A. MIGRATORY BIRDS

Ducks: Continued dry weather conditions found many of the Refuge potholes completely void of any water by early September. Some transit birds, particularly mallards, appeared in the main pool east of the Snake Creek Embankment by the first week in September with a steady buildup that reached a peak of 54,000 birds on October 28. This population during the fall migration period exceeded all others since the Refuge area was closed to hunting in 1956. Normal fall populations during previous years before the area was closed had been approximately 4,000 birds, this jumped to 15,000 after closure in the fall of 1956 to the above mentioned 54,000 in 1957.

Lesser scaup and redheads made up the bulk of the divers. There was no impressive diver buildup, the largest concentration was 1,500 scaup in late October.

The Snake Creek Area has fallen into the same pattern that is found upon stations adjacent to other large reservoir bodies which results in a high mallard population that makes up 90 to 95% of the total concentration.

With nearly 8,000 acres of grain stubble, mallards found no food problem. In early October the birds preferred wheat and barley stubble. By the last of October the ducks were moving off the Refuge to adjacent corn fields that had been grazed down by cattle. On Refuge farm unit A-10 several thousand mallards were feeding the corn strip during the period.

Coots: The coot population during the migration period remained similar with those numbers observed in previous years. The largest count for the area was 2,000 birds during early October. The harvesting of these birds in the Refuge vicinity is almost non-existing.

Geese: Fewer geese appeared upon the Refuge this year as compared to 1956. The Wolf and Snake Creek Arms of the main Garrison Reservoir west of the Refuge contained several family groups early in the season with a buildup of some 400 birds by late October. The largest single flock upon the Refuge was 200 white-fronted geese in early October. During late November a single flock of 54 large Canada geese loafed in the Refuge pool and feed upon the State public shooting area. To our knowledge there were no geese bagged by hunters in either the State area or along the Refuge boundary line.

Other Waterfowl: In early fall a migration flight of eared and horned grebes utilized the Snake Creek Pool for a week or two and then disappeared. Pelicans and double crested cormorants continue to visit the Refuge on occasional sorties from the Garrison Reservoir. This is the first year that whistling swans were observed on the area. Six swans stayed about 2 weeks.

Shorebirds: Common snipe appeared upon the Refuge and State Public Shooting Area by mid September and became numerous in mid October. Very few of these birds are utilized except in cases where hunters are shown in the field how to identify and hunt them. Dowitchers, sandpipers and lesser yellow legs make field identification difficult as they frequent the same areas during the early hunting season. The Refuge shorebird population in regard to Baird's sandpipers, advocets and western willets became stimulated by low pothole water levels which exposed mud flats that were utilized by these species.

Doves: Because of the lack of trees and shrubs upon the project there is not a large dove population. During the nesting season however Refuge personnel banded 65 nestlings in groves adjacent to or upon the Refuge and near the town of Riverdale.

B. UPLAND GAME BIRDS

Pheasants: For the first time since the winter kill of 1955 the Refuge area has a few isolated pheasant pairs. To date eight birds have been seen since they totally disappeared during the blizzard conditions that prevailed two years ago. Extensive sweet clover fields and small isolated farm groves still do not provide adequate winter cover for North Dakota. Wildlife management practices along with the development of the tree planting sites scattered over the project should in future years produce good pheasant habitat.

Gray Partridge: These birds have shown an upward trend in the past year. The estimated Refuge population is 80 birds.

Sharptail Grouse: Hunters were not observed along the boundary as in previous years. To date we know of only one grouse being shot from the two Refuge flocks that pass over the line into the State hunting lands. The anticipated increased water level of the coming summer will flood much of the sharp-tail habitat and leave the two existing Refuge dance grounds as islands

C. BIG GAME ANIMALS

Whitetail Deer: The Refuge has been part of a larger state "Rest Area" closed to big game hunting since the antelope release of 1951. There has been a gradual buildup of whitetails which is limited to some extent because of the open terrain and lack of wooded cover. The closure has resulted in the development of several large whitetail bucks with near record trophy heads. Two or three of these "monsters" can be seen during the twilight period near the Refuge goose pen along with a few does and fawns.

Antelope: State personnel have reported that the plantings made in this area have been one of the most productive in the entire antelope restocking program. An accurate count of the herd is not possible until the herd moves in to winter. Estimated count for these animals that move on and off the Refuge is 75 head.

D. FUR ANIMALS, PREDATORS, RODENTS AND OTHER MAMMALS

Red Fox: Very common in the entire Refuge and reservoir area. One adult was killed by Refuge personnel during the period. Several requests have been received asking permission for a "fox drive" upon the Refuge. The Refuge population is high but so is the entire adjacent area and the county as a whole.

Mink: Limited population due to present water conditions. No trapping permits issued for mink or other fur bearers during the fall or winter period.

Raccoon, Skunk, Weasel, and Badger: These animals remain low in population numbers. Skunk dens and sign appear less numerous than during 1956. Many den sites will be flooded if the 1830 m.s.l. pool is reached in 1958.

Cottontail and White Tailed Jack Rabbits: Jack rabbits are common but not numerous. Our limited cottontail population confines itself to areas of wooded cover such as the tree rim along Mud Lake and homestead tree plantings upon the eastern end of the project.

E. HAWKS, EAGLES, OWLS, CROWS AND MAGPIES

A hawk migration took place during the period of September 28 to 30. This flight was composed of kestrels and Swainson's. Both golden and bald eagles have been observed during the late fall and early winter season in the vicinity of the goose holding pen upon the Snake Creek Reservoir. American rough legs common by late December.

F. OTHER BIRDS

There were fewer sandhill cranes this year than noted previously. One small group of 18 birds remained upon Mud Lake during late September to mid-October.

Black crown night herons, American bitterns and great blue herons are common.

G. FISH

The proposed 183 $\frac{1}{4}$ pool for 1958 will spread walleyes, northern pike and black bass over the area. (see enclosed map of new pool) North Dakota Game and Fish fisheries personnel have indicated that the State Management portions will be open to public fishing next year if the pool level is increased as planned.

Assistance was given to Central and Regional office personnel in securing preliminary information for the proposed Federal Fish-Cultural station to be erected below the Garrison Dam. (Liason with CoFE personnel, collection of soil samples and field trips.)

H. REPTILES

Limited to a few non-poisonous species as plains garter snake, common garter snake and others.

I. DISEASE

None observed during this period.

III REFUGE DEVELOPMENT AND MAINTENANCE

A. HEADQUARTERS DEVELOPMENT

Funds have been set up for the development of a Headquarters site on Snake Creek. To date the Headquarters area and entrance road have been surveyed and marked. The well had been completed by the Corps of Engineers well drilling crew. Pumping operations undertaken during the development phase of the well construction indicate the well can produce 100 gallons per minute. Because of the Corps of Engineers cooperation the drilling, casing, screen and well development for the 217 foot well came to only \$2,096.71.

B. MISCELLANEOUS MAINTENANCE AND DEVELOPMENT

Repaired boundary fence
 Reposted Refuge boundary
 Repairs to truck, panel and jeep
 Built winter shelter at goose pen
 Constructed new pen for young birds
 Put up snow fence at winter goose pen
 Hauled load of corn from Arrowwood Refuge
 Hauled load of grass seed from Lostwood Refuge
 Hauled corn to goose pen
 Made 3 temporary snow fence grain bins
 Hauled millet and barley to bin from field
 Frequent inspections of Headquarters well drilling
 Cleanup of winter goose pen
 Went over farm plans for 1958
 Assembled new farm equipment
 Moved geese to winter goose pen
 Constructed box bed partitions in truck for goose transfer from Missouri

C. PLANTINGS

Cultivated Crops: Cooperative farming under Refuge permit this year included a total of 2239 acres of farm land.

Small grains	958 acres
Corn	33 "
Summer fallow	173 "
Grain/grass seeding (retired cropland)	287 "
Natural retirement (go back-no permit)	788 "

Not included in the above is 319 acres of cropland which the Corps of Engineers were unable to lease.

Crop production on the majority of the units is poor to fair. Many fields have been under continued grain rotation since 1946 without any soil conservation measures being applied.

With the very dry conditions that existed fall harvest was early and many grain crops were light.

D. COLLECTIONS AND RECEIPTS

Seed or other Propagules: Six hundred pounds of crested wheatgrass and brome grass was received from the Lostwood Refuge and used in fall seedings.

Specimens: One large prime badger was collected for use as a display skin for the Refuge office.

E. CONTROL OF VEGETATION

None during this period. Refuge farming permittees carried out a general weed control program by spraying grain prior to the "boot stage." Noxious weeds have not been a major problem. The new proposed pool will flood out a large portion of our potential problem areas.

F. PLANNED BURNING

None

G. FIRES

Extensive areas of prairie grass, large fields of sweet clover and idle cropland coupled with a dry season made our fire problem acute. Refuge permittees were prohibited from burning field stubble as they had done under Corps of Engineer Management in past years. No fires took place upon Service lands during the period.

IV RESOURCE MANAGEMENT

A. GRAZING

Three grazing units which have been over utilized for several years come under Refuge management this year. No permits were issued due to the overgrazed condition that has existed.

B. HAYING

No hay permits were issued as the area lacks necessary wildlife cover because of previous extensive cuttings of native grasses.

C. FUR HARVEST

No permits issued because of present low fur bearer population.

V FIELD INVESTIGATION OR APPLIED RESEARCH

A. CAPTIVE GOOSE FLOCK

The present Snake Creek Canada goose flock is composed of three groups of birds. One group secured from the North Dakota Game and Fish Department on May 8, 1956, when they abandoned

their goose restoration project at Spiritwood Lake, north of Jamestown, North Dakota. On September 17, 1956, 84 geese were transferred to Snake Creek from the Lostwood Refuge. The third group was secured on November 23, 1957 at Swan Lake Refuge in Missouri and hauled by truck to the project. All birds are mixed subspecies of Branta canadensis. Previous to the recent truck transfer from Missouri the birds were all of mixed age classes and pinioned at time of capture. The last group are mixed subspecies of wing clipped birds of the year.

The following is a historical account of our present goose flock.

<u>Received</u>	<u>Number</u>	<u>Male</u>	<u>Female</u>	<u>Rec. From</u>	<u>Captured</u>
5/8/56	33*	18	15	ND C&F Dept.	Swan Lake Ref. 1952
9/17/56	84*	50	34	Lostwood Ref.	Swan Lake Ref. 1954
11/23/56	1**		1	Caught in pen	
10/25/57	1**	1		Caught in pen	
11/23/57	40**	16	24	Swan Lake Ref.	Swan Lake Ref. 1957

*Pinioned

**Wing Clipped

Total birds on hand 139

Total birds lost to date 20 pinioned

Nesting: During the period that geese have been held upon the Snake Creek Refuge only one bird nested. On April 22, 1957 a captive pinioned female mated with a free flying wild Canada goose of this spring. She was observed upon a nest about 30 feet from the waters edge. On April 27 despite trapping and other control measures this bird was killed and eaten on the nest.

Breeding Pens: Two small isolated breeding pens were constructed for single pairs along the shore edge of the reservoir. Neither pair nested but both gave indications of being mated birds after their period of confinement. Consideration could be given to force mating young wing clipped birds prior to release by this means.

Goose Pen Construction: During the summer of 1958 it will be necessary to remove our present 30 acre pen because of the increased pool level. Construction funds have been established during this present fiscal year for the construction of a permanent goose building near the Refuge headquarters.

VI PUBLIC RELATIONS

A. RECREATIONAL USES

There has been some interest shown by local people who visit the Refuge area to see deer, antelope and waterfowl. Recreational use has remained about the same except for boundary hunting which has increased.

B. REFUGE VISITORS

<u>September</u>	<u>Name</u>	<u>Title</u>	<u>Purpose</u>
4	Richard VanHagen	Supr. Elect. Science Lab. Div. Of Research Fisheries, Seattle Wash.	Snake Creek Fish Barrier
	A. L. McLain	Fisheries Research Biol. Ann Arbor, Mich.	
	Robert Randall	Supr. MRBS, Bismarck, North Dakota	
	Russ Bagwell	MRBS, Bismarck, North Dakota	
9	John Boger	CofE Permittee	Refuge Farming
12	Flick Davis	Supr. GMA, Minneapolis, Minnesota	Native Son Duck law enforcement
	Harry Jensen	GMA	
14	John Hewston	Public Relations Director ND G&F	Pictures of rainbow trout
17	Maurice Jensen	GMA Pilot-Agent	Aerial Survey Van Hook Arm Garrison Res.
	Dave Fisher	GMA	Visit
18	Roy Dory	Chief, Real Estate Div. Corps of Engineers	Fox's Buildings
	Harlan Josephson	Chief, Management and Disposal Branch, Real Estate Div.	
19	Ernie Dierks	SCS District Cons.	Farm plans
	Emil Wirtz	CofE Permittee	Refuge farming
20	Moe Johnson	ND G&F Biologist	Courtesy call
30	Wes Newcombe	GMA	Native Son Duck
	Bob Robinson	GMA	law enforcement
<u>October</u>			
17	J.C. Saylor II	Chief, Branch of Refuges, Washinton, D.C.	Refuge Inspection
	F.C. Gillette	Supervisor of Refuges Minneapolis, Minn.	
21	Edward Smith	Ref. Mgr. Des Lacs Refuge, Kenmare, No.Dak.	Visit

22	Russ Bagwell Dale Henegar	MRBS ND G&F, Fisheries Chief	Courtesy call
23	Robert Stephens Ed Stevenson	Ass't. Reg. Supr. Branch of Fish Hatcheries Structural Enginner, R.O.	Federal Fish Hatchery below Garrison Dam.
25	Dave Fisher	GMA	Courtesy call and helped bring in geese
30	Dave Fisher	GMA	Early shooters
31	William Kreller	CofE Permittee	Refuge farming
<u>November</u>			
6	James Thompson	Oliver Tractor Rep.	Inspect tractor
	Cecil Murphy	CofE Permittee	Refuge farming
29	Emil Wirtz	CofE Permittee	Refuge farming
	Gale Jacobs	ND G&F Biologist	Courtesy call
30	Edward Smith	Ref. Mgr. Des Lacs Refuge, Kenmare, No.Dak.	Visit
<u>December</u>			
3	Tom Klett Ray Murdy Moe Johnson	ND G&F Biologists	Discuss Waterfowl trends
4	Ken McKeague Russ Smith Gene Jones	District Warden Kenmare, No.Dak. Sports Director KLPM, Minot NoDak. Bear Archery Rep. Grayling, Mich.	Visit
6	Erling Thomson Donald Bergquist Donley Bergquist	CofE Permittees	Refuge Farming
13	Harry Jensen	GMA	Duck hunting areas along reservoir
14	John Hewston	Public Relations Director ND G&F	Secure photos of sauger & fishing methods for sauger at Tail Race

Frequent visits by the following:

George Enyeart	ND G&F biologist
Ralph Wright	District Warden
John Martinson	Reservoir Ranger, CofE
Louie Carufel	ND G&F biologist

C. REFUGE PARTICIPATION

<u>Date</u>	<u>Comments</u>
9/4	Evening 30 minute radio broadcast on KLPM, Minot, "Wildlife Review" attended by Refuge Manager Wilson.
9/10	Wilson attended meeting of Riverdale Sportsman Club Directors to set up plans for presenting a NRA "Hunter Safety Course"
9/20	Meier and Wilson conducted evening lecture period for 22 students (adults and teenagers) in NRA "Hunter Safety Course".
9/22	Wilson, Meier and Paul Chenoweth (CofE personnel) presented afternoon field class meeting for NRA "Hunter Safety" students. Firing high powered rifles, shooting clay pigeons, rifled slugs and learning proper field safety steps in gun handling and fence crossing along with State and Federal hunting regulations.
9/24	Wilson gave slide talk on "Know your Waterfowl" to VFW members during annual "Hunter Smoker" at Minot.
9/24	Meier gave final written examination to "Hunter Safety" students during evening class session at Riverdale fire-place room.
9/25	Radio program "Wildlife Review" attended by Wilson.
10/9	Wilson presented talk on "Gun Safety" to members of the Riverdale PTA, Riverdale, North Dakota.
10/15	Meier attended Riverdale Sportsmen Club meeting.
11/6	"Wildlife Review" radio program. Wilson accompanied by State Biologist Enyeart and District Warden Wright.
11/14	Wilson gave "Gun Safety" talk to Coleharbor PTA, Coleharbor North Dakota.

- 12/17 Wilson and Meier showed slides of Snake Creek Refuge Development to Riverdale, Sportsman Club. Wilson demonstrated method of making home made fishing baits.
- 12/23 Meier and Wilson conducted winter Christmas Bird Count.

D. HUNTING

None of the Refuge proper is open to public shooting. The State area adjacent to the Refuge has no closed areas and is open to the public during the season. During the period of our peak mallard concentration a shooting line existed along the State-Refuge boundary. It was apparent that many new hunters were finding this area for the first time as out-of-town shooters were not uncommon. Many of our hunters during the fall are the same people who fish in this vicinity during the summer because in their fishing travels they become familiar with the lay of the land and make some wildlife observations. Future years will see a heavy hunter concentration develop.

E. VIOLATIONS

Native Son Duck Bill: The state of North Dakota early duck season which was ~~3~~^{3-1/2} days ahead of the legal Federal opening passed without conflict in this area. Refuge personnel were on full time law enforcement during the period. Several grouse hunters were checked in marsh areas and many people interviewed. Although a few cases were made by other service personnel scattered over the state the outcome was very pleasing.

On the morning of October 30, 1957 at 6:35 AM Game Management Agent Fisher and Refuge Manager Wilson made a violation case upon Mr. Charles W. St. Croix for shooting ducks before the legal time opening which was 6:55 AM. Fine was \$14.00.

Three men were picked up by Mr. Martin Mhyre for hunting in the Refuge. This case is still pending as the individuals were Indians who seemed to have disappeared.

VII OTHER ITEMS

A. ITEMS OF INTEREST

Safety: We are pleased to report that our station has had no accidents of any kind since it was established.

Local Opposition: Mr. Earl Fox of Coleharbor made a request through his attorney to Senator Young to have the present Project Leader transferred. A number of permittees and local people were interviewed in order to answer the charges which were listed. The charges were the results of carrying out responsibilities in accordance with established policies. After investigation it was determined that no change in the Refuge administration was justified. Mr. Fox however continues to be displeased with our economic use program.

B. CREDITS

Write up - - - - - Wilson
 Photo's - - - - - Wilson
 NR forms & maps - - Meier
 Typing - - - - - Meier

January 10, 1958

Respectfully submitted

Approved: Warekins

J.C.

Terald J. Wilson
Jerald J. Wilson
 Refuge Manager

3-1750
Form NR-1
(Rev. March 1953)

W A T E R F O W L

REFUGE Snake Creek

MONTHS OF September TO December, 19 57

(1) Species	(2) Weeks of reporting period									
	9/1-9/14 1	9/15-9/30 2	10/1-10/14 3	10/15-30 4	11/1-14 5	11/15-30 6	12/1-14 7	12/15-30 8	9	10
Swans:										
Whistling Trumpeter					6	6				
Geese:										
Canada	1	1	1	35	40	54				
Cackling Brant										
White-fronted Snow		12		200						
Blue Other										
Ducks:										
Mallard	1600	2000	15000	54000	2860	4000				
Black Gadwall	50	150	200	200						
Baldpate		200	50	25						
Pintail	400	300	1000	50	20					
Green-winged teal										
Blue-winged teal	200	200	300	50						
Cinnamon teal										
Shoveler	100	100		10						
Wood Redhead	20	120	50	300	250					
Ring-necked Canvasback	50	450	500	100	250					
Scaup Goldeneye		100	100	400	1500			50		
Bufflehead								10		
Ruddy	7	7	30	20	120					
Other			20							
Coot:	665	665	2000	200						

3-1751

Form NR-1A
(Nov. 1945)MIGRATORY BIRDS
(other than waterfowl)Refuge Snake CreekMonths of September to December 1957

(1) Species Common Name	(2) First Seen		(3) Peak Numbers		(4) Last Seen		(5) Production			(6) Total Estimated Number
	Number	Date	Number	Date	Number	Date	Number Colonies	Total # Nests	Total Young	
<u>I. Water and Marsh Birds:</u>										
Pied-billed Grebe			100			10/30				150
Horned Grebe			20			10/1				50
Eared Grebe			20			10/1				100
White Pelican			35			9/10				35
Great Blue Heron			5			9/20				20
Black Crown Night Heron			20			10/12				50
American Bittern			5			9/20				10
Double-Crested Cormorant			4			9/15				10
<u>II. Shorebirds, Gulls and Terns:</u>										
Common Snipe			50			10/25				200
Upland Plover			25			9/10				100
Western Willet			20			9/25				40
Greater Yellowlegs			20			10/28				40
Lesser Yellowlegs			15			10/28				20
Marbled Godwit			10			9/20				20
Avocet			25			9/15				100
Wilson's Phalarope			50			9/10				50
Black Tern			100			9/15				100
Common Tern			20			9/20				50
Ring Billed Gull			10			10/25				25
Franklin's Gull			5000			9/10				5000

(over)

(1)	(2)	(3)	(4)	(5)	(6)
III. <u>Doves and Pigeons:</u>					
Mourning dove		30	10/15		30
White-winged dove					
IV. <u>Predaceous Birds:</u>					
Golden eagle		1	Winter Resident		1
Duck hawk					
Horned owl		4	Winter Resident		4
Magpie		10	Resident		10
Raven					
Crow		50	10/20		100
			Reported by.....	Jerald J. Wilson	

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.

3-1752
Form NR-1
(April 1946)

UPLAND GAME BIRDS

1613

Refuge Snake Creek Months of September to December, 1957

(1) Species	(2) Density		(3) Young Produced		(4) Sex Ratio	(5) Removals			(6) Total	(7) Remarks
						Hunting	For Re- stocking	For Research		
Common Name	Cover types, total acreage of habitat	Acres per Bird	Number broods obs'v'd.	Estimated Total	Percentage				Estimated number using Refuge	Pertinent information not specifically requested. List introductions here.
Gray Partridge	10,000 acres upland prairie & grain fields.	125							80	Limited due to lack of woody cover.
Sharptail Grouse	10,000 acres upland prairie & grain fields.	111							90	
Pheasant	10,000 acres upland prairie & grain fields.	1250							8	Beginning to reappear after severe winter kill in 1955- 1956.

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 Snake Creek

Calendar Year 1957

(1) Species	(2) Density	(3) Young Produced	(4) Removals				(5) Losses			(6) Introductions	(7) Estimated Total Refuge Population		(8) Sex Ratio
			Hunting	For Re- stocking	Sold	For Research	Predation	Disease	Winter Loss		Number	Source	
White-tail deer	10,000 acres upland prairie and cropland. Limited woody cover.	20	Closed	to	hunting						50	50	
Antelope	10,000 acres upland prairie and cropland.		Closed	to	hunting						75	0	

Remarks:

*Antelope moved on and off the Refuge during this reporting period.

Reported by Jerald J. Wilson

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.

PUBLIC USE

Refuge Snake Creek

Calendar Year 1957

Total Use Visitor-Days	Hunting Use	Fishing Use	Miscellaneous Use
255			255

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 *	95	200*
Upland Game	_____	_____	_____	Official	1	5
Big Game	_____	_____	_____	Economic Use	4	50
Supervised by refuge _____ by State _____		No. of blinds _____		Other	_____	_____

Hunting (off
refuge lands): Estimated man-days of hunting on lands
adjacent to the refuge 600 (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:

*Observing wildlife and looking at
captive goose flock.

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

Refuge Snake CreekYear 194 57

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
Mixed Grass seeds	A-3		64 acres		Spring			Reseeding re-tired farmland.
Mixed Grass seeds	A-5		13 acres		Fall			Reseeding re-tired farmland.
Mixed Grass seeds	A-7a		80 acres		Fall			Reseeding re-tired farmland.
Mixed grass seeds	A-8		19 acres		Fall			Reseeding re-tired farmland.
Mixed grass seeds	A-9		20 acres		Spring			Reseeding re-tired farmland.
Mixed grass seeds (bluegrass-alfalfa-brome-clover-wheat-grass)	A-2		41 acres 40 acres *		Fall Spring			Reseeding re-tired farmland. *Prepared for spring planting on Headquarters area.

TOTAL ACREAGE PLANTED:

Marsh and aquatic _____
Hedgerows, cover patches _____
Food strips, food patches _____
Forest plantings _____
Upland planting 287

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

Fish and Wildlife Service Branch of Wildlife Refuges

CULTIVATED CROPS - HAYING - GRAZING

Refuge Snake Creek

County McLean

State North Dakota

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			
Winter Rye	170	2500					170	*287 acres reseeded to mixtures of grass for wildlife cover as part of Government share.	170
Wheat	299	2460	1	10			300		300
Oats	77½	1550	½	10			78		78
Barley	306	3268	90	940	8	136	404		404
Proso Millet			10	325	10	325	20		20
Foxtail Millet	16	320 tons	17	310 tons	17	340 tons	33		33
Corn	33	792				400	33		33
*Grazed down by cattle.									*287
								Fallow Ag. Land	
								218	218

No. of Permittees: Agricultural Operations 5 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				1433
Hay - Wild				2. Acreage Cultivated as Service Operation				

REFUGE GRAIN REPORT

Refuge Snake Creek

Months of September through December, 1957

(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
Feed barley		940	940			540	540	400	100	300	
Proso Millet		325	325			100	100	225	100	125	
Oats		10	10					10		10	
Hard wheat		10	10					10		10	
Corn		340	340			170	170	170		170	

(8) Indicate shipping or collection points Received from Arrowwood Refuge.

(9) Grain is stored at Snake Creek Refuge (Snow fence bin)

(10) Remarks _____

*See instructions on back.

(10) Remarks

NR-8a

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.

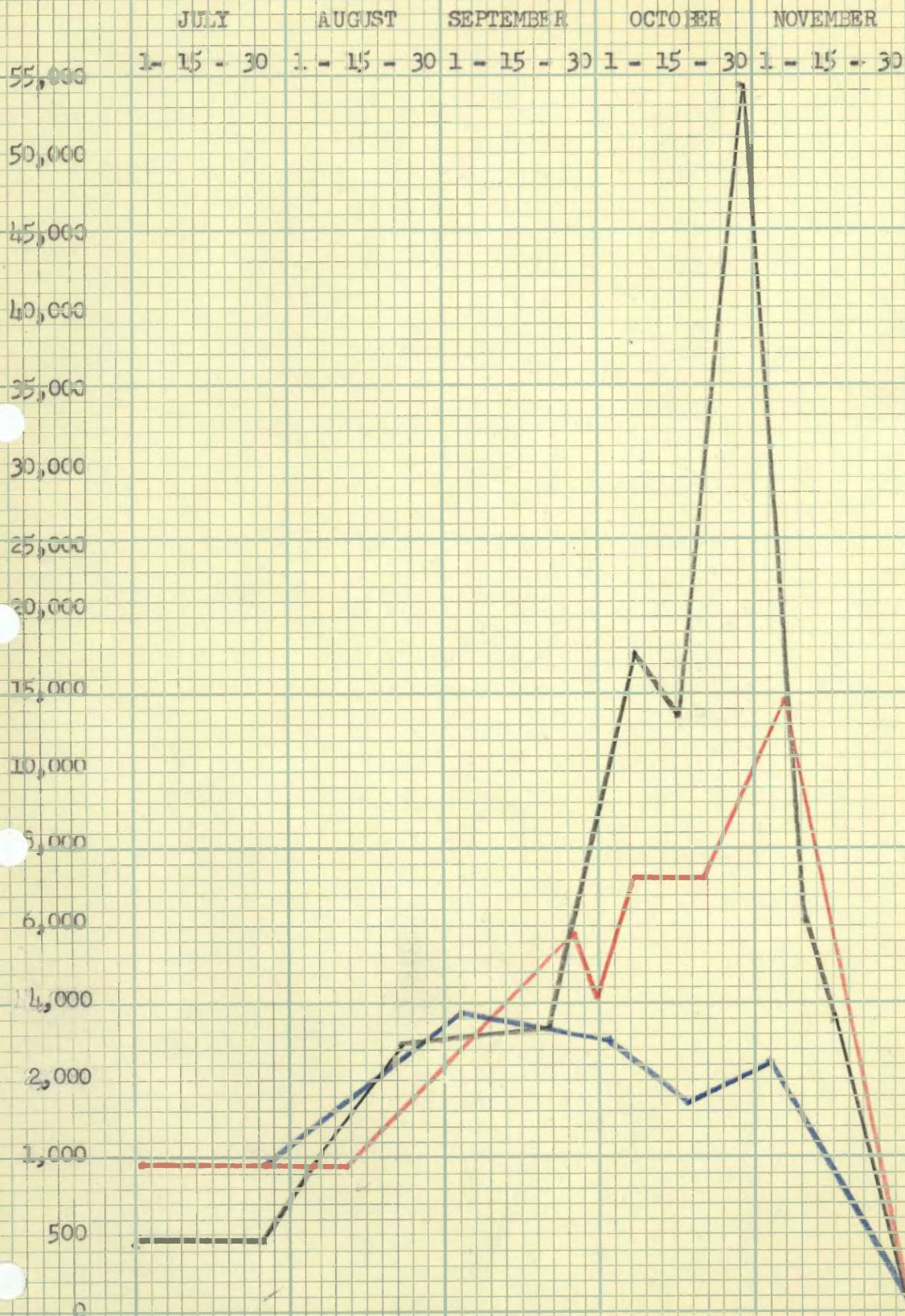
16-61482-1 U. S. GOVERNMENT PRINTING OFFICE

MONTH	OF PERIOD RECEIVING ON HAND	PERIOD DURING RECEIVED	TOTAL	GRAIN DISPOSED OR			PERIOD END OF ON HAND	PRODUCED OR AVAILABLE USE		REMARKS
				SEED	FEED	TOTAL		SEED	FEED	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	

Period from _____ through _____ Months of September through December 1953

REFUGE GRAIN REPORT

DUCK POPULATION TRENDS ON SNAKE CREEK REFUGE

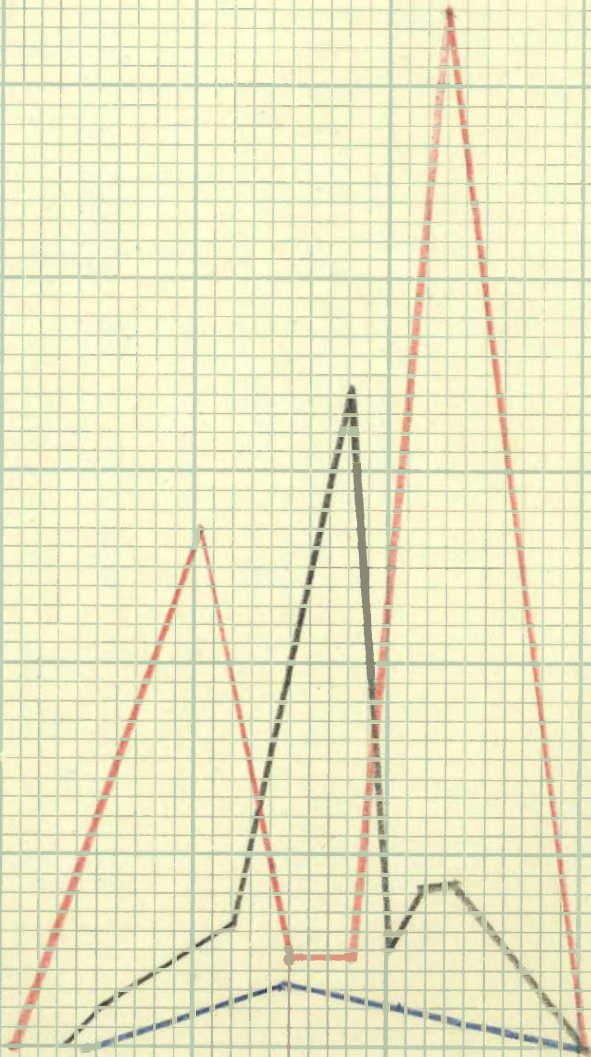


1955 — Blue line
 1956 — Red line
 1957 — Black line

GOOSE POPULATION TRENDS ON SNAKE CREEK REFUGE

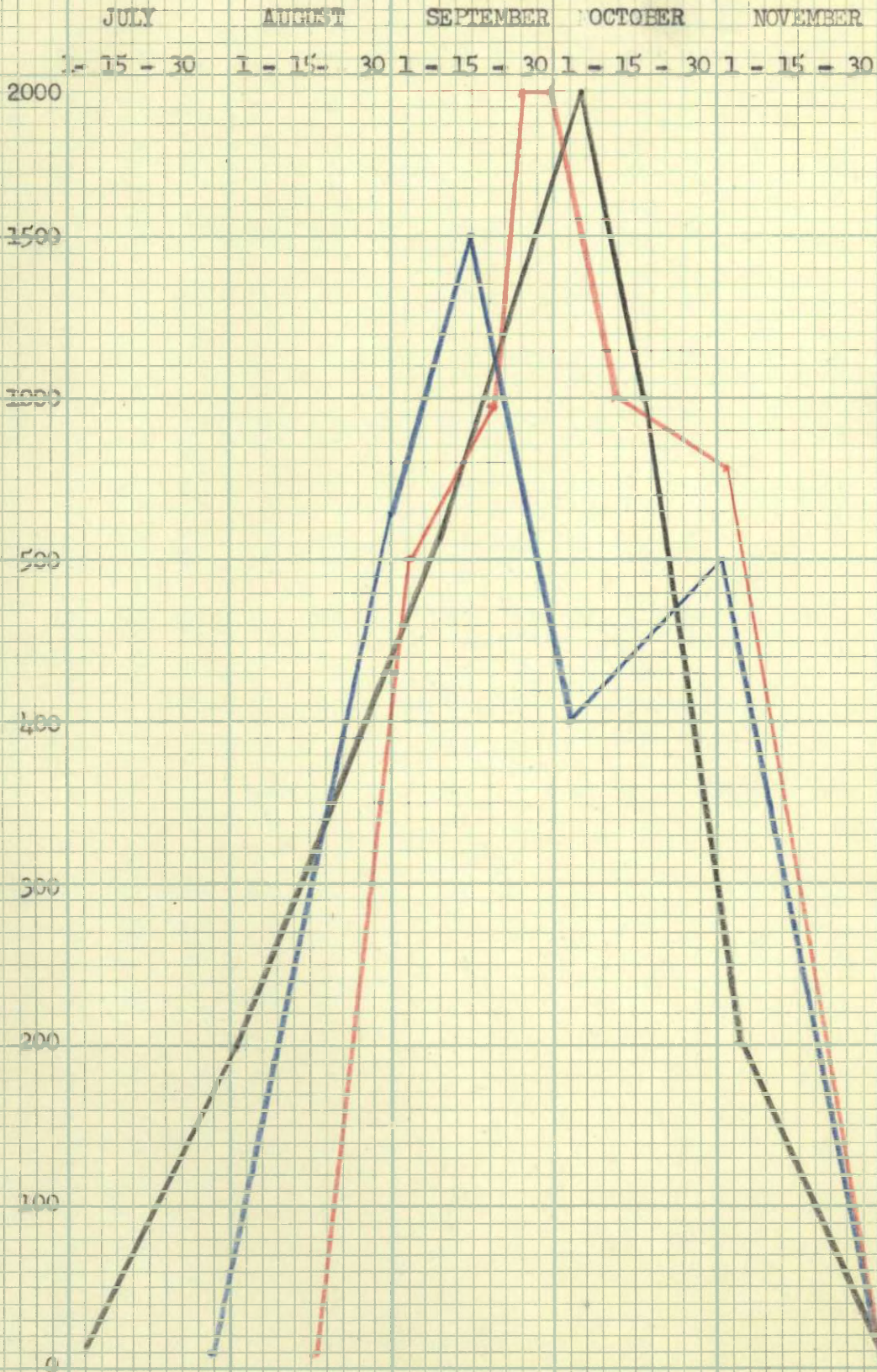
JULY AUGUST SEPTEMBER OCTOBER NOVEMBER
 1 - 15 - 30 1 - 15 - 30 1 - 15 - 30 1 - 15 - 30 1 - 15 - 30

525
 450
 375
 300
 225
 150
 75
 0



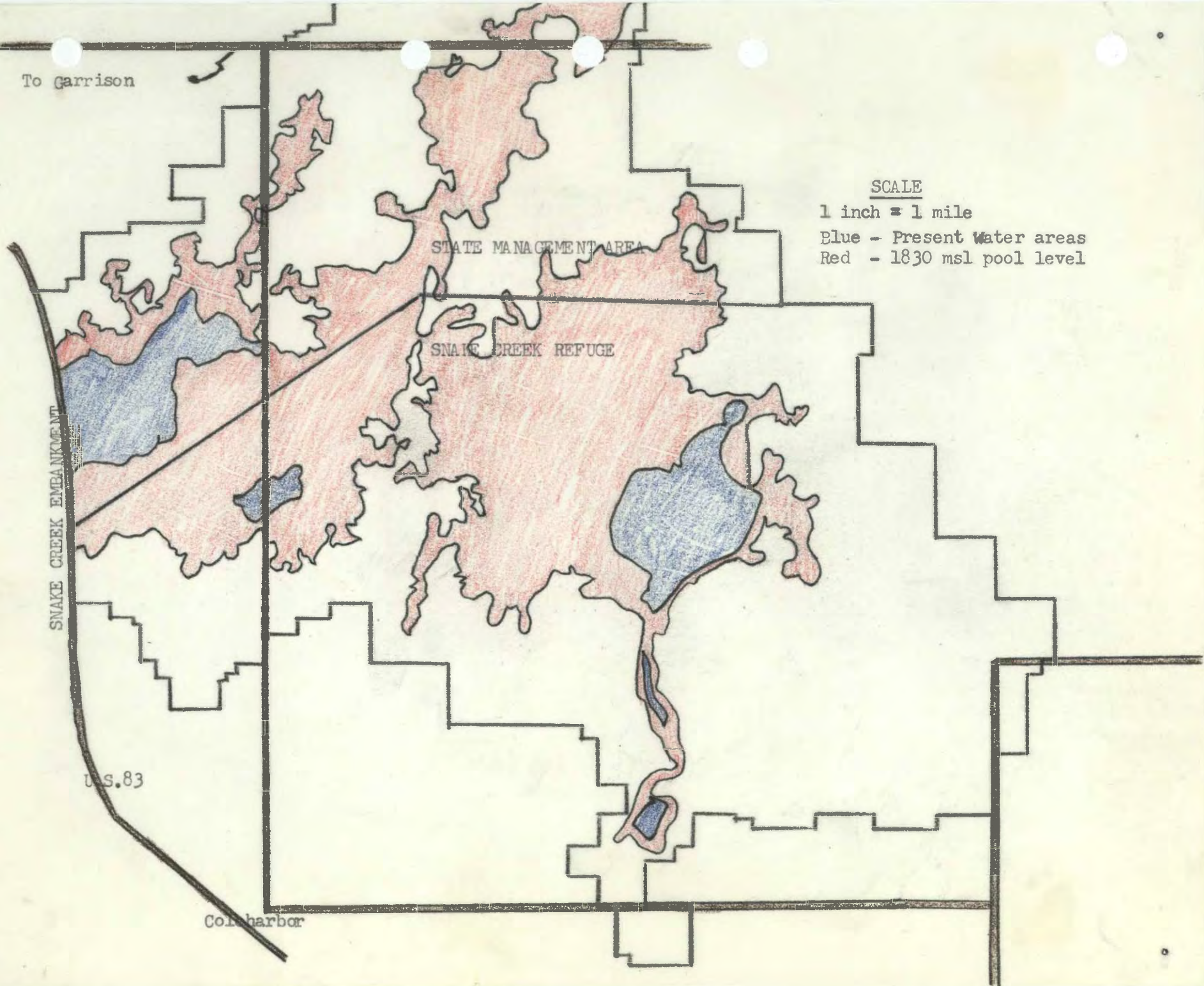
1955 ———
 1956 ———
 1957 ———

GOOSE POPULATION TRENDS ON SNAKE CREEK REFUGE



1955 ■■■
 1956 ■■■
 1957 ■■■

To Garrison



SCALE

1 inch = 1 mile

Blue - Present water areas

Red - 1830 msl pool level

STATE MANAGEMENT AREA

SNAKE CREEK REFUGE

SNAKE CREEK EMBANKMENT

U.S. 83

Co. harbor



REFUGE HEADQUARTERS WELL

A 217 foot well was drilled and developed upon the project by Corps of Engineer Drill Crew, Garrison District. This well produces over 100 gallons of water per minute.

11/12/57



GOOSE TRANSFER

Station personnel completed the transfer of 120 young geese from Swan Lake Refuge, Sumner, Missouri to Snake Creek, Lostwood and Upper Souris Refuges.

11/26/57



SECOND ANNUAL "HUNTER SAFETY TRAINING COURSE".

A training program for local adults and young people in the NRA Hunter Safety Course was held again this year. Assisting Refuge Clerk Meier (center) is Harland Josephson (upper left) and Paul Chenoweth (bottom center) CofE personnel. Ammunition was provided by the Riverdale Sportsmen Club.

9/22/57