

LOSTWOOD, SHELL LAKE, MCLEAN ~~302~~ Facsimil-
NARRATIVE REPORT - 1968

Narrative Report

1968

Lostwood National Wildlife Refuge
Shell Lake Easement Refuge
McLean Easement Refuge

Permanent Personnel

James E. Matthews - Refuge Manager (transferred to Fort Niobrara NWR
on August 23, 1968)

James E. Frates - Refuge Manager (E.O.D. September 9, 1968)

Temporary Personnel

Allan "Ben" Aufforth	6/10 to 9/12	(Student Laborer)
Bruce Zeller	6/10 to 9/30	(Wildlife Aide)
Johnny Stewart	1/1 to 11/30	(Maintenanceman)
Lowell Vaage	6/3 to 11/30	(Truck Driver)

UNITED STATES DEPARTMENT OF THE INTERIOR

FISH AND WILDLIFE SERVICE

LOSTWOOD, NORTH DAKOTA

C O N T E N T S

	<u>Page</u>
I. General	
A. Weather Conditions.....	1
B. Habitat Conditions.....	2
1. Water.....	2
2. Food and Cover.....	2
II. Wildlife	
A. Migratory Birds.....	4
B. Upland Game Birds.....	9
C. Big Game Animals.....	12
D. Fur Animals, Predators, Rodents, and Other Mammals.....	12
E. Hawks, Eagles, Owls, Crows, Ravens, and Magpies.....	14
F. Other Birds.....	14
G. Fish.....	NA
H. Reptiles.....	NA
I. Disease.....	14
III. Refuge Development and Maintenance	
A. Physical Development.....	15
B. Plantings.....	NA
C. Collections and Receipts.....	NA
D. Control of Vegetation.....	NA
E. Planned Burning.....	NA
F. Fires.....	NA
IV. Resource Management	
A. Grazing.....	17
B. Haying.....	NA
C. Fur Harvest.....	NA
D. Timber Removal.....	NA
E. Commercial Fishing.....	NA
F. Other Uses.....	NA
V. Field Investigation or Applied Research	
A. Canada goose Restoration	17
B. Dummy Nest Study	17
C.	
D.	
E.	
VI. Public Relations	
A. Recreational Uses.....	18
B. Refuge Visitors.....	18
C. Refuge Participation.....	19
D. Hunting.....	19
E. Violations.....	21
VII. Other Items	
A. Items of Interest.....	22
B. Photographs.....	Appended
C. Signature.....	23

I. GENERAL

A. Weather Conditions

	<u>Month</u>	<u>Precipitation</u>		<u>Max. Temp.</u>	<u>Min. Temp.</u>
		<u>Normal</u>	<u>Snowfall</u>		
January	<u>.71</u>	<u>.47</u>	<u>11.7</u>	<u>15</u>	<u>-38</u>
February	<u>.02</u>	<u>.43</u>	<u>.7</u>	<u>42</u>	<u>-22</u>
March	<u>.10</u>	<u>.76</u>	<u>.5</u>	<u>68</u>	<u>-8</u>
April	<u>1.00</u>	<u>1.23</u>	<u>6.0</u>	<u>84</u>	<u>7</u>
May	<u>2.51</u>	<u>2.20</u>	<u>6.0</u>	<u>79</u>	<u>20</u>
June	<u>2.62</u>	<u>3.50</u>	<u>—</u>	<u>88</u>	<u>32</u>
July	<u>3.00</u>	<u>2.05</u>	<u>—</u>	<u>94</u>	<u>38</u>
August	<u>8.20</u>	<u>1.67</u>	<u>—</u>	<u>87</u>	<u>32</u>
September	<u>2.31</u>	<u>1.30</u>	<u>—</u>	<u>89</u>	<u>28</u>
October	<u>1.00</u>	<u>.81</u>	<u>—</u>	<u>70</u>	<u>19</u>
November	<u>.31</u>	<u>.51</u>	<u>4.10</u>	<u>57</u>	<u>3</u>
December	<u>.08</u>	<u>.44</u>	<u>6.50</u>	<u>46</u>	<u>-36</u>
<u>Annual Totals</u>	<u>21.86</u>	<u>15.37</u>	<u>35.50</u> Extremes	<u>94</u>	<u>-38</u>

Weather data was taken from the official U.S. Weather Bureau Station located at refuge headquarters.

This land of infinite variety and climatic diversity certainly lived up to its reputation in 1968. The 21.86" of precipitation (6 $\frac{1}{2}$ " above the 60 year norm) was the highest recorded in the refuge's 30 year history. Just a year ago, 11.55" was recorded to make 1967 the second driest year on record; exceeded only by the 11.38" received in 1957.

All but 5.53" of the year's total fell during the May to August period. Nearly 8.5" was recorded in August, making it the wettest August on record, and the second highest amount of precipitation received for a single month; exceeded only by the 9.60" recorded in June of 1944. The 60 year normal precipitation for the month of August is 1.67".

Despite the record breaking precipitation, potholes remained dry, and only the larger lakes and some type IV marshes contained any appreciable amount of water. The prairie pothole country depends primarily upon snowmelt to fill both the small seasonally flooded basins and more permanent marsh areas. The 1968 pattern of precipitation was not conducive to causing significant reversion of the drought conditions which have prevailed throughout most of the 1960's. The past year, did, however, give cause for some optimism among us prairie "cloud watchers" that perhaps the low cycle has been broken, or at least fractured to the point where we will now be able to provide at least a minimum of the duck's basic habitat requirement. This would certainly be a refreshing change from the past several years.

Temperatures throughout the year followed a more or less normal pattern, except that the critical spring period was somewhat cooler than the 60 year norm. Extremes for the year was a 94 in July and a minus 38 recorded in January.

Figure 1 shows a graphic representation of the past 20 year total annual precipitation and snowfall record at Lostwood.

B. Habitat Conditions

1. Water

The old adage "Read em-n-weep" might well have been coined by some North Dakota refuge manager while taking his water level readings in 1968. If conditions of little or no runoff persist for another year or two, several of the larger lakes may be in danger of drying up completely. Thompson Lake, just north of refuge headquarters, was the lowest in the memory of local people this past year. Only four to six inches of water covered the basin at freeze up the first week in November. This lake was at one time the most popular recreation area in this vicinity, and recorded at least one drowning during the 1930's. Judging from the old shoreline, the lake probably had depths ranging from 10-12 feet at one time. Swans observed on the lake during the fall could stand on the bottom in just about all sections of the 500 acre lake.

Snowfall for 1968 was 35.5 inches, or about six inches less than the 60 year norm. Very little runoff was noted during the spring due to the extremely dry surface and sub-surface moisture conditions.

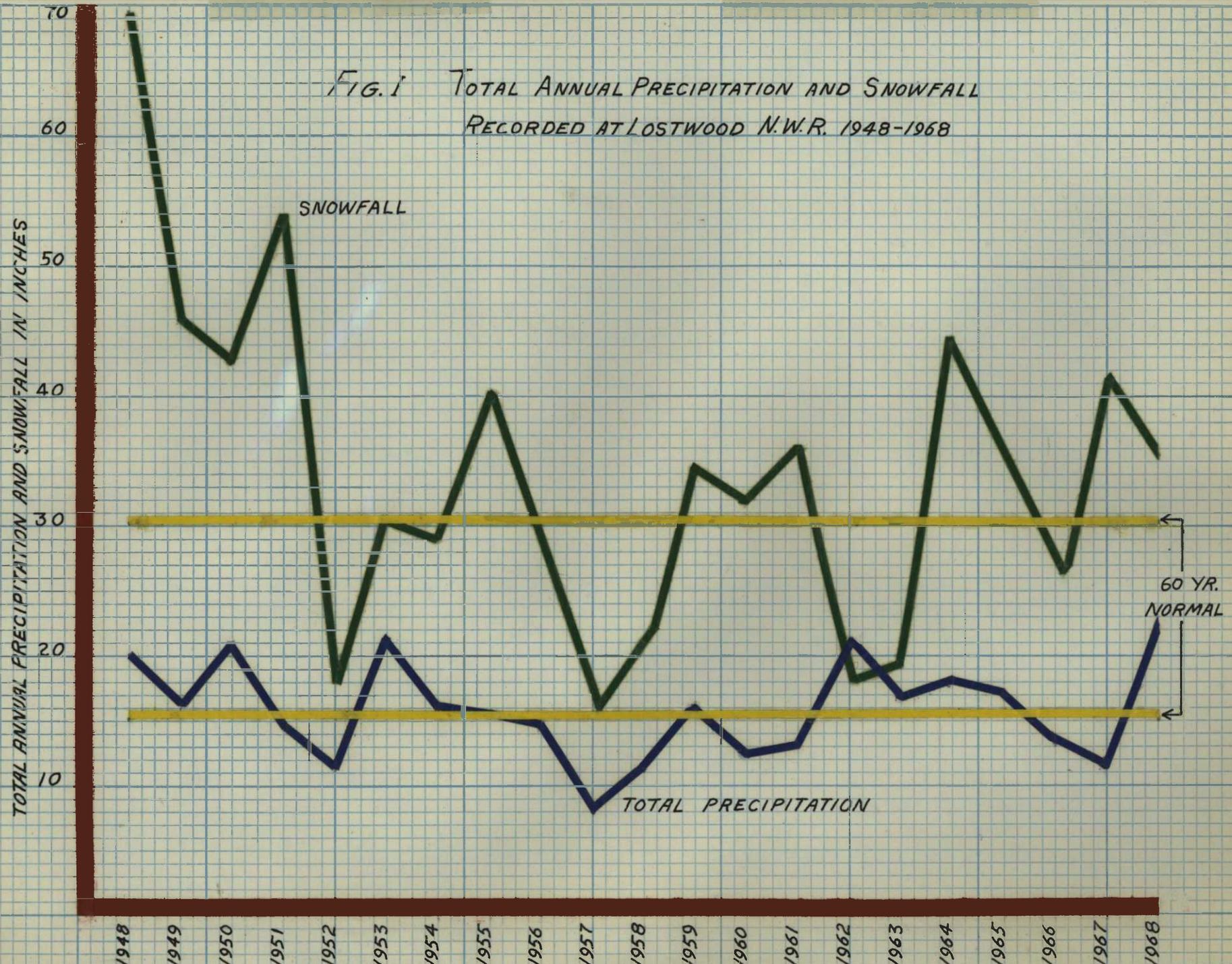
2. Food and Cover

The winter, although cold, apparently caused no significant mortality among upland and big game species.

Because of the low water levels, and resulting high dissolved mineral content of the water, aquatic food production was extremely poor. Sago pondweed and widgeon grass was noted on portions of School Section, Knudson, Upper and Lower Lostwood and Upper Thompson Lake. Patches were isolated and widely scattered, however.

Nesting cover was quite good throughout the refuge because of good

FIG. 1 TOTAL ANNUAL PRECIPITATION AND SNOWFALL
RECORDED AT LOSTWOOD N.W.R. 1948-1968



residual carry-over from 1967. Abnormally high late summer precipitation caused good growth of late season grasses. Range conditions ran from fair to excellent. Those units being grazed at the recommended SCS rates (6 out of 18 units) showed the poorest condition, however, stocking reductions were initiated last year, and will continue to 1970 to bring these units within the "light" grazing category. The heavier grazing units were a result of a long term land use study to determine the affects of different grazing intensity on waterfowl production.

Because of the high fall precipitation (10 inches for August and September, compared with a normal of 1.11 inches) the small grain harvest was one of the longest, most drawn out harvests on record in this part of North Dakota. Some local farmers were still attempting to swath grain as late as early December. The only thing that saved us from a flood of crop depredation complaints was the fact migration was considerably later than usual, and local production being extremely poor. Only two complaints were received from local farmers, and scare permits were issued to both individuals.

One irate farmer called one day and ordered me to get my --(unquotable) ducks out of his --(unquotable) grain field several miles to the north of the refuge. Having been on duty at Lostwood for about a week, I received a rapid, in depth course in the emotional behavior of a North Dakota farmer whose profits were literally being "eaten away" by those dastardly ducks which I suddenly discovered belonged to me and my "bureaucratic" organization. The problem was resolved only by several days of sunshine and good harvest conditions, and not because of my vast and knowledgeable experience in dealing with such matters.

II. WILDLIFE

A. Migratory Birds

1. Whistling Swans

Thirty-five swans arrived during the week of April 1. This proved to be the peak spring migration compared to 15 in 1967. The birds remained in in the area until the first week in May.

The fall migration got under way on September 29 with the arrival of 98 swans. A very slow build up occurred through the first week in November, peaking at 688 on November 5. Most lakes froze over on the night of November 3, and after standing around on the ice for several more days, they decided to move on to more agreeable climatic conditions.

A final age ratio count was made on November 5. Table I shows age ratios for the years 1966-1968.

Table 1. Age ratios of whistling swans observed on Lostwood National Wildlife Refuge, 1966-1968.

<u>Year</u>	<u>Immature</u>	<u>Adult</u>	<u>Total Sample</u>	<u>Percent Immature</u>
1966	94	335	429	21.9
1967	102	368	470	21.7
1968	126	562	688	18.4

During 1964 and 1965 only 5 percent of the total population were immature birds. Even though our samples are quite small, it does point toward improved production the past three years.

Total swan use days was 17,318--considerably above the 4,942 recorded in 1967. It is interesting to note that peak fall populations have shown a gradual increase since 1950 when no swans were observed during the entire fall period. The 1968 fall concentration was the second highest on record, surpassed only by the 700 birds observed in 1964.

Figure 2 shows fall concentrations recorded at Lostwood for the period 1951-1958.

2. Geese

The first spring arrivals were observed during the week of March 3, nearly a month earlier than 1967. The local flock of large Canada's peaked at 80 in mid March. The peak fall population of 177 was reached during mid October.

Production this year was 59 goslings from 24 broods. This was an increase of 14 young over 1967, but lower than the record production of 75 in 1966. The average brood size of 2.4 is well below the past five year average of nearly five young/brood.

Geese continue to make good use of the artificial nesting structures. Of the 26 nests observed in 1968, 23 were on structures. A total of 41 structures were available for use in 1968, representing a 56 percent use factor. See Table 2 for a summary of nesting structure use in 1968.

Twenty-seven geese were banded on July 11, making it the most successful banding effort since the captive flock was released in 1964. This brings the total to 60 banded since 1964. Only one return was received during the 1968 season. This bird was shot about six miles east of headquarters. Two late returns from the 1967 season brought the total returns since 1964 to 11. All but four of the returns were from the Lostwood vicinity.

A total of 28,301 use days was recorded for 1968, compared to 22,393 for 1967.

White-fronts were observed during the week of March 21, and continued to move through the area through mid April. None were observed during the fall period.

3. Ducks

Mallards and pintails were the first spring arrivals--both being observed on March 12. A gradual build up occurred through mid April, with the spring population peaking at about 3,000. This is considerably below the spring peak of 7,600 recorded in 1967.

Table 2 shows, in chronological order, spring arrival dates for waterfowl in 1967 and 1968.



Table 2. Artificial nesting structure use at Lostwood National Wildlife Refuge during 1968.

<u>Location</u>	<u>No. Structures Available</u>	<u>No. Used</u>	<u>No. Successful</u>	<u>Species Using Structure</u>
Upper Thompson	4	2	2	Canada goose
Doc's Slough	2	0		
Tower Slough	1	1	1	Canada goose
Iverson Lake	1	1	1	Canada goose
Hidden Slough	1	1	1	Canada goose
Jerry's Slough	2	2	2	Canada goose
Unit G-6	5	4	4	Canada goose
Unit G-7	1	1	1	Canada goose
Dead Dog Slough	2	1	1	Mallard
School Section Lake	5	1	1	Canada goose
Merrill's Slough	1	1	1	Canada goose
Paul's Slough	2	1	1	Canada goose
Knudson Lake	4	1	1	Canada goose
Spring Lake	2	1	1	Canada goose
Elbow Lake	4	3	3	Canada goose
Rock Lake	2	1	0	Canada goose
Erickson Slough	2	1	1	Canada goose
Totals	41	23(56%)	21(91%)	

Eleven of the 23 nests were on fiberglass structures erected the past two years. The remaining nests were on log supported platforms.

Table 3. Spring arrival dates for waterfowl at Lostwood National Wildlife Refuge, 1967-1968

<u>Species</u>	<u>1968</u>	<u>1967</u>
Canada goose (large)	3/5	3/23
Canada goose (small)	3/19	3/23
Mallard	3/10	3/26
Pintail	3/10	3/28
Snow geese	3/17	--
Common goldeneye	3/20	--
White-fronted goose	3/24	3/28
Green-winged teal	3/24	3/29
American widgeon	3/27	3/29
Gadwall	4/7	4/10
Shoveler	4/9	4/8
Redhead	4/9	4/8
Canvasback	4/9	4/8
Lesser scaup	4/10	4/9
Bufflehead	4/11	4/13
Coot	4/25	--
Ring necked	4/25	4/8
Blue-winged teal	4/29	4/11
Ruddy	5/5	5/4

The year 1968 will long be remembered as a year of extremes at Lostwood. Not only was it the year of highest precipitation on record, but also the year of lowest waterfowl production on record. This may seem somewhat strange when one considers the correlation known to exist between water levels and waterfowl production. This is further evidence of the acute drought conditions which have prevailed in this area since the late 50's. It will probably take several years of normal or above normal precipitation to appreciably affect the quality of the breeding habitat.

The refuge breeding population was estimated at only 287 pairs. Estimated pairs for 1967 was 2,704. As in the past, the refuge breeding population was determined by two mated pair counts on a six square mile study area. Production was estimated by a weekly brood chronology run on two established routes. Based on comparative data from these counts, an estimated 789 ducks were produced.

Poor production in 1968 is further realized when one considers the 1963-67 average breeding population is 2,511 pairs, compared to the 287 pairs estimated in 1968.

Based on the 1968 brood chronology runs, an unrealistic brood/pair ratio of 1.17 was determined. Obviously, this ratio is in error as it indicates more broods than pairs. The 1963-1968 average ratio is .1216, or 280 broods from 2303 pairs. This abnormal brood/pair ratio and productivity rate (over 100%) was also noted in 1967.

Area Biologist Merrill Hammond suggests two possible reasons for the

unrealistic figures during the past two years.

1. "The ponds and lakes sampled are obviously better than average brood habitat and broods probably move to them from considerable distances".
2. "The low water levels increased brood visibility as the water in most ponds did not even reach the normal shoreline belt of emergents. This resulted in a probable increase in the proportion of the total birds present being seen on the brood transect".

For a comparison of breeding population levels for the period 1948-1968, refer to Figure 3 on page 10. A comparison with annual precipitation for the 1948-1968 period is also shown. The fall population peaked at 6500 during the week of September 9. This was nearly identical in both time and numbers to the peak fall population recorded in 1967.

4. Water Birds

Eared grebes and black-crowned night herons were first observed on April 28. American bittern's were seen on May 11. There was no attempt to determine production or population levels of these species.

The spring migration of sandhill cranes began on April 12, with the birds passing through the area until the last week in April. The first fall migrants were observed on September 16. The fall migration was quite sporadic until October 21, when approximately 3,000 concentrated on a half-mile wide strip of swathed wheat just south of the refuge near White Lake. Although this concentration dwindled considerably after the third day, flocks in varying numbers fed in this area through the first of November. The last small flock was observed passing through the area as late as November 15.

Two pelicans were observed on Thompson Lake September 21. This was the only known sighting in this area during the year.

5. Shorebirds, Gulls and Terns

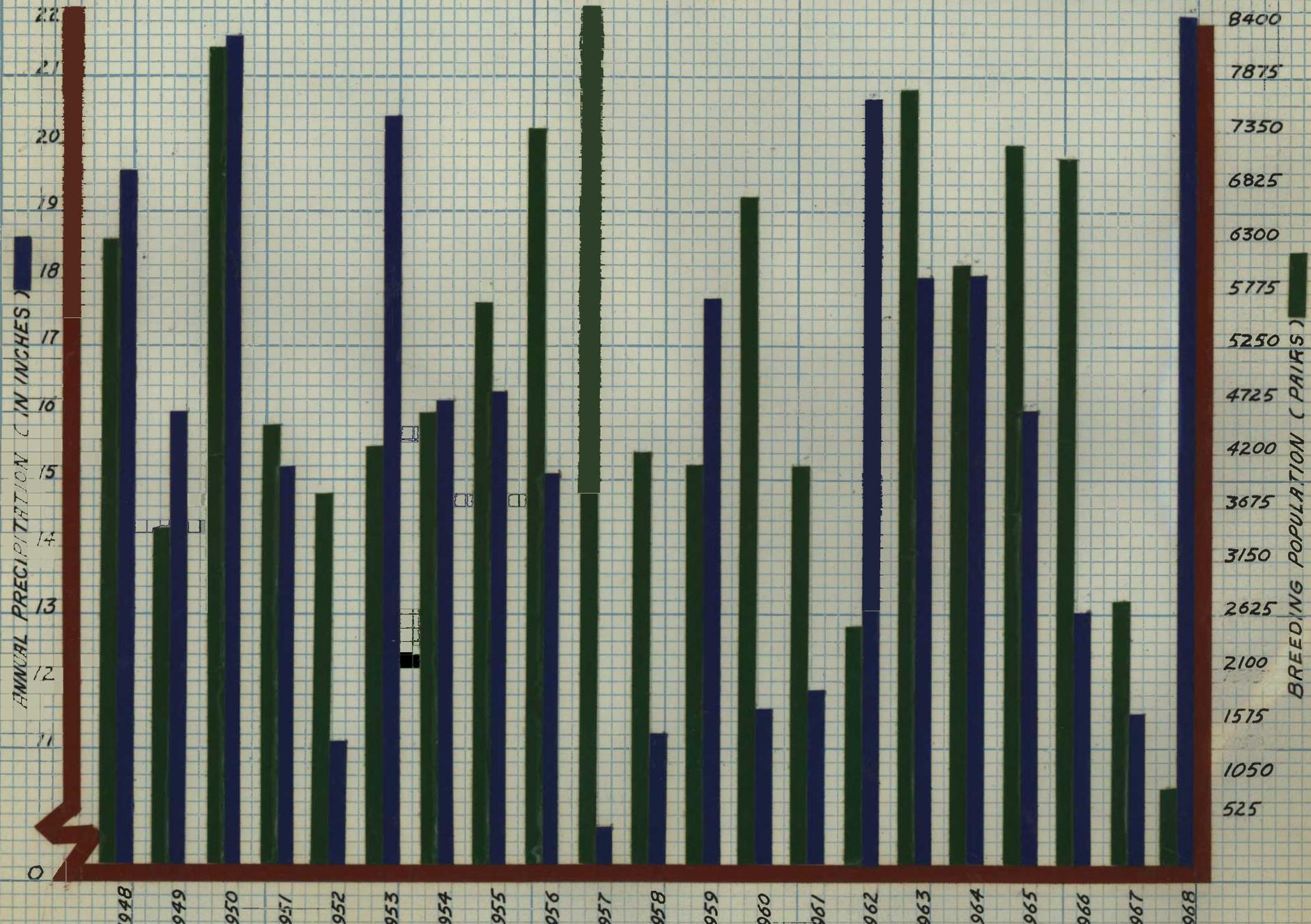
Black and common terns, both common nesting species during the years of good water conditions, were again absent as they were in 1967. These birds are interesting members of the biotic community in the prairie pothole region, and their absence serves to remind one of the severity of drought conditions.

Ring-billed gulls again established a nesting colony on the island in Upper Lostwood Lake. No estimates of production was made, but predation is known to be quite high for this particular colony.

B. Upland Game Birds

A spring dancing ground census for sharp-tailed grouse was conducted from April 22 to April 25. The total refuge population was estimated at 944,

FIG.3 COMPARISON BETWEEN ANNUAL PRECIPITATION AND DUCK BREEDING POPULATION LEVELS FOR PERIOD 1948-1968



down from the 1154 estimated for 1967. This is the fourth highest refuge population since counts were initiated in 1958.

All dancing grounds in eight study blocks, representing 55 percent of the total refuge area, are counted to determine total population. A total of 17 dancing grounds were located on the study blocks in 1968, compared to 19 in 1967. Table 4 shows the results of the 1968 census.

Table 4. Estimated sharp-tailed grouse population on Lostwood National Wildlife Refuge, 1968. Spring dancing ground survey.

<u>Unit No.</u>	<u>Description</u>	<u>Date Censused</u>	<u>No. of grounds</u>	<u>No. of Males</u>
1	Grazing unit G-4 (light grazing)	4/23	3	45
2	Sec. No. 20 & 29 (non use)	4/23	2	17
3	Grazing Unit G-6 (moderate grazing)	4/22	1	9
4	Grazing Unit G-9 (moderate grazing) Sec. No. 4 (non use)	4/22	3	56
5	Grazing Unit G-9 (light grazing)	4/24	2	36
6	Grazing Unit G-11 (light grazing)	4/24	2	29
7	Grazing Unit G-15 (light grazing)	4/25	2	25
8	West side, south of Hiway #50 (non use and light grazing)	4/25	2	45
			17	262
Average no. males per dancing ground=15.3 (262 ÷ 17)				
Total males on refuge.....=472 (262 ÷ 55.5%)				
Total refuge population.....=944 (472 x 2) 100:100 sex ratio				
Decrease in population from 1967.....=18.2%				

A land use study conducted at Lostwood from 1957 to 1965 gives some indication of relationships existing between various types of land use and sharp-tailed grouse population levels.

Using the criteria of males/sq.mile within the study blocks, there was no significant difference between population levels on idle and lightly grazed areas (7.98 and 8.93 males/sq.mile respectively). The study blocks

with light grazing throughout (no idle areas) showed an increase of nearly three grouse per sq. mile over the lightly grazed units with interspersed idle areas. Those study blocks grazed at the recommended SCS stocking rates (moderately to heavy grazing) showed a male/sq. mile index of 11. A further check made on an adjoining block of private land containing both grassland and cropland, showed an average of only 1.78 males/sq. mile-- a not too surprising figure when one sees the abuse made of private grasslands in this area.

Figure 4 shows the refuge grouse population for the period 1958-1968.

The first refuge grouse season was initiated in 1968, the results of which are covered under the Hunting Section.

Hungarian partridge appeared to be up from 1967 as five known broods were present on the refuge. Only three coveys were observed in 1967, and none in 1966.

C. Big Game Animals

The 1967 post season white-tailed deer population was estimated at approximately 150. Ground cover conditions were never optimum for aerial censusing in 1968, ground counts and general observations tend to support this figure.

A total of 30 deer were taken during the 9½ day, bucks only season. Approximately 300 hunters participated on refuge land, down from the 450 estimated in 1967. The kill was about 20 less than in 1967, but not too bad considering last year was an either sex season.

Based on post season sex ratios, there appeared to have been little biological justification for a bucks only season. This is, however, only an opinion based on rather limited observations in localized areas, and perhaps not representative of the entire area. The bulk of the 1968 kill was in the 1½ to 2½ age class. All animals checked appeared to have been in excellent physical.

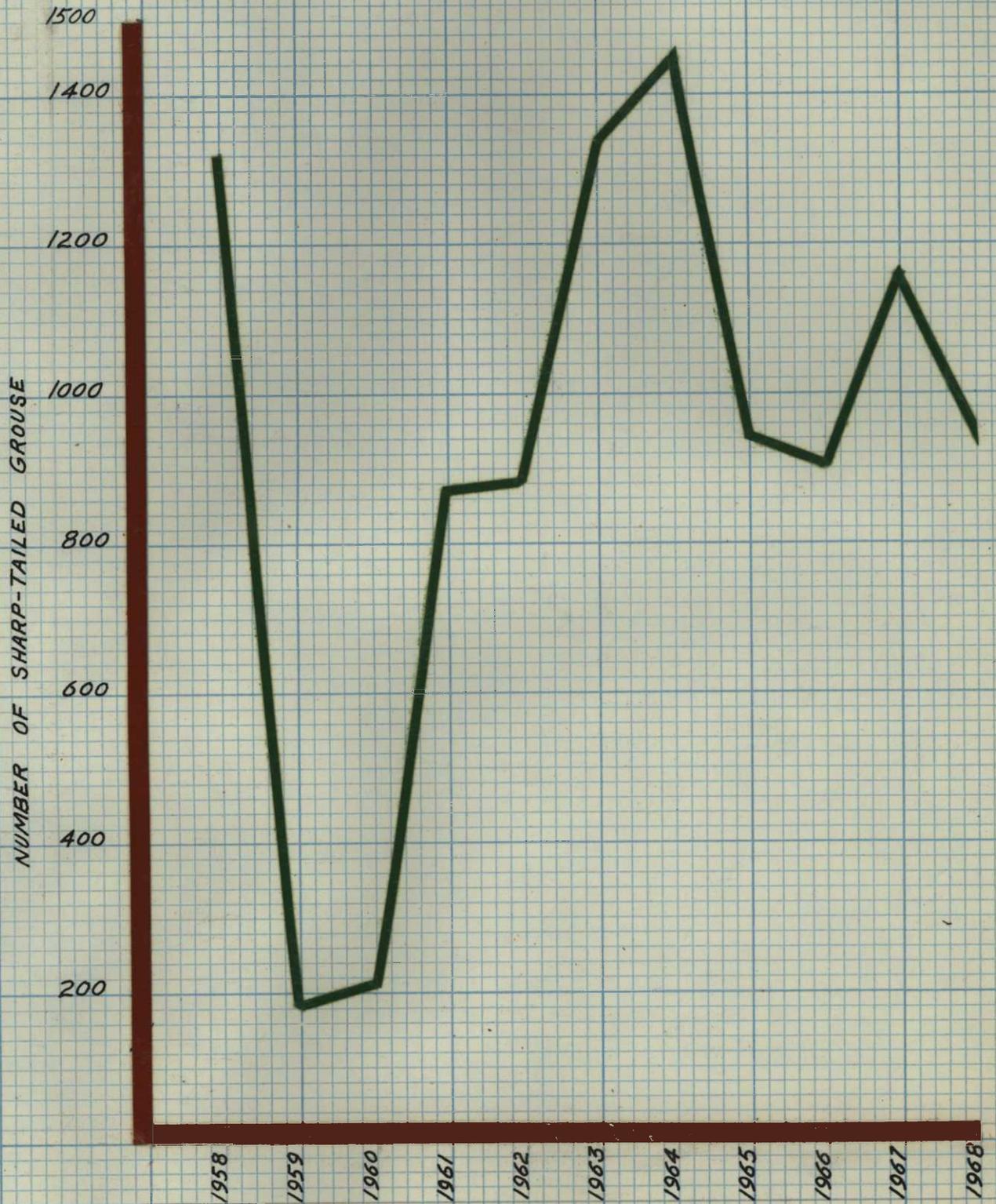
A more detailed account of the 1968 season is found in the Hunting Section.

D. Fur Animals, Rodents, Predators and other Animals

Mink and muskrat populations remain quite low because of the drought conditions. A few rat houses were observed on several of the more permanent marshes, however, the entire refuge population is estimated at 50 or less.

Beaver seem to be making themselves at home in this prairie region, and if they continue to increase we'll probably have to place what few trees we have on the endangered species list. There was one beaver colony on the refuge in 1966. By the end of 1967 three other colonies had moved in. The colony on Dead Dog slough appears to be the most active with well traveled trails noted to several nearby aspen groves.

FIG. 4. ANNUAL SHARP-TAILED GROUSE POPULATIONS
ON LOSTWOOD N.W.R. 1958-1968



Skunk and raccoon numbers remain quite low. An outbreak of rabies the past few years has probably contributed to the low levels. A rabid skunk was shot at refuge headquarters in October (see Disease Section).

Fox and coyote numbers remain quite low; a situation which pleases local sheep and poultry raisers. No complaints were received from local landowners during the year. Two active coyote dens were observed in 1968 in the Lower Lostwood Lake vicinity. These dens, unbeknown to our neighbors, were very jealously guarded and protected during the spring and summer. Certainly, there would be an irreplaceable void in the prairie ecology if the coyote is successfully eliminated as some wish. This interesting and magnificent animal has had to withstand physical, chemical and ~~now~~ biological attempts upon his life over the years. Hopefully, public attitudes will some day catch up with modern game management principles regarding predators--hopefully.

E. Hawks, Eagles, Owls, Crows and Magpies

Marsh hawks are the most abundant raptor species inhabiting the refuge. The first sighting during spring migration was March 8. Swainson's and rough-legged hawks were both observed on March 31. Red-tails didn't appear until about mid April.

No spring observations of bald eagles were made in 1968. Golden eagles were seen periodically throughout the year. The only bald eagle sighting was made in the vicinity of Thompson Lake on December 5.

Horned owls are year-around residents, and can frequently be seen and heard near refuge headquarters. Short-eared owls were frequently seen during the late fall and winter months. Snowy owls were periodically seen during December in the area between refuge headquarters and Kenmare, N.D.

F. Other Birds

The only sighting of particular significance was the observation of a Bullock's oriole at refuge headquarters on August 7 by Crosby Wetlands Manager Omer Swenson and Assistant John Martin. According to our local ornithological expert, Mrs. R. Gammel of Kenmare, this was the first confirmed sighting of this species in the vicinity.

G. Disease

Shortly after returning to refuge headquarters on the evening of October 28, my wife related (quite excitedly) how she and the two boys were chased to the house by a skunk only minutes before my arrival. A hurried search was made of the headquarters complex immediately, and again that night with the aid of a spotlight; but no skunk.

About 8:00 P.M. the following night, just as I was leaving the house, I was immediately confronted by this very docile and overly friendly black and white critter, which, in the dimness of the porch light, vaguely resembled the anatomical and morphological features of a skunk. My suspicions were readily confirmed, and I immediately made a somewhat hasty retreat to the house.

Enter my year old golden lab. Being still very much of a puppy, and extremely eager to establish a friendship with anything tolerating his very pestilent and precocial behavior, he began the get acquainted ritual with his newly found friend.

With the now loaded shotgun in hand I began to vocally separate dog and skunk, which only met with repeated failures. My thoughts returned to the instruction booklet "Handling Your Lab", but nowhere could I recall a similar situation. I finally resorted to cursing the dog, the skunk and then the book in about that order while jockeying for a clean shot that would leave the dog in the same physical condition as when this three-ring affair began.

The skunk was obviously looking for flesh, but up to now had managed only great gobs of golden hair. This only intensified the dog's playful participation. Finally, after getting nipped on the end of the nose, he decided not all was "fun and games" and cowardly headed for his by this time somewhat cowardly master. A quick and extremely lucky (while in retreat) shot from the hip with #4 buckshot abruptly terminated the life of one skunk. It was only then that the skunk "did his thing", and the nostalgic odor drifted throughout the house producing varying degrees of complaints from the remaining members of the household.

The comedy of errors had not quite ended with the death of the skunk. When Wildlife Services District Fieldman Rick Severson from Stanley arrived the following morning to retrieve the head, the carcass had mysteriously disappeared. Only after a prolonged search of the area was Rick able to "zero in" on the carcass about one-half mile west of refuge headquarters. We surmised that a fox had probably been the culprit; dragging it off during the night. At any rate, the head proved positive for rabies. Luckily, the dog had his shots less than a year before, and suffered no ill effects from the ordeal.

III. REFUGE DEVELOPMENT AND MAINTENANCE

A. Physical Development

1. Trails

A new three mile segment was added to the trail system from headquarters to the north boundary. The eight foot wide, raised trail was certainly a welcome addition to the previous skeletal trail system in this portion of the refuge. One can now drive from the north boundary to Hiway # 50 (8 miles) and arrive with the same amount of oil in the pan as when you started. The trail will also provide an excellent fire break in this area.

For a time, it didn't appear the project could be completed before freeze-up as numerous showers in August and September caused frequent delays. For eight consecutive days we had rain within a four to six hour period after starting the diesel engine on the grader. This little bit of

voo-doo had us all enthused thinking we had at last re-discovered the long lost art of rainmaking. A minor breakdown finally brought an abrupt end to ^{the} bit of magic.

2. Stockwater Dugouts

Five new stock dugouts were completed for the purpose of obtaining better grazing distribution in Units G-5; 6; 13 and 18. All had fair to excellent water conditions, and appeared to be achieving the desired objective by turn-out time in October. The following table is a summary of cost, yardage and location for the 1968 projects.

Table 4. Stockwater dugout projects on the Lostwood National Wildlife Refuge in 1968.

<u>Grazing Unit</u>	<u>Location</u>	<u>Yardage</u>	<u>Cost</u>
13	SW $\frac{1}{4}$ 6, T158-R91	1724	\$413.76
13	NW $\frac{1}{4}$ 8, T158-R91	1723	\$413.76
18	NE $\frac{1}{4}$ 8, T158-R91	1205	\$385.60
6	NW $\frac{1}{4}$ 35, T160 -R91	659	\$210.88
5	NW $\frac{1}{4}$ 28, T160-R91	2146	\$686.72
		7457	\$2,110.72

Soil and Moisture funds used, and all work done by private contractor using SCS specifications.

3. Fencing

Three miles of interior fencing was done by private contractor in 1968. The 4-strand barb wire & steel posts replaced the last remaining segment of old fencing which required nearly constant maintenance. All but two miles of the old fence has been removed and salvaged by permittees.

Other development and maintenance projects for the year include the following:

- (1) Small retention dam constructed in coulee in Unit G-18
- (2) Constructed insulated 4 x 6 well house.
- (3) Poured sidewalk from office to manager's quarters (50')
- (4) Painted exterior of all refuge buildings.
- (5) Painted bedrooms in manager's residence.
- (6) Paneled east porch in residence and converted to extra bedroom.
- (7) Mowing and grading of trails as needed.
- (8) Routine inspection and repair of boundary fence.
- (9) Blasted several potholes as demonstration for summer students.

IV. RESOURCE MANAGEMENT

A. Grazing

With the addition of three new units south of Hiway # 50, 18 grazing units were utilized in 1968. Total AUM's was 4,134.67 compared to 4,109.80 in 1967. Fewer cattle were run in 1968 (1,409) than in 1967 (1,506). Total revenue from the grazing program came to \$8,638.46. The 1968 grazing fee was \$2.45/AUM--an increase of 38 cents over the 1967 fee. The 1969 grazing fee has been set at \$2.61/AUM.

A new land use plan was submitted and approved in 1967 to reduce the stocking rate on six units previously grazed at SCS rates. The old rates ranged from 1.8 to 3.3 acres/AUM and were reduced to 4.0 to 5.1 acres/AUM. All refuge pastures will, by 1970, be grazed at a light rate ranging from 4.0 to 6.4 acres/AUM. A three year reduction program was effected in 1967 to allow permittees utilizing the six units to make the necessary herd adjustments.

V. FIELD INVESTIGATIONS OR APPLIED RESEARCH

A. Canada Goose Restoration Program

The success of the Canada goose restoration program at Lostwood shows more encouraging signs each year. Gosling production increased from 45 in 1967 to 59 in 1968. Twenty-six nests were located--23 on artificial structures. Twenty-four broods were observed, an increase of 15 over 1967. Gosling mortality was apparently quite high as the average brood size of 2.5 was significantly lower than the average of 5.0 recorded during the 1964-1967 period.

B. Dummy Nest Study

Eight plots of 25 dummy nests each, four in ungrazed native grass and four in ungrazed brome, were established on June 4, with the eggs being left for a 21 day exposure period. A second trial run was initiated on July 18 using the same 21 day exposure period. Table 5 shows the results of the 1968 study.

Table 5. Results of dummy nest study conducted on Lostwood National Wildlife Refuge in 1968.

<u>Trial Period</u>	<u>Days Exposure</u>	<u>No. Eggs</u>	<u>Eggs Destroyed</u>	
			<u>Native grass</u>	<u>Brome grass</u>
6/4 to 6/25	21	100	14	51
7/18 to 8/8	21	100	2	14
Totals	42	200	16(8%)	65(33%)

Each dummy nest when established was rated as to cover density according to the following criteria:

- Class I - Thin to short cover, offering no barrier to mammal movement, and few places where eggs could be concealed.
- Class II - Moderately dense cover; nests would be well concealed, but about $\frac{1}{2}$ of the area would offer no barrier to mammal movement.
- Class III - Dense and/or tall cover; nests well concealed, thus, causing a barrier to movement reducing efficiency of animals ability to locate nest.

During the early trial run--6/4 to 6/25 most nests were classified as being in the Class I because of extremely dry conditions. Improved cover conditions were noted prior to the second trial run with the vegetative height/density factor much greater than during the first run. The effects of cover density on predator activity and efficiency is quite striking. Nests in ungrazed native pasture went from 14 percent destroyed to 2 percent destroyed between the early and late period. Nests in the ungrazed brome plots went from 51 percent destroyed to 14 percent destroyed between the two periods.

This study, initiated in 1964, was designed to determine how mammalian predation on duck nests is related to characteristics of nesting cover and to provide a yearly index to nest losses due to predator activity.

VI. PUBLIC RELATIONS

A. Recreational Use

Recreational use at Lostwood was limited primarily to that period during the grouse and deer season. About 300 hunters participated in the 9 $\frac{1}{2}$ day deer season; down from the estimated 450 hunters in 1967. The refuge was opened to grouse hunting for the first time in 1968, and about 100 hunters took advantage of this initial opening. Very few local people were observed, with a majority of the participants coming over from the Minot Air Force Base some 70 miles northeast of the refuge.

A few bird watchers ventured to the refuge during the fall to observe the concentration of whistling swans on Thompson Lake.

The following visitors registered at headquarters during the year.

<u>Date</u>	<u>Name and Organization</u>	<u>Purpose</u>
1/3	Glenn Shakul; Wetland Office, Minot, N.D.	Inspect WPA's
1/9	Paul Haroldson; SCS, Stanley, N.D.	Deliver soil maps
2/2	Dave Sill; WHP Biologist, Minot, N.D.	ACP meeting
2/2	Lyman Renoldson; USGMA, Minot, N.D.	Pick up maps
7/16	Mr. & Mrs. G. Wilson, Denver, Colo.	Bird watching
9/3	Burt Rounds, Regional Office, Mpls., Minn.	Courtesy call

<u>Date</u>	<u>Name and Organization</u>	<u>Purpose</u>
9/3	John Davis, Minot Wetlands Office, Minot, N.D.	Courtesy call
9/6	Forrest Carpenter, Regional Office, Mpls., Minn.	Courtesy call
10/4	Gerald Kobriger, N.D. Game and Fish Dept.	Grouse season
10/16	Clair Rollings, Regional Office, Mpls., Minn.	S&M inspection
10/2	Earl Eliason, Regional Office, Mpls., Minn.	Quarters appraisal
10/9	Mrs. E. Gammel, Kenmare, No. Dak.	Bird Watching
10/24	Keith Blessum, U.S. Weather Bureau, Fargo	Station inspection
10/30	Greg Simonson, Wildlife Services, Garrison	Rabies Report
10/30	Rick Severson, Wildlife Services, Stanley	Rabies Report
11/14	Cecil Keisacker, Minot Wetlands Office	WPA boundary check

The following individuals also made numerous official calls during the year.

Merrill Hammond; Area Biologist, Towner, N.D.
 Omer Swenson; Crosby Wetlands Office, Crosby, N.D.
 Homer Bradley; Manager, Des Lacs NW Refuge, Kenmare, N.D.

C. Refuge Participation

Manager Jim Matthews participated in the following:

02/5 Coordination meeting, Minot Wetlands Office.
 03/4 Coordination meeting, Minot Wetlands Office.
 03/19 Talk to Bowbells Jaycees.
 03/20 Talk to Bowbells Lions.
 03/30 Attended meeting of Powers Lake Rural Fire Department.
 04/4 Talk to Stanley, N.D. FFA Chapter.
 04/16 Attended public relations workshop, Fargo, N.D.
 05/6 Attended coordination meeting, Minot Wetlands Office.
 05/14 Attended research meeting at NPWRC, Jamestown, N.D.

Manager Jim Frates participated in the following:

10/9 Hosted 35 birders from Oklahoma City Ornithological Club.
 10/22 Delivered revenue sharing check to Mountrail County Commissioners.
 11/4 Gave talk to Stanley, N.D. Lions Club
 11/13 Attended coordination meeting with Associate and Assistant Regional Supervisors in Minot. Presented refuge status report.
 11/21 Meeting at Tamarac Refuge with Ass't. Area Biologist and Manager Nelson to discuss paper to be written on wood duck research.
 12/3 Guest speaker, Mountrail County Soil and Water Conservation District annual award's banquet.

D. Hunting

1. Waterfowl

Having spent the last two waterfowl seasons at Tamarac Refuge where opening day is nothing less than chaotic, I was expecting a repeat performance here in this state where the duck hunter is supposedly afflicted with an even more chronic case of duck hunting fever.

I patrolled the immediate vicinity of the refuge shortly after zero hour on October 5, and after hearing no shooting over a two hour period, made a hasty return to refuge headquarters to recheck regulations thinking I must have erred as to the opening date. No mistake. Back to the field. Still no duck hunters. The whole thing was becoming more absurd by the minute as ducks were sitting on small ponds, feeding in nearby grain fields and acting in general as though the entire state was one gigantic sanctuary. Thus, my first introduction to the North Dakota duck hunter, conspicuous only by his absence.

I figured if they weren't going to take advantage of the situation, I was, and consequently enjoyed some of the finest "quality" hunting in years; not once during the season did I encounter another duck hunter! As I learned later, the North Dakota duck hunter is largely a mallard shooter. Not just any old mallard will do, either. The specifications are quite narrow: two to four pounds, brilliant iridescent head and bright (blaze) orange feet; large feet, by the way. Mallards fitting this description are collectively called "northerns", and nest in some far off mysterious regions of the north. Locally raised mallards are grouped with all the other species referred to as "gray ducks", and one doesn't shoot "gray ducks".

2. White-tailed Deer

The 9^{1/2} day, bucks only deer season opened at noon on Friday, November 8. About 70 hunters were well dispersed throughout the refuge by 2:00 P.M. when I decided to patrol south through the refuge. One hunter, decked out in his blaze orange vest, waved from a high knoll as I passed him. I naturally returned the gesture, and continued on my way. Looking back only seconds later, I noticed him frantically removing his colorful vest and hurriedly tie it to the end of his gun barrel. He then began waving in earnest in an apparent state of panic.

Obvious to me by this time, this guy had a problem, and very much wanted my attention. When I finally jockeyed the vehicle through a boulder field and several firebreaks, his first words, as I stepped from the pick up were "You must be new here". Almost apologetically, I informed him I was. I am now well acquainted with the standard signal given by a hunter who has shot a deer, and now wants the animal hauled back to his vehicle. Just go to the top of the highest hill and wave at every green vehicle which happens to pass by (the one with the fish and goose on the door). And any well trained refuge manager, so I was told, ought to be familiar with the signal.

While it is no great chore to assist hunters in carrying out their deer, the situation raises some interesting questions regarding our leadership in promoting "quality" hunting. One hunter waited patiently by his dead animal for nearly four hours waiting for the green pick up. A well traveled trail was only 100 yards away (downhill), yet he had made no attempt to budge the deer.

With the bucks only season, we expected the doe kill might be quite high, however, only one doe was found following the season. Someone had made an excellent heart shot, and apparently later discovered she not only didn't

possess the legal forked antler, but other features of her anatomy did not exactly conform to conventional male specifications. We have no data on the significance of the doe kill, but most hunters observed proved quite cautious in selecting their shots.

3. Sharp-tailed Grouse

The first refuge season for sharp-tailed grouse opened in that portion of the refuge south of Hiway # 50 (4,720 acres) on Saturday, October 5. The remaining refuge area was opened on November 18, the day following the close of the deer season.

Pressure was considerably lighter than had been anticipated. Considering the excellent refuge-wide grouse population, and good local publicity given the program, it was surprising that more hunters did not participate. Only eight hunters were checked on opening day, bagging a total of 10 birds. They reported having ample opportunity to fill their collective limit (40 birds) but suffered from a case of poor shooting. Probably no more than 100 hunters participated in the 71 day season. Envelopes for saving tail and primary wing feathers were dispersed when hunters could be located. These were mailed by the hunter to the North Dakota Game and Fish Department. The State Grouse Biologist is to analyze the data, and furnish us with a report. The sex and age ratio data will probably have little meaning as the sample will be quite small.

E. Violations

Two warnings were issued on vehicle trespass cases during the deer season.

F. Safety

Safety meetings were held monthly in conjunction with the Des Lacs Refuge personnel. Meeting chairmanships were rotated among the various personnel. Both oral presentations and films were used, followed by group discussions on selected topics relating to safety procedures and/or practices. These meetings are very successful deterrents to curbing attitudes of complacency in the execution of day to day refuge activities.

The following items relating to safety management were accomplished during the year.

- (1) Seat belts installed in all new vehicles and replaced where needed in old ones.
- (2) Periodic inspection of furnaces and chimneys.
- (3) Electrical inspection of headquarters complex by electrician.
- (4) Inspection and replacement of fire extinguishers.
- (5) Operational readiness inspections of fire truck and equipment.

Lostwood has now recorded 6,330 days without a lost time accident.

Vii. OTHER ITEMS

A. Items of Interest

Jim Matthews, Manager since 1966, transferred to Fort Niobrara National Wildlife Refuge, Valentine, Nebraska in August. We all wish Jim well in his new role as combination Manager and "sandhillier".

Jim Frates, Former Assistant at Tamarac, transferred in to replace Matthews on September 9.

Allan "Ben" Aufforth, Student Laborer, returned to his studies at South Dakota State University on September 12. Ben did a fine job compiling and summarizing data on an inventory of refuge wetlands, conducting the dummy nest study and keeping records of artificial nesting structure use.

Bruce Zeller, Izaak Walton League appointee from Nebraska, was given a thorough indoctrination into the "fun and games" of refuge management during the summer. Bruce was a willing and enthusiastic worker, and plans to enter the University of Nebraska pursuing a major in zoology.

A revenue sharing check in the amount of \$1400.30 was delivered to Mountrail County. Burke County received \$4,720.74.

Lostwood Refuge will soon reap the benefits of modern advancements in communication--the telephone. Primitive methods of drum beating and "runners" were probably more reliable and effective than the present refuge telephone. The phone seems to work when it isn't cloudy, foggy, misting, snowing, raining or windy. In North Dakota, this means we have phone service about 10 percent of the time. A new underground cable was buried in the fall, and will replace the present 11 party line with private service. The system is to become operational in the spring of 1969.

The Frates family has found Lostwood an interesting and unique area. This was certainly a change from the forested area of Tamarac, and the usual accelerated pace of activities with its Job Corps Center acting as an always interesting catalyst.

SIGNATURE PAGE

Submitted by:

James E. Trites
(Signature)

Date: February 28, 1969

Refuge Manager
Title

Approved, Regional Office:

Date: MAR 4 1969

J. C. Carlson
(Signature)
ASST.

Regional Refuge Supervisor

W A T E R F O W L

REFUGE Lostwood

MONTHS OF January 1 TO April 30, 1968

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

FROZEN OVER

3 -1750a

Cont. NR-1

(Rev. March 1953)

WATERFOWL
(Continuation Sheet)

REFUGE LostwoodMONTHS OF January 1 TO April 30, 1968

(1) Species	(2) Weeks of reporting period								(3) Estimated waterfowl days use	(4) Production : Broods: Estimated : seen : total	
	3/3-3/9	3/10-3/16	3/17-23	3/24-30	3/31-4/6	4/7-13	4/14-20	4/21-27			
Swans:											
Whistling Trumpeter					35	25	10	6	532		
Geese:											
Canada Large	20	80	80	80	80	80	80	80	4,060		
Cackling Brant											
White-fronted				25	15	20	10		490		
Snow			5						35		
Blue											
Other Canada small			5						35		
Ducks:											
Mallard		30	50	150	200	1000	900	870	25,900		
Black											
Gadwall						200	200	230	4,410		
Baldpate				15	15	50	30	55	1,155		
Pintail		25	20	75	250	550	600	115	11,445		
Green-winged teal				10	75	110	100	60	2,485		
Blue-winged teal											
Cinnamon teal											
Shoveler						25	20	35	560		
Wood											
Redhead						100	75	140	2,205		
Ring-necked						50		5	35		
Canvasback						50	50	70	1,190		
Scaup Lesser						900	1000	1160	21,420		
Goldeneye			5	5		15	10		245		
Bufflehead						5	10	15	210		
Ruddy											
Other											
Coot:								30	210		

(over)

	(5)	(6)	(7)
	Total Days Use	Peak Number	Total Production
Swans	11,532	35	
Geese	4,620	105	
Ducks	17,260	3,050	
Coots	210	30	

SUMMARY

Principal feeding areas Surrounding private cropland
 and small potholes following spring thaw

Principal nesting areas _____

Reported by James Matthews

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).

Interior Duplicating Section, Washington, D. C.
 1953

W A T E R F O W L

REFUGE LOSTWOOD

MONTHS OF May 1 TO August 31, 1968

(1) Species	(2) Weeks of reporting period									
	5/1-5/7	5/8-5/14	5/15-5/21	5/22-5/28	5/29-6/4	6/5-11	6/12-18	6/19-25	6/26-7/2	7/3-9
Swans:										
Whistling Trumpeter	4									
Geese:										
Canada	80	80	100							
Cackling Brant										
White-fronted										
Snow Blue										
Other										
Ducks:										
Mallard	650	470	405	300	238					
Black										
Gadwall	330	490	500	150	80					
Baldpate	125	190	180	90	25					
Pintail	100	100	75	25	10					
Green-winged teal	80	105	50	20	12					
Blue-winged teal	110	285	700	200	100	40				
Cinnamon teal										
Shoveler	365	595	250	150	80					
Wood										
Redhead	100	55	40	35						
Ring-necked	5	5	15	0						
Canvasback	55	35	35	20						
Scaup	890	430	150	100	75	40				
Goldeneye										
Bufflehead										
Ruddy	50	50	25	10						
Other										
Coot:	150	165	150	50	20					

3-1750a

Cont. NR-1

(Rev. March 1953)

WATERFOWL
(Continuation Sheet)

REFUGE LOSTWOODMONTHS OF May 1 TO August 31, 19 68

(1) Species	(2) Weeks of reporting period								(3) Estimated waterfowl days use	(4) Production : Broods: Estimated : seen : total		
	7/10-16	7/17-23	7/24-30	7/31-8/6	8/7-13	8/14-20	8/21-27	8/28-31				
Swans:												
Whistling									28			
Trumpeter												
Geese:												
Canada	----- STABLE POPULATION -----								175	13,895		± 75
Cackling												
Brant												
White-fronted												
Snow												
Blue												
Other												
Ducks:												
Mallard	----- STABLE POPULATION -----								562	55,062	54	324
Black												
Gadwall									182	36,300	17	102
Baldpate									61	14,000	6	36
Pintail									22	6,900	2	12
Green-winged teal									33	6,300	3	21
Blue-winged teal									103	27,500	9	63
Cinnamon teal												
Shoveler									182	34,000	17	102
Wood												
Redhead									83	6,550	8	48
Ring-necked										181		
Canvasback									45	4,800	5	25
Scaup									88	32,000	8	48
Goldeneye												
Bufflehead												
Ruddy									18	2,380	2	8
Other												
Coot:									65	1,260	9	45

(over)

	(5)	(6)	(7)
	Total Days Use	Peak Number	Total Production
Swans	28	4	
Geese	13,895	175	75
Ducks	197,173	2,810	789
Coots	1,260	185	45

SUMMARY

Principal feeding areas Confined to larger lakes--only
available water on refuge during much of the summer

Principal nesting areas Near vicinity of larger lakes

Reported by James E. Frates, Refuge Manager

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).

W A T E R F O W L

REFUGE Laguna

MONTHS OF September TO December, 1969

(1) Species	(2) Weeks of reporting period									
	9/1-9/7	9/8-9/14	9/15-9/21	9/22-9/28	9/29-10/5	10/6-10/12	10/13-19	10/20-26	10/27-11/2	11/3-9
<u>Swans:</u>										
Whistling Trumpeter					98	114	303	514	617	688
<u>Geese:</u>										
Canada	175	150	135	43	171	145	177	150	152	100
Cackling Brant										
White-fronted										
Snow										
Blue										
Other										
<u>Ducks:</u>										
Mallard	562	2550	3570	810	2410	4500	2250	3500	1430	3500
Black										
Gadwall	182	162	132	10	50	50	100			
Baldpate	61	100	130	25	300	100	20	160		
Pintail	22	58	76	147	700	340	60	300		
Green-winged teal	33	300	567	30		250	50			
Blue-winged teal	103			10						
Cinnamon teal										
Shoveler	182			700	500	50		300		
Wood										
Redhead	83	100	130	200	2100	800	1800	1150	50	
Ring-necked				50	40	50	7	3		
Canvasback				40	100	50				
Scaup	88	50	10	10	100					
Goldeneye								55	100	
Bufflehead										
Ruddy									2	
Other			5				4	2		3
<u>Coot:</u>	65		135	200			50			

3 -1750a

Cont. NR-1

(Rev. March 1953)

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

REFUGE Lestwood MONTHS OF September TO December, 1969

(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				
<u>Swans:</u>												
Whistling Trumpeter									16,758			
<u>Geese:</u>												
Canada									9,786			
Cackling												
Brant												
White-fronted												
Snow												
Blue												
Other												
<u>Ducks:</u>												
Mallard									175,196			
Black												
Gadwall									4,802			
Baldpate									6,986			
Pintail									11,921			
Green-winged teal									8,610			
Blue-winged teal									784			
Cinnamon teal												
Shoveler									12,124			
Wood												
Redhead									44,891			
Ring-necked									1,050			
Canvasback									1,319			
Scaup									2,891			
Goldeneye												
Bufflehead												
Ruddy									14			
Other									98			
<u>Coot:</u>												
									3,150			

(over)

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

MIGRATORY BIRDS
(other than waterfowl)

Refuge: Lostwood Months of January 1 to April 30 1968

(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	
I. Water and Marsh Birds:										
Eared Grebe	30	4/25			Present					40
Sandhill Crane	35	4/8	Not Known							0
II. Shorebirds, Gulls and Terns:										
Killdeer	1	4/5	Not Known		Present					Unknown
Lesser Yellowlegs	2	4/27	"		"					"
American Avocet	25	4/29	"		"					"
Ring-billed Gull	5	4/8	"		"					"
Franklin's Gull	10	4/26	"		"					"
Willet	1	4/23	"		"					"
(over)										

(1)	(2)	(3)	(4)	(5)	(6)
III. Doves and Pigeons:					
Mourning dove	1	4/10		Present	Unknown
White-winged dove					
IV. Predaceous Birds:					
Golden eagle	1	4/29		Present	1
Duck hawk					
Horned owl	1	4/12		Present	Unknown
Magpie	Present				
Raven					
Crow	12	3/17		Present	Unknown
Red-tailed Hawk	1	3/31		"	"
Swainson's Hawk	1	3/31		"	"
Rough-legged Hawk	1	4/2		"	"
Marsh Hawk	2	3/8		"	"
Reported by <u>Jim Matthews</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.

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

MIGRATORY BIRDS
(other than waterfowl)

Refuge Lostwood Months of Sept. to Dec. 1969

(1) Species	(2) First Seen		(3) Peak Numbers		(4) Last Seen		(5) Production		(6) Total	
	Number	Date	Number	Date	Number	Date	Number Colonies	Total # Nests	Total Young	Estimated Number
I. Water and Marsh Birds:										
Horned grebe	Present									
Fared grebe										
Pied-billed grebe										
Black-crowned Night Heron										
Red-tailed Tropicbird										
Sandhill crane	8	9/16	2,000	10/22	10	11/2				
II. Shorebirds, Gulls and Terns:										
Killdeer	Present				unknown					
Lesser yellowlegs					5	10/1				
Avocet					unknown					
Wilson's Phalarope										
Ring-billed gull										
Franklin's gull										
III. Doves and Pigeons:										
White-winged dove										
Mourning dove										

(over)

(1)	(2)	(3)	(4)	(5)	(6)
III. <u>Doves and Pigeons:</u> Mourning dove White-winged dove	Present	unknown	1 2/6 9/6		
IV. <u>Predaceous Birds:</u> Golden eagle Duck hawk Horned owl Magpie Raven Crow	Present present present present	unknown unknown unknown	3 on refuge at end of period year-around residents at Lostwood " " " "		
II. <u>Red-tailed hawk</u> Swainson's hawk Rough-legged hawk Marsh hawk Sparrow hawk Short-eared owl	present	2 5,000 unknown	9/20 2 10/14 unknown		
			present at end of period		
			Reported by	James Frates	

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.

3-1750b
 Form NR-1B
 (Rev. Nov. 1957)

UNITED STATES
 DEPARTMENT OF THE INTERIOR
 FISH AND WILDLIFE SERVICE
 BUREAU OF SPORT FISHERIES AND WILDLIFE
WATERFOWL UTILIZATION OF REFUGE HABITAT

Refuge LOSTWOOD For 12-month period ending August 31, 1968

Reported by James E. Frates Title Refuge Manager

(1) Area or Unit Designation	(2) Habitat		(3) Use-days	(4) Breeding Population	(5) Production	
	Type	Acreage				
Lostwood NWR	Crops	0	Ducks	197,173	287	789
	Upland	22,493	Geese	13,895	100	75
	Marsh	150	Swans	28		
	Water	4,104	Coots	1,260	20	45
	Total	26,747	Total	212,356		

	Crops		Ducks			
	Upland		Geese			
	Marsh		Swans			
	Water		Coots			
	Total		Total			

	Crops		Ducks			
	Upland		Geese			
	Marsh		Swans			
	Water		Coots			
	Total		Total			

	Crops		Ducks			
	Upland		Geese			
	Marsh		Swans			
	Water		Coots			
	Total		Total			

	Crops		Ducks			
	Upland		Geese			
	Marsh		Swans			
	Water		Coots			
	Total		Total			

	Crops		Ducks			
	Upland		Geese			
	Marsh		Swans			
	Water		Coots			
	Total		Total			

	Crops		Ducks			
	Upland		Geese			
	Marsh		Swans			
	Water		Coots			
	Total		Total			

(over)

INSTRUCTIONS

All tabulated information should be based on the best available techniques for obtaining these data. Estimates having no foundation in fact must be omitted. Refuge grand totals for all categories should be provided in the spaces below the last unit tabulation. Additional forms should be used if the number of units reported upon exceeds the capacity of one page. This report embraces the preceding 12-month period, NOT the fiscal or calendar year, and is submitted annually with the May-August Narrative Report.

(1) **Area or Unit:** A geographical unit which, because of size, terrain characteristics, habitat type and current or anticipated management practices, may be considered an entity apart from other areas in the refuge census pattern. The combined estimated acreages of all units should equal the total refuge area. A detailed map and accompanying verbal description of the habitat types of each unit should be forwarded with the initial report for each refuge, and thereafter need only be submitted to report changes in unit boundaries or their descriptions.

(2) **Habitat:** Crops include all cultivated croplands such as cereals and green forage, planted food patches and agricultural row crops; upland is all uncultivated terrain lying above the plant communities requiring seasonal submergence or a completely saturated soil condition a part of each year, and includes lands whose temporary flooding facilitates use of non-aquatic type foods; marsh extends from the upland community to, but not including, the water type and consists of the relatively stable marginal or shallow-growing emergent vegetation type, including wet meadow and deep marsh; and in the water category are all other water areas inundated most or all of the growing season and extending from the deeper edge of the marsh zone to strictly open-water, embracing such habitat as shallow playa lakes, deep lakes and reservoirs, true shrub and tree swamps, open flowing water and maritime bays, sounds and estuaries. Acreage estimates for all four types should be computed and kept as accurate as possible through reference to available maps supplemented by periodic field observations. The sum of these estimates should equal the area of the entire unit.

(3) **Use-days:** Use-days is computed by multiplying weekly waterfowl population figures by seven, and should agree with information reported on Form NR-1.

(4) **Breeding Population:** An estimate of the total breeding population of each category of birds for each area or unit.

(5) **Production:** Estimated total number of young raised to flight age.

3-1752
Form NR-2
(April 1946)

UPLAND GAME BIRDS

Refuge Lostwood

Months of May 1 68 to August 31, 1968

(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 observed	Estimated Total	Percentage	Hunting	For Re- stocking	For Research	Estimated number using Refuge	Pertinent information not specifically requested. List introductions here.
Sharp-tailed grouse	24,441			165					1770	944 spring population 825 produced (35% pro- ductivity rate, and average brood size-5)
Grey partridge	24,441		1	15					15-40	

FORM NR-2 - UPLAND GAME BIRDS

INSTRUCTIONS

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.

(48111 1040)
 FORM NR-2
 3-11-55

UPLAND GAME BIRDS

3-1752
Form NR-2
(April 1946)

UPLAND GAME BIRDS

Refuge Lostwood

Months of January 1 to April 30, 19 68

(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 observed	Estimated Total	Percentage	Hunting	For Re-stocking	For Research	Estimated number using Refuge	Pertinent information not specifically requested. List introductions here.
(2) Sharp-tailed Grouse	24,141 acres of upland habitat								950	Taken from spring dancing ground survey.
(4) Gray Partridge	"								25-30	Population is up from last year.
(3) Ring-necked Pheasant	"								0	None known to be on the refuge
(5)										
(7)										

FORM NR-2 - UPLAND GAME BIRDS

INSTRUCTIONS

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.

(48177 1296)
 FORM NR-2
 3-1125

UPLAND GAME BIRDS

UPLAND GAME BIRDS

Refuge Lostwood

Months of September to December, 1968

(1) Species	(2) Density	(3) Young Produced				(4) Sex Ratio	(5) Removals			(6) Total	(7) Remarks
		Acres Per Bird	Number broods observed	Estimated Total	Percentage		Hunting	For Re-stocking	For Research		
(1) Common Name	Cover types, total acreage of habitat									Estimated number using Refuge	Pertinent information not specifically requested. List introductions here.
(2) Sharp-tailed grouse	24,441					50				1720	100 hunters during first refuge season, estimated .5 birds/hunter.
(3) Grey partridge	24,441					5				25-30	
(5)											
(7)											

FORM NR-2 - UPLAND GAME BIRDS

INSTRUCTIONS

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.

(UPLAND GAME BIRDS)
FORM NR-2
3-1125

UPLAND GAME BIRDS

(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-tailed deer	22,000 acres	75	30								250	200	100:100

Remarks:

Reported by _____

INSTRUCTIONS

Form NR-3 - BIG GAME

- (1) SPECIES: Use correct common name; i.e., Mule deer, black-tailed deer, white-tailed deer. It is unnecessary to indicate sub-species such as northern or Louisiana white-tailed deer.
- (2) DENSITY: Detailed data may be omitted for species occurring in limited numbers. Density to be expressed in acres per animal by cover types. This information is to be prefaced by a statement from the refuge manager as to the number of acres in each cover type found on the refuge: once submitted, this information need not be repeated except as significant changes occur in the area of cover types. Cover types should be detailed enough to furnish the desired information but not so much as to obscure the general picture. Examples: spruce swamp, upland hardwoods, reverting agriculture land, bottomland hardwoods, short grass prairie, etc. Standard type symbols listed in Wildlife Management Series No. 7 should be used where possible. Figures submitted should be based on actual observations and counts on representative sample areas. Survey method used and size of sample area or areas should be indicated under Remarks.
- (3) YOUNG PRODUCED: Estimated total number of young produced on refuge.
- (4) REMOVALS: Indicate total number in each category removed during the year.
- (5) LOSSES: On the basis of known records or reliable estimates indicate total losses in each category during the year.
- (6) INTRODUCTIONS: Indicate the number and refuge or agency from which stock was secured.
- (7) TOTAL REFUGE POPULATION: Give the estimated population of each species on the refuge at period of its greatest abundance and also as of Dec. 31.
- (8) SEX RATIO: Indicate the percentage of males and females of each species as determined from field observations or through removals.

3-1754
Form NR-4
(June 1945)

SMALL MAMMALS

Refuge Lostwood

Year ending April 30, 1968

(1) Species	(2) Density	(3) Removals						(4) Disposition of Furs					(5) Total Popula- tion		
		Cover Types & Total Acreage of Habitat	Acres Per Animal	Hunting	Fur Harvest	Predator * Control	For Re- stocking	For Re- search	Share Trapping			Total Refuge Furs Shipped		Furs Donated	Furs Destroyed
									Permit Number	Trappers Share	Refuge share				
Common Name															
Muskrat	Approx. 6,000 acres of Lakes, Marshes, & potholes													5-10	
Mink	26,741 acres of upland & water													15-20	
Beaver	2,300 acres of permanent water													10-15	
Weasel	24,441 acres of upland													20-25	
Skunk	"				2									20-25	
Raccoon	"				2									15-20	
Badger	"													10-15	
Red Fox	"													10-15	
Coyote	"													5-10	
Porcupine	"				12									75	
White-tailed Jackrabbit	"													50	
Cottontail Rabbit	"													5	
Snow Shoe Rabbit	"													5	

* List removals by Predator Animal Hunter

REMARKS:

Indicate trapping method(s) used, size of sample area(s), introductions, and any other pertinent information not specifically requested.

Reported by Jim Matthews

INSTRUCTIONS

Form NR-4 - SMALL MAMMALS (Include data on all species of importance in the management program; i. e., muskrats, beaver, coon, mink, coyote. Data on small rodents may be omitted except for estimated total population of each species considered in control operations.)

(5) Total Popula- tion	Disposition of Furs	Removals	Density	(1) Species
(1) SPECIES:			Use correct common name. Example: Striped skunk, spotted skunk, short-tailed weasel, gray squirrel, fox squirrel, white-tailed jackrabbit, etc. (Accepted common names in current use are found in the "Field Book of North American Mammals" by H. E. Anthony and the "Manual of the Vertebrate Animals of the Northeastern United States" by David Starr Jordan.)	
(2) DENSITY:			Applies particularly to those species considered in removal programs. 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, bottom land 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.	Common Name
(3) REMOVALS:			Indicate the total number under each category removed since April 30 of the previous year, including any taken on the refuge by Service Predatory Animal Hunter. Also show any removals not falling under headings listed.	Muskrat Mink Beaver Weasel Skunk Raccoon Badger Red Fox Coyote Porcupine White-tailed Jackrabbit Cottontail Snow Shrew
(4) DISPOSITION OF FUR:			On share-trapped furs list the permit number, trapper's share, and refuge share. Indicate the number of pelts shipped to market, including furs taken by Service personnel. Total number of pelts of each species destroyed because of unprimeness or damaged condition, and furs donated to institutions or other agencies should be shown in the column provided.	* List removals by Predator Animal Hunter
(5) TOTAL POPULATION:			Estimated total population of each species reported on as of April 30.	REMARKS:

REMARKS: Indicate inventory method(s) used, size of sample area(s), introductions, and any other pertinent information not specifically requested.

DISEASE

Refuge Lestwood

Year 19 68

Botulism

Lead Poisoning or other Disease

Period of outbreak _____

Period of heaviest losses _____

Losses:

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

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

(a) Waterfowl	_____	_____
(b) Shorebirds	_____	_____
(c) Other	_____	_____

Areas affected (location and approximate acreage) _____

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

Condition of vegetation and invertebrate life _____

Remarks _____

Kind of disease Rabies

Species affected Skunk

Number Affected	Actual Count	Estimated
Species <u>skunk</u>	<u>1</u>	<u>unknown</u>
_____	_____	_____
_____	_____	_____

Number Recovered 1

Number lost _____

Source of infection _____

Water conditions _____

Food conditions _____

Skunk shot at refuge on night of October 30 was submitted to State Health Department in Grand Forks for analysis. Positive confirmation received in about 7 days.

Remarks This was the only skunk observed on refuge since entering on duty Sept. 9, 1968. The area has had quite a high incidence of rabies outbreaks the past two to three years, but this positive case in the vicinity of the the year.

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

Fish and Wildlife Service Branch of Wildlife Refuges

CULTIVATED CROPS - HAYING - GRAZING

Refuge Lestwood County Burke-Mountrail 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			
None grown									
								Fallow Ag. Land	

No. of Permittees: Agricultural Operations 0 Haying Operations 0 Grazing Operations 16

Hay - Improved (Specify Kind)	Tons Harvested	Acres	Cash Revenue	GRAZING	Number Animals	AUM'S	Cash Revenue	ACREAGE
				1. Cattle	1,409	4,134.67	\$8,638.46	15,550
				2. Other				
				1. Total Refuge Acreage Under Cultivation				0
Hay - Wild				2. Acreage Cultivated as Service Operation				

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

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

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

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

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

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

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

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

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

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

REFUGE GRAIN REPORT

Refuge Lostwood

Months of January through December, 19569

(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
Ear corn	25 bu.	0	25 bu.	25 bu.				0			

(8) Indicate shipping or collection points Corn transferred to J. Clark Salyer Refuge

(9) Grain is stored at _____

(10) Remarks _____

*See instructions on back.

REFUGE GRAIN REPORT

This report should cover all grain on hand, received, or disposed of, during the period covered by this narrative report.

Report all grain in bushels. For the purpose of this report the following approximate weights of grain shall be considered equivalent to a bushel: Corn (shelled)—55 lb., corn (ear)—70 lb., wheat—60 lb., barley—50 lb., rye—55 lb., oats—30 lb., soy beans—60 lb., millet—50 lb., cowpeas—60 lb., and mixed—50 lb. In computing volume of granaries, multiply the cubic contents (cu. ft.) by 0.8 bushels.

- (1) List each type of grain separately and specifically, as flint corn, yellow dent corn, square deal hybrid corn, garnet wheat, red May wheat, durum wheat, spring wheat, proso millet, combine milo, new era cowpeas, mikado soy beans, etc. Mere listing as corn, wheat, and soybeans will not suffice, as specific details are necessary in considering transfer of seed supplies to other refuges. Include only domestic grains; aquatic and other seeds will be listed on NR-9.
- (3) Report all grain received during period from all sources, such as transfer, share cropping, or harvest from food patches.
- (4) A total of columns 2 and 3.
- (6) Column 4 less column 5.
- (7) This is a proposed break-down by varieties of grain listed in column 6. Indicate if grain is suitable for seeding new crops.
- (8) Nearest railroad station for shipping and receiving.
- (9) Where stored on refuge: "Headquarters granary," etc.
- (10) Indicate here the source of grain shipped in, destination of grain transferred, data on condition of grain, unusual uses proposed.

Date	Description of Grain	Quantity	Source	Disposition	Remarks	Date	Description of Grain	Quantity	Destination	Remarks

REFUGE GRAIN REPORT

ANNUAL REPORT OF PESTICIDE APPLICATION

INSTRUCTIONS: Wildlife Refuges Manual, secs. 3252d, 3394b and 3395.

Date(s) of Application	List of Target Pest(s)	Location of Area Treated	Total Acres Treated	Chemical(s) Used	Total Amount of Chemical Applied	Application Rate	Carrier and Rate	Method of Application
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
6/17/68 July/1968	Leafy Spurge	scattered patches on refuge, and WPA (Cvancara tract) in Mountraff County	1	Torodon 22K	2 pounds 2 pounds	1 pint chem. per 10 gal. water	Water	hand sprayer
June 1968	Frenchweed	Shell Lake Easement Refuge	100	2,4D ester 62%	50 lbs.	½ lb. active per acre	water 1 part to 60 gal. water	Fargo sprayer
June 1968	Western snowberry Silverberry	scattered areas on Lostwood Refuge Sec. 23-160-91	50	2,4,D ester 62% and 2,4,5-T AE ¼ lb/acre Ethylhexyl ester	100 lbs.	2 lbs./acre	1 part active per 60 gal. water	Fargo Sprayer

10. Summary of results (continue on reverse side, if necessary)

Good results on leafy spurge using Torodon 22K and Frenchweed using 2,4,D. Will no more about the acceptability and degree of control effected on snowberry and silverberry during 1969.



Jim Frates-Refuge Manager
E.O.D. Sept. 9, 1968



Lowell Vaage-Truck Driver
Temporary Employee since 1957



Johnny Stewart-Maintenceman
Temporary Employee since 1966

Happiness is a 13 year old who has just shot his first grouse.
Mike Collins, son of a Minot Air Force Base Sergeant, was one
of the successful participants in the first refuge grouse season.

Frates-68





Manager Frates with group of refuge employees' children during an afternoon wildlife observation tour.

Frates-68

Members of the Oklahoma City, Oklahoma Ornithological Society during stopover at Lostwood to observe sharp-tailed grouse. Des Lacs Refuge Manager Homer Bradley, shown at far right, accompanied tour from Kenmare.

Frates-68

Clair Rollings, Staff Specialist-Land Management, shown inspecting range conditions at Lostwood during the fall.

Frates-68

A former type IV marsh, but due to prolonged drought conditions is reverting back to a typical type III marsh--using the criteria of vegetative composition. Scenes of this ecological reversion process are common throughout the refuge.

Frates-68



Fuj-Yu P

Fuj-Yu Pul-Pruf Protector R3-11 Heavyweight

R3-11 Heavyweight



Some of the 5,000-plus mallards that stayed on Upper Thompson Lake for several weeks during the fall. The ducks managed to keep this last remaining water area free of ice despite prolonged periods of below freezing temperatures.

Frates-68

The fall whistling swan population peaked at nearly 700 in 1968. Several family groups shown here on School Section Lake.

Frates-68

A portion of the new three mile addition to the trail system completed in 1968. The new trail will serve as combination fire break and auto tour route proposed for 1969. The segment shown here is rounding the east side of Iverson Lake.

Frates-68





Three miles of new fence was constructed in 1968 to replace the old wood post fence which was requiring nearly constant maintenance. Work was done by private contractor on a bid basis.

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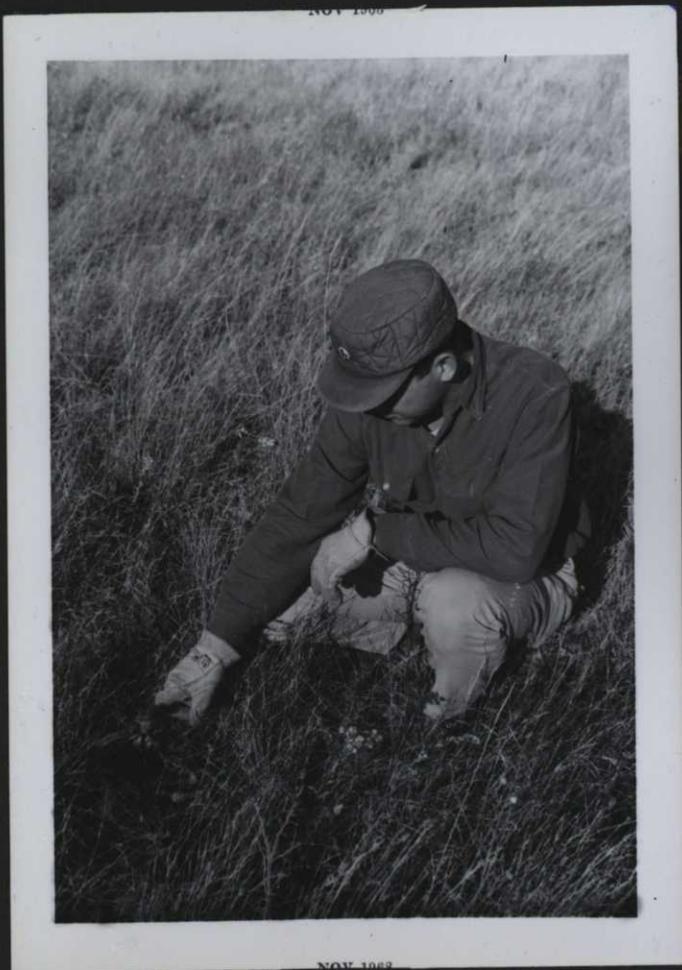
The days of sending smoke signals and drum beating as a means of communication are nearly over at Lostwood. The new underground cable, buried during the fall, will replace the current multi-party, frequently inoperable phone system sometime during the spring of 1969.

Frates-68

Left: Wildlife Services District Fieldman Rick Severson from Stanley shown pointing to location where fox had dragged skunk carcass from where it was shot at refuge headquarters-nearly one-half mile away.

Upper Right: The ground was frozen just enough to prevent the fox from burying the carcass, however, the concealment using dead grass was nearly as effective.

Lower Right: The head was submitted to Grand Forks for analysis and proved positive for rabies. The skunk had bitten my year old golden lab just before being shot, however, his rabies shots proved effective in warding off the disease.





One of the more common shorebirds at Lostwood during the
summer--greater yellow legs.

Frates-68