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NARRATIVE REPORT ROUTING SLIP

REFUGE LOSTWOOD PERIOD September - December 1963

OFFICE OF THE CHIEF: Mr. Gillett _____ Mr. Ackerknecht _____

Mr. Fermanich _____ Miss. Baum _____ Mr. Goldman _____

WILDLIFE MANAGEMENT: Mr. Webster _____ Mr. Stiles _____

RESOURCE MANAGEMENT: Mr. Stollberg _____ Mr. Lamb _____

OPERATIONS: Mr. Huenecke _____ Mr. Regan _____

PUBLIC USE: Mr. DuMont _____ Mr. Monson _____

NARRATIVE REPORT
SEPTEMBER, OCTOBER, NOVEMBER, DECEMBER, 1963

LOSTWOOD NATIONAL WILDLIFE REFUGE

&

EASEMENT REFUGES - DISTRICT IVA

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WATERFOWL PRODUCTION AREAS

Permanent Personnel

Ned I. Peabody	-	Refuge Manager
Donald M. Lee	-	Maintenanceman

Temporary Personnel

Lowell H. Vaage	9/1 - 11/15/63	Truck Driver
Darrie L. Lindberg	9/1 - 11/15/63	Laborer
Pat D. Kinsella	9/30 - 11/15/63	Laborer

UNITED STATES DEPARTMENT OF THE INTERIOR

FISH AND WILDLIFE SERVICE

LOSTWOOD, NORTH DAKOTA

January 30, 1964

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I. GENERAL

A. Weather Conditions.

	<u>Snowfall</u>	<u>Precipitation</u> <u>This Month</u>	<u>Normal</u>	<u>Max</u> <u>Temp.</u>	<u>Max.</u> <u>Temp.</u>
September	<u>0</u>	<u>.70</u>	<u>1.30</u>	<u>90</u>	<u>33</u>
October	<u>0</u>	<u>.02</u>	<u>.81</u>	<u>89</u>	<u>13</u>
November	<u>4</u>	<u>.20</u>	<u>.51</u>	<u>59</u>	<u>- 11</u>
December	<u>5.5</u>	<u>.56</u>	<u>.44</u>	<u>49</u>	<u>- 31</u>
Total:	<u>9.5</u>	<u>1.48</u>	<u>3.06</u>	<u>Extremes</u> <u>90</u>	<u>- 31</u>
Annual Total	<u>18.7</u>	<u>17.66</u>	<u>15.37</u>		

Data is obtained from the Weather Bureau Station located at refuge headquarters and operated by refuge personnel.

Precipitation for the period was less than one-half of normal, but the total annual precipitation exceeded the annual average due to the 13 inches of rain received from May to August.

September and October, with mean temperatures of 60 and 54 degrees, respectively, were exceedingly warm and dry. November and December, with mean temperatures of 29 and 12.5 degrees, respectively, were slightly colder than experienced last year.

The first killing frost was recorded on October 11, 38 days later than the two previous years, and fog was recorded on 10 days during the period.

B. Habitat Conditions.

1. Water.

Water level conditions were again extremely poor at freeze-up, aggravated by the hot, dry fall period. The pothole waterfowl census route was abandoned during the first part of October after the majority of potholes became dry, and only Doc's Lake and Erickson Slough retained sufficient water to remain attractive to waterfowl.

Many of the smaller sloughs were frozen over by the end of October, but portions of Upper Thompson Lake, Upper Lostwood Lake, and Knutson Slough remained open until November 22. This was approximately the same time total freeze-up occurred last year, but is two to three weeks later than normal.

2. Food and Cover.

Grasslands are in excellent condition, and the rank growth of sweet clover and other forbs should provide adequate food and cover for upland game birds, depending upon snow cover. Waterfowl and upland game birds should encounter optimum nesting cover next spring.

Geese and mallards made daily flights to feed in harvested grain fields surrounding the refuge. Throughout October large flights of mallards were observed leaving the northern portion of the refuge and flying six to seven miles north to feed in grain fields in the flats immediately north of the Coteau. Iverson Slough, with only several acres of open water, became a real "mallard hole", with 4 - 5,000 flushed on several occasions.

The major concentrations of diver ducks remained on Upper Thompson, Thompson, Iverson, and Upper Lostwood lakes and Knutson Slough, where desirable aquatics were plentiful.

II. WILDLIFE.

A. Migratory Birds.

1. Waterfowl.

Whistling swan peaked at a record 362 birds and established a new record of over 10,000 use days. Major concentrations appeared on Upper Thompson, Thompson, and Upper Lostwood lakes, although limited use was made of other smaller lakes and sloughs. On November 14, 200 swan were observed resting on the ice on Thompson Lake.

White-fronted geese comprised 80 percent of the record 10,717 use days recorded for geese this period, with Canada geese composing the remaining 20 percent. Major concentrations of both species utilized Thompson Lake, with limited use made of Upper Thompson and Upper Lostwood lakes, and the large slough south of Lower Lostwood Lake.

The 1,073,843 use days by ducks this period represents the greatest fall use since 1953, and a 96 percent increase over the past six year average. The few water areas remaining attractive to waterfowl supported large concentrations, with Thompson Lake receiving approximately 31 percent of the total refuge use.

Mallards peaked at 24,000 birds during the middle of October and accounted for 50 percent of the total duck use days. Shovelers peaked at less than 3,000 birds, but through continued utilization by a fairly large, stable population, comprised the second highest number of use days. Upper Lostwood Lake supported approximately 66 percent of the total utilization by baldpates, which peaked at 4,000 birds and constituted the third highest number of use days.

Diver ducks composed 13 percent of the total use days, and utilization and peak concentrations of canvasback and redhead ducks increased substantially. The number of use days for canvasback and redheads indicated a 438 percent and 132 percent increase, respectively, over the past six year average utilization by these species. Total utilization by scaup increased slightly compared to 1962, but was still below the five year average.

The following table gives a comparison between the peak concentrations and total utilization during the fall period for the last six years.

	<u>1958</u>	<u>1959</u>	<u>1960</u>	<u>1961</u>	<u>1962</u>	<u>1963</u>
<u>Swan</u>						
Use Days	1,183	952	2,447	2,265	2,800	10,752
Peak Pop.	46	40	103	205	120	362
<u>Geese</u>						
Use Days	1,414	1,120	2,891	2,881	1,670	10,717
Peak Pop.	60	45	115	134	50	423
<u>Ducks</u>						
Use Days	269,736	146,140	708,250	442,875	820,472	1,073,843
Peak Pop.	6,510	3,780	18,060	13,690	19,580	38,100
<u>Coot</u>						
Use Days	28,000	16,870	216,230	65,300	90,615	75,446
Peak Pop.	6,510	500	5,600	3,900	3,020	2,225

*** Note: It was necessary to again revise the weekly waterfowl census technique due to the drying up of water areas on the pothole census route. Complete census of the following water areas was accomplished each week: Iverson, Upper Thompson, Thompson, School Section, Upper Lostwood, Lower Lostwood, and Doc's lakes, and Erickson's, Iverson, Dead Dog, Knutson, Paul's, and Rock sloughs. Ten percent of the total population observed on these areas was then added to arrive at the total estimated refuge population. This additional 10 percent of the observed population was added to compensate for those areas not censused, which included Elbow

Lake and approximately 8 - 10 large, isolated sloughs. It is the author's opinion that this method provided an accurate determination of the weekly refuge population under the conditions which existed this fall period.

2. Waterbirds and Shorebirds

No discernible migration or major concentrations of waterbirds and shorebirds was noted on the refuge, with the exception of sandhill cranes and gulls. Sandhill cranes were first observed on September 19 and migration through the area continued through October, a much later period than normal. Sandhills utilized the refuge much greater than in the past, with 600 observed near Upper Lostwood Lake on October 28, and 300 observed in grazing unit G-11 on the morning of October 31.

The populations of phalaropes, dowitchers, and other shorebirds, commonly present in large numbers during fall migration, were very low, and attributed primarily to the lack of suitable feeding habitat.

The peak concentration of 40,000 Franklin's gulls, occurring during the latter part of August, dropped off rapidly, with a few stragglers remaining until the first part of October. The majority of the small population of ring-billed gulls, present during September and the first part of October, utilized the Lostwood Lakes.

3. Doves.

This fall North Dakota permitted the first hunting season of this species in approximately 30 years, but the majority of the birds had already passed through this area by the September 21 opening date. A few doves remained in the headquarters area until October 6.

B. Upland Game Birds.

Sharp-tailed grouse are very numerous on the refuge, with a total estimated population averaging approximately one bird per ten acres of upland habitat. The last cyclic peak for this species occurred in 1958, so it is hoped that the refuge population will continue to increase for several more years. Fair sharp-tailed grouse hunting was experienced throughout this area this fall, especially along the refuge perimeter, but the refuge is supporting a much greater concentration of birds than the surrounding country. A good breeding population should exist next spring unless severe weather results in heavy winter loss.

Hungarian or gray partridge were very common in this general area, although few birds utilized the extensive grasslands on the refuge. This species has also increased rapidly during the past several years.

Ring-necked pheasants have not been observed on the refuge since the preceding period, and several severe storms have undoubtedly taken

a high toll of the few birds now present on this marginal range.

C. Big Game Animals.

The refuge white-tailed deer population is believed to number approximately 200 animals, and food and cover are more than adequate unless deep snow restricts movement. The last Bureau aerial deer census, conducted in February, 1960, indicated approximately 317 deer utilizing the refuge, so the population is believed to have temporarily decreased. The lower portion of the refuge is included in a winter aerial census route flown by the state, but this incomplete census, hampered by lack of snow cover for the past three years, is inadequate to determine the size of the total refuge population. An aerial census will be conducted in February or March if snow cover is sufficient.

No mule deer or prong-horned antelope have been observed on the refuge this period, but the latter are increasing slowly in the surrounding area. Two antelope were killed by cars in front of the maintenanceman's home, approximately six miles north of the refuge.

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

Muskrats have not been observed on the refuge since the fall of 1961, and the number of mink and weasel remain very low. A few small, scattered colonies of beaver still exist in spite of the poor water level conditions.

Before cold weather limited their activity, signs and sight observations indicated a large number of skunk and a moderate population level of raccoon and badger.

Red fox are very common, and an increasing number of the local populace are expending an increasing amount of time in the sport of varmint hunting. Coyotes are extremely rare, but several are believed ranging through the refuge, and two were observed during the deer hunting season.

The number of porcupine appears to have decreased and only a few have been observed. White-tailed jackrabbits were believed to be increasing slowly since 1961, but few observations have been made this fall, and the population remains very low.

The small mammal population is very high, with many signs in the snow and common sightings on the roads on even the coldest nights.

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

Marsh hawks, our most common hawk in this area, remained until the middle of November. A major migration of American rough-legged hawks was noted during the last part of October, and replaced the marsh hawk as the most abundant hawk on the refuge. This species was

last sighted on November 20. Only occasional observations were made of other species during the period.

A lone Golden eagle seen near headquarters on November 12 was the only observation of eagles made this year.

Short-eared owls remained common throughout September and October and were last observed on November 29. Great-horned owls are occasionally seen or heard and are year long residents.

The fall migration of crows did not build up to any noticeably large concentrations as in the past, and was either greatly reduced or a gradual sifting through. Magpies were common throughout the period and slightly more abundant than last year.

F. Other Birds.

Nothing significant to report.

G. Fish.

None.

H. Reptiles.

Nothing significant.

I. Disease.

There was no evidence of any disease in wildlife noted on the refuge. Sick and dying ducks were reported in October on a large slough just west of Ross, North Dakota, approximately 25 miles southwest of the refuge. Symptoms were indicative of botulism, and 35 birds were collected by the State biologist at Stanley and sent to Bismarck. Tests confirmed the diagnosis of botulism, and it was estimated that about 300 birds were lost, mostly mallards.

III. REFUGE DEVELOPMENT AND MAINTENANCE.

A. Physical Development.

Refuge personnel aided Soil Conservation Service personnel from the Bowbells office in testing selected dugout sites throughout the refuge. Although surface water conditions were extremely poor, the sub-surface water table appears to have risen, and only three pothole sites were located that were sufficiently dry for excavation. The informal bid of Mr. Roy Falck of Lignite, North Dakota, was accepted at \$.23 per cubic yard, and the following stock watering dugouts were excavated.

<u>Grazing Unit</u>	<u>Location</u>	<u>Cubic Yards</u>	<u>Cost</u>
G-4	NW $\frac{1}{4}$ SW $\frac{1}{4}$, Sec. 30, T.160N., R.91W.	1,502	\$345.46
G-7	SW $\frac{1}{4}$ NE $\frac{1}{4}$, Sec. 6, T.159N., R.91W.	1,096	252.14
G-14	NW $\frac{1}{4}$ NW $\frac{1}{4}$, Sec. 14, T.159N., R.92W.	1,485	341.55

It was found that the soft earth in potholes could not be worked to specifications advanced by Regional Office, requiring a 2:1 and 7:1 slope on one end. Final specified dimensions of the dugouts were 138' X 60' X 11' with 2:1 side slopes and a 4:1 slope on one end. The other end was modified to a 4:1 slope for 20 feet and a 7:1 slope for 42 feet, achieving the flat table desired for increased value to waterfowl.

Work continued on the student assistant's quarters with the installation of heating stove and chimney, construction of closet, bookcases and cabinets, and the painting and finishing of cabinets and chest of drawers. A final coat of paint for all cabinets and the acquisition of curtains or blinds will complete these quarters.

Four cattle guards were installed on the weekly waterfowl census route, which greatly facilitates travel through the northern portion of the refuge. Additional cattle guards are planned for the more heavily traveled trails, and major rehabilitation of the entire refuge trail system will be initiated this spring. A small group of cows in grazing unit G-6 learned to walk through or arch around the wings of cattle guards and were a constant trespass problem in the headquarters area.

A few of the more important maintenance and development projects accomplished this period are listed below:

1. 4 $\frac{1}{2}$ miles of boundary fence constructed on WPA's.
2. 11 $\frac{1}{4}$ miles of boundary posted on WPA's.
3. Cement foundation constructed for steel granary.
4. Tile roofing repaired on residence, service building and barn.
5. Entrance trail mowed, graded and rock-picked.
6. Salvage and dismantling of house trailer completed.
7. New stove and electric outlet installed in office.
8. Old trash pit covered and new pit excavated and cleared.
9. Kitchen and bathroom of residence painted.
10. 49 miles of boundary fence and posting checked and repaired.
11. Three boundary gates replaced and boundary fence constructed across the A. Lindberg Slough.
12. All platform nesting islands checked and repaired and ramps constructed for two in large goose pen.
13. Hog wire fence constructed around spruce trees planted at headquarters.
14. Minor repair and maintenance of nine automotive or tractor vehicles.

B. Plantings.

One hundred and seventy-five acres of retired cropland were seeded to permanent native grass cover on the Shell Lake Refuge and Waterfowl Production Areas. Form NR-7 lists the species composition of the seeding mixture and the acreage seeded on the different WPA tracts. The seeding was accomplished from October 7 - 11 with no fall sprouting expected or desired. The very limited precipitation received from September through November, less than one inch, would undoubtedly have adversely affected the success of the seeding if accomplished in late August.

A regular 14 foot International press drill was used with good success, and there was no need to tape any of the outlets or use additional grain to achieve proper distribution. Difficulty was experienced at Shell Lake Refuge where the mixture contained needleand-thread grass, as this seed was very trashy with long awns, and the mixture had to be recleaned before it would feed through the drill. The needleandthread grass seed was hand broadcasted behind the drill on the WPA's.

C. Collections and Receipts.

Three hundred pounds of needleandthread grass seed was purchased from the Sharp Brothers Seed Company of Healy, Kansas, at \$1.75 per pound, and 290 pounds of western wheatgrass seed was purchased from the Interstate Seed and Grain Co. of Fargo, North Dakota, for \$.545 per pound.

D. Control of Vegetation. ✓ *SW*

The three patches of leafy spurge, which have been heavily treated and believed eradicated, were inspected in late September, and active plants were located on one plot, following their absence this spring. It was believed too late for effective use of herbicide at that time, so the areas will be checked next spring and treated as required. Control accomplished under the Pothole Vegetation Control Study initiated this year is listed on the Pest Plant Control Report.

E. Planned Burning.

None.

F. Fires.

The tall grass cover remained green much longer than usual due to the late frost, but lack of snow until late November resulted in a critical fire hazard through most of November. The worst was feared during the deer hunting season, and the State was considering closing the season because of the fire hazard, but no fires occurred on the refuge this period.

PEST PLANT CONTROL REPORT

Lostwood Refuge, Calendar Year 1963
(To be inserted in the September-December Narrative Report.)

Plot No.	Acres	Species Treated	Growth Stage	Date of Treat.	Chem. or Method Used	Dilut. or Carrier	Rate Per Acre	Water Depth	Cost				% Kill last Observ.	Date last Observ.
									Material	Labor	Equipment	Total	Per Acre	
1a	.16	White top	full	8/5	M1292	Water	6 lbs.		None	1.00	.50	1.50	9.40	
2a	.10	White top	full	8/5	M1292	Water	6 lbs		None	.50	.05	.55	5.50	
5a	.173	White top	full	8/7	Baron	Water	.73 gal	10"	4.50	1.00	.60	6.10	32.00	
6a	.27	White top	full	8/6	M1292	Water	3.7 lbs		None	1.00	.60	1.60	6.00	
7a	.115	White top	full	8/6	M1292	Water	5.4 lbs		None	1.50	.50	2.00	17.40	
8a	.083	White top	full	8/5	Baron	Water	.32 gal	8"	2.00	1.00	.30	3.30	39.76	
10b	.184	White top	full	8/7	M1292	Water	2 lbs.		None	.40	.40	.80	4.35	
11a	.15	White top	full	8/7	M1292	Water	4.2 lbs		None	1.00	1.00	2.00	13.33	
12a	.19	White top	full	8/7	M1292	Water	2 lbs.		None	.50	.50	1.00	5.26	
13c	.092	Carex	full	8/7	M1292	Water	5.4 lbs		None	1.00	1.00	2.00	21.70	
14b	.13	Manna grass	full	8/7	M1292	Water	5.8 lbs		None	2.00	.50	2.50	19.23	
15a	.10	White top	full	8/13	Baron	Water	.32 gal		2.00	1.00	.50	3.50	35.00	
16a	.24	White top	full	8/13	Baron	Water	.73 gal		4.50	1.00	.50	6.00	25.00	
17a	.115	White top	full	8/13	Baron	Water	.48 gal		3.00	2.00	.50	5.50	48.00	
24a	.092	White top	full	8/5	Baron	Water	.32 gal		2.00	.50	.90	3.40	36.90	
	2.194								18.00	15.40	8.35	41.25		

INSTRUCTIONS ON REVERSE SIDE

Additional forms will be supplied by Regional Office upon request.

Remarks: Include any important information not given in above columns, including No. of years an area has been treated where repeated treatments have been made.

M1292 is experimental form of Dalapon donated by the company at no cost to Bureau

Baron is non-selective herbicide with no percent of active ingredients listed.

All herbicide treatment accomplished under the Pothole Vegetation Control Study initiated August, 1963.

R3-WC1 - April 20, 1962

INSTRUCTIONS

1. Plot No: Number used to identify the area of infestation in the field and on maps.
2. Acres: Use decimals, not fractions.
3. Species Treated: Use common and scientific names. LIST ONE SPECIES - THE PRIMARY ONE.
4. Growth Stage: i.e., Bud, half leaf, full leaf, early flower, full flower, etc.
5. Date of Treatment: Dates applications were made, using a separate line for each area treated. If more than one treatment is made on the same area during the summer, a separate line is used for each application.
6. Chemical or Method Used: Show type of herbicide; i.e., 2,4-D ester, etc., also mechanical methods (mowing, plowing, burning etc.)
7. Diluent or Carrier: Show diluent or carrier used plus stickers, spreaders, etc.
8. Rate Per Acre: Give lbs. acid equivalent per acre - not lbs. of herbicide or total mix. Check the label for % of acid equivalent.
9. Water Depth: Give depth in inches.
10. Cost, Material: Include herbicide and carrier.
11. Cost, Labor: Take from Application form.
12. Cost, Equipment: Take from Application form.
13. Total Cost: Take from Application form.
14. Cost per Acre: Take from Application form.
15. % Kill: Show percent dead plants with no regrowth showing at last observation.
16. Date Last Observation: Last date plants were checked following mechanical treatment or application of herbicide. If the same area is treated more than once during the same season, a new entry should be made on a separate line for each separate treatment. If the same area has been treated for several years, this should be shown in the space for remarks, giving the number of years the area has been treated.

IV. RESOURCE MANAGEMENT.

A. Grazing.

The 14 refuge grazing units totaling 16,123 acres were utilized by 1,428 head of cattle for a total of 3,561.7 Animal Unit Months. Refuge receipts totaled \$7,124.40 for this economic use.

A grazing utilization inspection of all units in November indicated very light to light use of the units in the western block, and light to moderate use of units in the eastern block. Distribution of grazing pressure was very good in most units, fair in a few, and poor in unit G-4. Earlier turn-in dates and good spring rains greatly increased the use of the early tame grasses in all units, and moderate to heavy utilization of tame grasses, especially brome and quack grass, was noted in units having a large percentage of these species. Very heavy use was made of the rank growths of sweet clover and, in some units, entire fields of sweet clover were evenly grazed to within 1 - 1½ feet of the ground.

All stock watering dugouts were full or nearly full except the one in the northeast corner of unit G-3, which was only one-third full. Greater grazing pressure was generally found around these dugouts, as expected, but the dense stands of sedges and grasses in the potholes and wetlands were utilized much less than last year.

B. Haying. None.

C. Fur Harvest.

Very low populations of the more valuable furbearers and low pelt values discouraged most trappers this season, and no one could be found interested in trapping on the refuge. The lack of solid ice until late November also hampered trapping operations, and only a few mink are known to have been taken in this area. The State kept a closed season on muskrats for the fifth consecutive year.

D. Timber Removal.

None.

E. Commercial Fishing.

None.

F. Other Uses.

None this period. Clean-up and leveling of the gravel pit and the easement area around the Minuteman Missile Site was inspected and approved this period.

V. FIELD INVESTIGATIONS OR APPLIED RESEARCH

A. Canada Goose Restoration Program.

The wing-clipped captive goose flock still consists of the 27 birds acquired from Strutz in 1961, four birds hatched at Lostwood in 1961, and one bird with broken wing hatched at Lostwood in 1962. The clipped feathers will be pulled in January, and all healthy birds will be released as free flyers this spring.

The flock was moved from the summer holding pen to the barn on November 1, and are herded into the connecting exercise pen on suitable days. We have been very unsuccessful in collecting greens from the local stores, but the birds appear in good condition. Sixty bushels of eared corn was shelled and is now readily eaten by these pampered pets.

The trap line around the perimeter of the summer pen was also picked up on November 1, and yielded only one skunk, one fox, and one raccoon during September and October.

VI. PUBLIC RELATIONS

A. Recreational Use.

Recreational use of the refuge this period was limited primarily to deer hunting. A few birders and sightseers stopped at headquarters, but proceeded little further.

B. Refuge Visitors.

See page 11

C. Refuge Participation.

- 11/25 Manager presented film "Land of the Prairie Ducks," and spoke on Refuge and Wetland Management Program and objectives to 16 members of the Lions Club of Stanley, North Dakota.
- 12/13 Manager attended conference of approximately 20 Bureau personnel at the Minot Area Acquisition Office to discuss the problems and progress of the Wetland Program.
- 12/17 Manager presented film, "Land of the Prairie Ducks", and spoke on Refuge and Wetland Program to two groups of Future Farmers of America at the Stanley Community High School.
Total attendance - 65.

B. Refuge Visitors

<u>Date</u>	<u>Name</u>	<u>Affiliation</u>	<u>Purpose</u>
9/3-6	H. Cosby	S.C.S., Minot, N.D.	Clip plot studies
9/10-11	M. Hammond	F.W.S., Lower Souris Refuge	Tabulate census data
9/16	E. Giese	P.&R.C., Riverdale, N.D.	Plan predator control
9/20	T. Huston	USGMA, Special Deputy	Distribution of regulations
9/25	H. Ness	SCS, Bowbells, N.D.	Testing dugout sites
	J. Olsen	" " "	" " "
10/1	J. Olsen	" " "	" " "
10/6-10	L. McEwen	FWS, Denver Wild. Research Cen.	Pesticide study
10/7-8	H. Ness	SCS, Bowbells, N.D.	Test and stake dugout sites
	J. Olsen	" " "	" " " " "
10/17	J. Dahl	FWS, Upper Souris Refuge	Courtesy call
10/21	W. Ackerknecht	FWS, Washington Office	Program review
	E. Smith	FWS, Regional Office	" "
10/27	C. Mitten	Geological Survey, Lincoln, Neb.	Water samples
10/29	S. Murrell	FWS, Minot AAO	Courtesy call
	L. Svenson	" " "	" "
10/30	C. Rollings	FWS, Regional Office	Review S&M program
10/31	E. Doeling	FWS, Regional Office	Plan Water Management Program
	H. Ness	SCS, Bowbells, N.D.	Measure dugouts
	J. Olsen	" " "	" "
11/18	A. Varty	FWS, Lower Souris Refuge	Equipment transfer
	R. Balke	" " " "	" "
	L. Cudney	Border Patrol, Portal, N.D.	Courtesy call
12/2	Surveying crew	FWS, Minot AAO	Equipment transfer
12/4	L. Svenson	FWS, Minot AAO	Drainage referral information
12/5	R. Preston	Weather Bureau, Bismarck, N.D.	Inspection of weather station

D. Hunting.

Waterfowl hunting pressure was generally very light in this area, and few duck hunters were observed after the opening weekend of October 5 and 6. With increased goose use of refuge lakes, particularly Thompson Lake, boundary hunting became common along the northeast boundary, but few geese were taken by this method.

Increased hunting pressure of sharp-tailed grouse and gray partridge continued through the early season of September 21 through November 7, due primarily to the increased populations of these species, blue bird weather, and the restrictions on waterfowl hunting. A few pheasants were taken in the immediate area, but the opportunities were rare. Very few hunters took advantage of the late grouse and partridge season of November 18 through December 15.

No hunting of waterfowl or upland game birds was permitted on the refuge.

The entire refuge, with the exception of a small closed area around headquarters, was open to deer hunting during the regular State bucks only season of November 8 - 17. Boundary gates were locked and hunters were required to walk, and most expressed their satisfaction at having a place to hunt without pickups and jeeps running wild. Station personnel patrolled the refuge and hauled a portion of the estimated 25 bucks taken.

An estimated 295 hunters days were expended during this $9\frac{1}{2}$ day season, with approximately 80 percent occurring during the first $2\frac{1}{2}$ days. Less hunter days were expended during this $9\frac{1}{2}$ day bucks only season than during the $3\frac{1}{2}$ to $5\frac{1}{2}$ day either sex seasons of the last three years.

E. Violations.

Routine patrol during the opening weekend of the duck season resulted in the following apprehensions:

William Hopkins, Ross, North Dakota. Hunting ducks without duck stamp. Plea of guilty before U.S. Commissioner K.M. Knutson at Minot, North Dakota on January 13, 1964. Fined \$25.00.

Floyd Ellvanger, Ross, North Dakota. Hunting ducks without hunting license or duck stamp. Case dropped for lack of other than circumstantial evidence.

It became increasingly difficult to locate duck hunters after the opening weekend, and routine patrol was terminated. A close surveillance was maintained on boundary goose hunters because of the one bird limit on white-fronted geese and the possibility of refuge trespass, but no

violations were observed.

No violations were observed during the refuge deer hunting season. All hunters were wearing the prescribed amount of red, yellow or orange clothing, possibly influenced by the three cases apprehended last year, which resulted in \$50.00 fines. Many people expressed concern over the welfare of does and fawns during the bucks-only season, but no dead or wounded does or fawns were found during the season or on the extensive range utilization survey conducted after the season. Two does were found on the Des Lacs Refuge, and the Lostwood manager delivered one of these to the Community Hospital in Stanley, North Dakota.

E. Safety.

Des Lacs and Lostwood personnel combined forces for monthly safety meetings attended by all employees. Lostwood now has a record of 4,505 days without a lost time accident.

A parts washer was constructed in the shop and proper cleaning solvent acquired. The furnace in the residence was inspected and cleaned by qualified servicemen, and all buildings were cleaned with special emphasis on fire and accident prevention.

A fire drill was conducted November 1, and all equipment checked for operation. The Panama fire pump unit and all back-pack pumps were kept filled with water until the end of November when snow cover became sufficient to alleviate the critical fire hazard. It was necessary to keep the Panama unit in the heated shop during November, as the pump would freeze even though the immersible water heater kept the tank hot.

VII. OTHER ITEMS.

A. Items of Interest.

Acquisition of surplus property included six 9X20 new tires from Ottawa Refuge; 55 gallons of 2-4,D Butyl Ester herbicide from Tennessee Refuge; terrace blade, shop cabinets and welding table from Des Lacs Refuge; and scrap iron, angle iron, and steel plate from the Minot AFB.

Maintenanceman Lee picked up the Reo 6X6 truck at Mingo Refuge and various shop tools at Richards-Gebaur AFB, Missouri. These tools turned out to be aircraft component testing devices, although listed under automotive shop equipment. The Reo truck with air compressor and tools was in excellent condition with less than 7,000 miles.

The 1962 Studebaker Lark stationwagon assigned to the Crosby Wetland Office is being utilized at Lostwood while Manager Perkuchin is on detail at Lower Souris Refuge.

WATERFOWL PRODUCTION AREAS

I. General.

All Waterfowl Production Areas under the administration of this station are located near Tagus, North Dakota, approximately 50 miles southeast of headquarters. Water level conditions are extremely poor, as all potholes and sloughs within the WPA's are dry at this time. Upland native grasslands are in excellent condition and should provide optimum nesting cover next spring.

II. Wildlife.

Waterfowl utilization during the period was very limited, as all water areas are dry, and little use was made of unharvested grain on these tracts. All WPA's were utilized by good populations of sharp-tailed grouse and gray partridge, but no pheasants have been observed. No wildlife census was conducted during the period.

III. Development and Maintenance.

The following easements were acquired during the period.

<u>Tract No.</u>	<u>Name</u>	<u>Acreage</u>
(15X)	Ludvig B. Lornston	80
(16X)	Clarence Alvstad	400
(17X)	Bernie Alvstad	720
	Easements acquired previously	619.48
		<u>1,819.48</u>

Certificates of Inspection were completed for the Glick WPA, Tract (13); B. Alvstad Easement, Tract (17X); and Lornston Easement, Tract (15X).

Two miles of boundary fence on the Svenningson WPA, Tract (12), and $2\frac{1}{2}$ miles on the Grinold WPA, Tract (14), were constructed by force account at an approximate cost of \$767 per mile. Boundary fence was constructed with six foot steel posts, three strands of barbed wire, and steel corner and brace posts set in concrete. The boundaries of all purchased WPA's, $11\frac{1}{4}$ miles, were posted this period.

The following acreage of retired cropland was seeded to permanent native grass cover:

<u>Tract Name</u>	<u>Tract No.</u>	<u>Acres Seeded</u>	<u>Required Seeding</u>
R. Kjallberg	(10)	23	37
Svenningson	(12)	24	0
Glick	(13)	30	34
Grinolds	(14)	<u>13</u>	<u>7</u>
	Totals	90	78

Form NR-7 lists the species composition of the mixture used, and M. Jacobsen of Tagus, North Dakota, aided by Maintenceman Lee, seeded the tracts for \$2.00 per acre.

Crop yields for the 168 acres of cropland is listed in form NR-8. Several permittees reported heavy rust damage to wheat and barley which reduced the yield of harvested grain but increased the amount of waste grain available to wildlife.

Although all WPA's were opened to public hunting, waterfowl hunting was nil due to the lack of water. The fencing crew reported very good hunting success on grouse and partridge but observed very few upland game hunters utilizing the tracts.

SHELL LAKE REFUGE

I. General.

The water level of this 500 acre lake was considerably higher than in the past several years, as several small islands disappeared, but replacement of the gauge was not accomplished. The water is slightly alkaline and very turbid, and very little aquatic growth is believed to exist.

Upland cover conditions on government owned land is excellent and the boundary fencing accomplished the previous period should curtail cattle trespass. Easement lands along the east and south side of the lake were again heavily overgrazed.

II. Wildlife.

The October 15 census revealed the following waterfowl population:

<u>Species</u>	<u>No.</u>	<u>Species</u>	<u>No.</u>
White-fronted geese	65	Redhead	225
Mallard	9,840	Canvasback	1,600
Black duck	12	Lesser scaup	325
Gadwall	735	Bufflehead	8
Pintail	130	Ruddy duck	190
Amer. Widgeon	2,320	Total ducks	15,535
Shoveler	150	Coot	3,450

Increased utilization by white-fronted geese was reported by several local parties, and a few Canada geese and whistling swan were observed by Mr. James Moen, farming permittee.

III. Refuge Development and Maintenance.

Crop yields are tabulated on form NR-8, and there appeared no significant difference in the yields of the different cropping units or fields. The poor wheat yield of approximately 15 bushels per acre was due in part to the limited summer-fallowed land available for seeding, but the primary cause was rust. There was no apparent reason for the relatively poor yield of 25 bushels per acre for barley.

The 85 acres of retired cropland in farming unit A-2 was seeded to native grass cover using a seeding mixture listed on form NR-7. This land was retired in 1962 and remained in stubble through the summer of 1963, producing a heavy cover of sweet clover, mustards, and other weeds. This trashy cover is desirable for protection of the seed through the winter, but will necessitate spraying with 2-4,D next year to reduce the weed competition to the grass seedlings. No legumes were included in the mixture because of their susceptibility to herbicides.

McLEAN REFUGE

I. General.

Water conditions remained excellent through this dry period, as the water level was within eight inches of the spillway at freeze-up. The open stands of cattails and rushes in the center of this impoundment provide excellent cover for ducks on windy days, and waste grain was abundant in surrounding harvested grain fields. Very limited utilization was made of unharvested grain fields on the refuge, due in part to their proximity to the boundary, where hunting pressure was greatly increased.

Upland cover conditions are excellent on the government-owned portion of the refuge, but overgrazing greatly reduced available nesting cover on the easement portion of the refuge.

II. Wildlife.

Waterfowl populations observed on the two censuses conducted this period are listed below:

<u>Species</u>	<u>October 16</u>	<u>November 5</u>
Mallard	1,350	4,100
Gadwall	110	45
Pintail	100	340
Green-winged teal	10	40
Blue-winged teal	6	
American widgeon	410	125
Shoveler	350	
Redhead	20	
Ringneck	1	
Canvasback	90	9
Lesser scaup	10	15
Bufflehead	1	2
Ruddy duck	175	5
Coot	635	
Total ducks	2,633	4,681

Upland game bird populations are increasing in the general area and a large flock of ring-necked pheasants was observed on several occasions. Muskrats are increasing in the stream below the lake and a few were observed in the lake, but the numbers of this species and other valuable furbearers remain low. Fox and skunk were reported to be abundant and raccoon and badger are common.

III. Refuge Development and Maintenance.

A summary of the crop yields is tabulated on form NR-8. Yields for the different cropping units are presented in the following chart:

<u>Species</u>	<u>Bushels per acre</u>		
	<u>A-1,2,3</u>	<u>A-4,5</u>	<u>A-6,7</u>
Wheat (Wells)			28
Wheat (Ramsey)	30		
Wheat (Langdon)		10	
Barley (Trail)	45	40	
Barley (Betzes)			33

IV. Resource Management.

Grazing unit G-1 was utilized by four cows during a four month period for a total of 16AUM's, with refuge receipts of \$32.00. The maximum allowable use will be cut one-half, or to 8 AUM's for this small 39 acre unit next summer. The grazing utilization survey indicated only light to moderate use of the unit, but forage production this summer was much greater than can normally be expected, and the general condition of the grassland must be improved.

This disgruntled permittee has no rangeland of his own and relies entirely on the refuge unit which lies adjacent to his barn and feedlot, and has continually claimed that the Bureau threatened his sick father with immediate condemnation unless he sold this land. One bullet-proof vest is requested.

Trapping Permit No. T-9904 was issued to Mr. Clarence Johnson of Ryder, North Dakota, for an unlimited quota of mink, weasel, and other predatory furbearers.

VI. Public Relations.

Boundary hunting was prevalent on this refuge, especially toward the latter part of the season. Local landowners reported that late shooting was common and that the State Game Warden from Parshall, North Dakota, had patrolled the area frequently. No signs of trespass were noted or reported, but empty shells were plentiful along the fence line.

HIDDENWOOD REFUGE

Two waterfowl censuses conducted on this easement refuge revealed the following populations:

	<u>October 16</u>	<u>November 5</u>
Water gauge reading	0.75	0.65
<u>Species</u>		
Mallard	1,025	300
Gadwall	530	43
Pintail	95	14
Green-winged teal	18	
Blue-winged teal	8	
American widgeon	135	5
Shoveler	215	15
Redhead	2	4
Ring-necked duck		2
Lesser scaup		7
Ruddy duck	15	
Coot	975	80
Total ducks	2,043	390

SIGNATURE PAGE

Submitted by:

Ned I. Peabody
(Signature)

Ned I. Peabody

Refuge Manager

Title

Date: January 30, 1964

Approved, Regional Office:

Date: 2-10-64

Edward J. Smith
(Signature)

Asst.
Regional Refuge Supervisor



Small dugout afforded the only water in the pothole of the headquarter's summer goose pen. Water conditions are extremely poor throughout the refuge.



Stock watering dugout constructed to alleviate poor distribution of grazing pressure. Man on left is standing on the crest between the 4:1 and 7:1 end slope.



JAN • 64 •

Combination rubble and concrete spillway at McLean Refuge should be replaced with reinforced concrete structure in near future.



JAN • 64 •

Close-up of rubble masonry spillway showing large cracks.



DEC • 63

Dr. Gannell of Kenmare, North Dakota, an enthusiastic birder, with young short-eared owl banded on the refuge.

WATERFOWL

REFUGE Lostwood

MONTHS OF September TO December, 1963

(1) Species	(2) Weeks of reporting period									
	: 9/1-7 : 1	: 9/8-14 : 2	: 9/15-21 : 3	: 9/22-28 : 4	: 9/29-10/6 : 5	: 10/6-12 : 6	: 10/13-19 : 7	: 10/20-26 : 8	: 10/27-11/3 : 9	: 11/3-9 : 10
Swans:										
Whistling Trumpeter					13	153	203	296	309	362
Geese:										
Canada	12	12	12	12	10	71	51	42	40	34
Cackling Brant										
White-fronted			80	135	413	280	316	1	1	
Snow										
Blue										
Other										
Ducks:										
Mallard	2,270	2,450	2,670	4,470	5,310	17,485	23,945	10,875	5,640	2,315
Black							5			
Gadwall	1,225	1,000	685	1,045	740	1,335	2,195	1,735	190	150
Baldpate	385	300	860	1,050	1,060	2,175	3,875	2,400	1,140	710
Pintail	1,070	500	285	670	710	820	1,735	170	65	155
Green-winged teal	135	115	100	70	385	100	20	80	5	15
Blue-winged teal	4,500	500	245	90	25	90	5			
Cinnamon teal										
Shoveler	1,485	1,600	1,805	2,705	2,400	2,880	2,555	1,770	865	260
Wood										
Redhead	225	250	300	580	430	1,190	745	460	95	45
Ring-necked	10	10	10	15	20	20	5	5	5	
Canvasback	35	100	170	365	700	1,575	1,290	210	45	25
Scaup	210	400	655	200	180	580	785	415	455	600
Goldeneye										
Bufflehead	10	10	10	70	110	25	50	65	30	35
Ruddy	50	800	1,025	1,230	1,075	940	890	170	20	20
Other Amer. Merganser								2		
<u>Totals</u>	11,610	8,235	8,820	12,760	13,145	29,215	38,100	18,357	8,555	4,330
Coot:	1,520	1,900	2,225	1,445	1,225	1,375	1,050	50	5	0

3 -1750a

Cont. NR-1

(Rev. March 1953)

WATERFOWL
(Continuation Sheet)

REFUGE	Lostwood										MONTHS OF September TO December, 19 63									
	(2)										(3)	(4)								
	Weeks of reporting period										Estimated	Production								
(1)											waterfowl	Broods:Estimated								
Species	11	12	13	14	15	16	17	18			days use	seen : total								
Swans:																				
Whistling	200										10,752									
Trumpeter																				
Geese:																				
Canada	8										2,135									
Cackling																				
Brant																				
White-fronted											8,582									
Snow																				
Blue																				
Other																				
Ducks:																				
Mallard	180	10	All Water Areas Frozen Over								543,340									
Black											35									
Gadwall			No Waterfowl Present								72,100									
Baldpate	15										92,180									
Pintail											44,660									
Green-winged teal	5										7,210									
Blue-winged teal											58,185									
Cinnamon teal																				
Shoveler	50										128,625									
Wood																				
Redhead	5	1									29,282									
Ring-necked											700									
Canvasback	20										31,745									
Scaup	130	1									32,277									
Goldeneye																				
Bufflehead											2,905									
Ruddy	5										43,575									
Other											14									
r. Merganser																				
Totals	410	12									1,073,849									
Coot:	1	2									75,446									
					(over)															

	(5)	(6)	(7)	SUMMARY
	Total Days Use	: Peak Number	: Total Production	
Swans	10,752	: 362	:	Principal feeding areas <u>Dabblers and geese fed in surrounding</u>
Geese	10,717	: 423	:	<u>harvested grain fields. Heavy use of Iverson and Thompson</u>
Ducks	1,073,843	: 38,100	:	<u>lakes and smaller sloughs by divers and other species.</u>
Coots	76,446	: 2,225	:	Principal nesting areas _____
				Reported by <u>Ned L. Penbody</u>

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

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

Interior Duplicating Section, Washington, D. C.
1953

3-1751

Form NR-1A

(Nov. 1945)

MIGRATORY BIRDS

(other than waterfowl)

Refuge LostwoodMonths of September to December 1963

(1) Species	(2) First Seen		(3) Peak Numbers		(4) Last Seen		(5) Production			(6) Total
Common Name	Number	Date	Number	Date	Number	Date	Number Colonies	Total # Nests	Total Young	Estimated Number
I. <u>Water and Marsh Birds:</u>										
Horned grebe	Present				1	10/18				50
Eared grebe	Present				2	10/18				100
Western grebe	2	9/26	Only observation							2-5
Pied-billed grebe	Present				1	10/11				40
Great blue heron	Present				1	10/3				5
Sandhill crane	150	9/19	300	10/31	300	10/31				500
II. <u>Shorebirds, Gulls and Terns:</u>										
Lesser yellowlegs	Present				1	10/11				20
Dowitcher	Present				5	10/11				200
Avocets	Present				6	9/26				25
Wilson's phalarope	Present				1	11/6				50
Franklin's gulls	Present		Preceding Period		15	10/3				6,000
Ring-billed gulls	Present		250	9/26	6	10/18				400

(over)

(1)	(2)		(3)		(4)		(5)		(6)
III. <u>Doves and Pigeons:</u>									
Mourning dove		Present			1	10/6			100
White-winged dove									
IV. <u>Predaceous Birds:</u>									
Golden eagle	1	11/12	Only observation during year						1
Duck hawk			No observations						0
Horned owl		Present				Present			50
Magpie		Present				Present			200
Raven			No observations						
Crow	1	3/13			3	10/28			5,000
Red-tailed hawk	1	3/31							15
Swainson's hawk	1	3/31							10
Rough-legged hawk	2	1/26	20	10/28	1	11/20			40
Marsh hawk	1	3/17	30	8/1	2	11/12			75
Sparrow hawk	1	4/8							5
Sharp-shinned hawk	1	4/12							1-5
Short-eared owl	1	2/5	25	5/20	1	11/29			65
Reported by <u>Mod I. Peabody</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.

UPLAND GAME BIRDS

1613

Refuge Lostwood Months of September to December, 1946

(1) Species	(2) Density		(3) Young Produced		(4) Sex Ratio	(5) Removals			(6) Total	(7) Remarks
Common Name	Cover types, total acreage of habitat	Acres per Bird	Number broods obs'd.	Estimated Total	Percentage	Hunting	For Re- stocking	For Research	Estimated number using Refuge	Pertinent information not specifically requested. List introductions here.
Sharp-tailed grouse	24,841 acres of upland habitat					50+			2,500	* Shot along perimeter of refuge boundary
Ring-necked pheasant	"								1-5	
Gray partridge	"					20+			150	* Shot along refuge boundary

INSTRUCTIONS

Form NR-2 - UPLAND GAME BIRDS.*

- | | |
|---------------------|--|
| (1) SPECIES: | Use correct common name. |
| (2) DENSITY: | Applies particularly to those species considered in removal programs (public hunts, etc.). Detailed data may be omitted for species occurring in limited numbers. Density to be expressed in acres per animal by cover types. This information is to be prefaced by a statement from the refuge manager as to the number of acres in each cover type found on the refuge; once submitted, this information need not be repeated except as significant changes occur in the area of cover types. Cover types should be detailed enough to furnish the desired information but not so much as to obscure the general picture. Examples: spruce swamp, upland hardwoods, reverting agriculture land, bottomland hardwoods, short grass prairie, etc. Standard type symbols listed in Wildlife Management Series No. 7 should be used where possible. Figures submitted should be based on actual observations and counts on representative sample areas. Survey method used and size of sample area or areas should be indicated under Remarks. |
| (3) YOUNG PRODUCED: | Estimated number of young produced, based upon observations and actual counts in representative breeding habitat. |
| (4) SEX RATIO: | This column applies primarily to wild turkey, pheasants, etc. Include data on other species if available. |
| (5) REMOVALS: | Indicate total number in each category removed during the report period. |
| (6) TOTAL: | Estimated total number using the refuge during the report period. This may include resident birds plus those migrating into the refuge during certain seasons. |
| (7) REMARKS: | Indicate method used to determine population and area covered in survey. Also include other pertinent information not specifically requested. |

* Only columns applicable to the period covered should be used.

3-1753
Form NR-3
(June 1945)

BIG GAME

Refuge Postwood Calendar Year 1963

(1) Species	(2) Density	(3) Young Produced	(4) Removals				(5) Losses			(6) Introductions	(7) Estimated Total Refuge Population		(8) Sex Ratio
			Hunting	For Re- stocking	Sold	For Research	Predation	Disease	Winter Loss		At period of Greatest use	As of Dec. 31	
Common Name	Cover types, total Acreage of Habitat	Number								Number	Source		
White- tailed deer	24,341 acres of upland habitat	75	25									225	200
Mule deer	"	No observations this year.											

Remarks: Big game hunting season of bucks only extended 10 days from November 8 - 17. Sample observed too small to indicate sex ratio.

Reported by Med I. Peabody

INSTRUCTIONS

Form NR-3 - BIG GAME

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

DISEASE

Refuge

Lostwood

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 No evidence

Kind of disease

Species affected

Number Affected Species	Actual Count	Estimated

Number Recovered

Number lost

Source of infection

Water conditions

Food conditions

Remarks No evidence

PUBLIC RELATIONS

(See Instructions on Reverse Side)

Refuge LostwoodCalendar Year 1963

1. Visits

a. Hunting 295 b. Fishing 0 c. Miscellaneous 495 d. TOTAL VISITS 790

1a. Hunting (on refuge lands)

TYPE	HUNTERS	ACRES	MANAGED BY
Waterfowl			
Upland Game			
Big Game	295	24,341	Bureau
Other			

Number of permanent blinds _____

Man-days of bow hunting included above _____

Estimated man-days of hunting on lands adjacent to
refuge 200

1b. Fishing (area open to fishing on refuge lands)

TYPE OF AREA	ACRES	MILES
Ponds or Lakes		
Streams and Shores		

1c. Miscellaneous Visits

Recreation 140 Official 155

Economic Use 200 Industrial 0

2. Refuge Participation (groups)

TYPE OF ORGANIZATION	On Refuge		Off Refuge	
	NO. OF GROUPS	NUMBER IN GROUPS	NO. Of GROUPS	NUMBER IN GROUPS
Sportsmen Clubs				
Bird and Garden Clubs				
Schools			2	65
Service Clubs			1	16
Youth Groups				
Professional-Scientific	1	90		
Religious Groups				
State or Federal Govt.			4	75
Other				

3. Other Activities

TYPE	NUMBER	TYPE	NUMBER
Press Releases		Radio Presentations	
Newspapers (P.R.'s sent to)		Exhibits	
TV Presentations		Est. Exhibit Viewers	

INSTRUCTIONS

Item 1: Total of a, b, and c, equal d.

"Visit" - definition. Any person who is on refuge lands or waters during a day or part thereof for the purpose of: hunting, fishing, bird-watching, recreation, business or economic use, official visit, or similar interest. INCLUDE - those who stop within the refuge while traveling on a public highway because of an interest in the area. EXCLUDE - persons engaged in oil or other industry not directly related to the refuge, persons using refuge as most direct route or principal avenue of traffic, and those boating on navigable rivers or the Intercoastal Canal, unless they stop to observe wildlife on the refuge.

Computing visits. Where actual counts are impractical, "sampling" is used with midweek and week-end samples varied by season or weather. A conversion factor of 3.5 (of passengers per car) is used when accurate figures are not available. Each refuge will develop a conversion factor for boats based on range of usage. Count a camper once for each 24-hour period or fraction thereof.

Item 1a: Acres - of refuge open for each type of hunting.

Managed hunts require check in and out of hunters, issuance of permits, or assignment of blinds.

Other - INCLUDE crow, fox, and similar hunting.

Lands adjacent to refuge. Normally considered within 1 mile or less of boundary, unless established sampling procedures cover a wider area. For big game hunting, the distance may be greater.

Item 1b: Acres of streams open to fishing, if practical; otherwise just miles open. Information on "shores" is primarily for coastal fishing.

Item 1c: Recreation. INCLUDE photography, observing wildlife, picnicking, swimming, boating, camping, visitor center use, tours, etc. TOTAL Recreation, Official, and Economic Use visits under Item 1.

Industrial. INCLUDE persons engaged in industry, i.e., oil industry or factories. EXCLUDE these from Item 1.

Item 2: INCLUDE the "On Refuge" groups in Items 1c and 1. In "Off Refuge" column include only those group meetings in which refuge employees actually participate. EXCLUDE these from Items 1c and 1.

Item 3: Exhibits - INCLUDE displays, fairs, parades, and exhibits OFF the refuge; EXCLUDE those ON.

3-1757

Form NR-7

(April 1946)

PLANTINGS
(Marsh - Aquatic - Upland)

Refuge Lostwood Year 1965

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
Blue Spruce	Lostwood headquarters			Six 18" trees	5/7	100%		
Green needlegrass	WPA's	3 lbs/ac.		300 lbs. seed	10/7-9	Unknown		Retired crop-land seeded to permanent native grass cover
Needleandthread	R. Kjallberg	1 " "	23 ac.	85 " "	"			
Switch grass	Svenningson	2 " "	24 ac.	178 " "	"			
Western wheat	Glick	1 " "	30 ac.	90 " "	"			
Slender wheat	Grinolds	1 " "	13 ac.	90 " "	"			
Alfalfa		2 " "	90 ac.	180 " "	"			
		10 lbs/ac.		918 lbs. seed				
Green needlegrass	Shell Lake	3 lbs/ac		250 lbs. seed	10/10-11			Retired crop-land seeded to permanent native grass cover
Needleandthread	National	2 1/2 " "		215 " "	"			
Switch grass	Wildlife	1 1/2 " "	85 ac.	127 " "	"	Unknown		
Western wheat	Refuge	2 " "		180 " "	"			
Slender wheat		1 " "		90 " "	"			
		10 lbs/ac		872 lbs. seed				

TOTAL ACREAGE PLANTED:

Marsh and aquatic.....
Hedgerows, cover patches 175 ac.
Food strips, food patches.....
Forest plantings.....

Hay - Improved (Specify Kind)	Tons Harvested	Acres	Cash Revenue	GRAZING	Number Animals	AUM'S	Cash Revenue	ACREAGE
				1. Cattle	1,336	3,329.45	5,659.90	14,830
				2. Other				
				1. Total Refuge Acreage Under Cultivation				
Hay - Wild				2. Acreage Cultivated as Service Operation				

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

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

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

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

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

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

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

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

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

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

Hay - Improved (Specify Kind)	Tons Harvested	Acres	Cash Revenue	GRAZING	Number Animals	AUM'S	Cash Revenue	ACREAGE		
				1. Cattle	92	232.25	464.50	1,293		
				2. Other						
				1. Total Refuge Acreage Under Cultivation						
Hay - Wild				2. Acreage Cultivated as Service Operation						

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CULTIVATED CROPS - HAYING - GRAZING

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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.

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

Fish and Wildlife Service Branch of Wildlife Refuges

CULTIVATED CROPS - HAYING - GRAZING

Refuge McLean 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			
Wheat (Wells & Ramsey)	38.8	1,148 bu.					38.8		
Wheat (Langdon)	11.6	116 bu.					11.6		
Barley (Trail & Betzes)					25.9	1,061 bu.	25.9		
	50.4				25.9		76.3		
								Fallow Ag. Land	69.5

No. of Permittees: Agricultural Operations 3 Haying Operations 0 Grazing Operations 1

Hay - Improved (Specify Kind)	Tons Harvested	Acres	Cash Revenue	GRAZING	Number Animals	AUM'S	Cash Revenue	ACREAGE
				1. Cattle	4	16.00	32.00	39
				2. Other				
				1. Total Refuge Acreage Under Cultivation				145.8
Hay - Wild				2. Acreage Cultivated as Service Operation				

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

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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.

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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.

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

Fish and Wildlife Service Branch of Wildlife Refuges

CULTIVATED CROPS - HAYING - GRAZING

Refuge Shell Lake County 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			
Wheat	53.4	801 bu.					53.4	Permanent native grass cover	85
Barley	18	450 bu.			36.1	902 bu.	54.1		
							107.5		
								Fallow Ag. Land	71.7

No. of Permittees: Agricultural Operations 1 Haying Operations 0 Grazing Operations 0

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				179.2
Hay - Wild				2. Acreage Cultivated as Service Operation				

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

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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.

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

Fish and Wildlife Service Branch of Wildlife Refuges

CULTIVATED CROPS - HAYING - GRAZING

Refuge Waterfowl Production Areas County 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			
Wheat	37.2	886 bu.					37.2	Permanent native grass cover	90
Barley	23.8	661 bu.			29.0	694 bu.	52.8		
	61.0				29.0		90.0		
								Fallow Ag. Land	78.0

No. of Permittees: Agricultural Operations 4 Haying Operations 0 Grazing Operations 0

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				108.0
Hay - Wild				2. Acreage Cultivated as Service Operation				

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

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

REFUGE GRAIN REPORT

Refuge LostwoodYear 1963
Months of March, 195

(1) VARIETY*	(2) ON HAND BEGINNING OF PERIOD	(3) RECEIVED DURING PERIOD	(4) TOTAL	(5) GRAIN DISPOSED OF				(6) ON HAND END OF PERIOD	(7) PROPOSED OR SUITABLE USE*		
				Transferred	Seeded	Fed	Total		Seed	Feed	Surplus
Wheat (Duram)	0	22	22	Mixed with mixed grain below				0			
Mixed grain (Barley & wheat)	215	22	237		150		150	87		87	
Corn (ear)	110		110		10		10	40		40	
Corn (shelled)**	0	0	0		5		5	25		25	
Mixed seed											
Crested wheat	75 lbs		75 lbs.					75 lbs.	75 lbs		
Slender wheat	30 "		30 "					30 "	30 "		
Alfalfa	30 "		30 "					30 "	30 "		
	<u>135 lbs</u>										

** Approximately 60 bushels eared corn was shelled by personnel prior to repair of steel granary, resulting in approximately 30 bushels of shelled corn.

(8) Indicate shipping or collection points Kenmare or Lostwood, North Dakota(9) Grain is stored at Headquarters granary(10) Remarks Wheat received from Bowbells AED office from samples, and then mixed with mixed grain.

*See instructions on back.

(10) Remarks

NR-8a

(3) Grain is stored at

REFUGE GRAIN REPORT

(8) Indicate shipping or collection points

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

AVAILABILITY	ON HAND BEGINNING PERIOD	DURING PERIOD RECEIVED	TOTAL	GRAIN DISPOSED OF				PERIOD END OR ON HAND	PROPOSED OR SUITABLE USE		
				Unshipped	Seeded	Fed	Total		Seeded	Fed	Surplus
(1)	(2)	(3)	(4)	(5)				(6)	(7)		

Refuge

1941-1942

1941-1942

1941-1942

1941-1942

REFUGE GRAIN REPORT

ANNUAL REPORT OF PESTICIDE APPLICATION

Proposal Number

Reporting Year

1963

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)
5-7	White top, carex and manna grass	Small plots scattered throughout the refuge	1.381	M1292 form of Dalapon ✓	35.1 lbs.	2 - 6 lbs/ac	water 1 to 5	back-pack pump
5-13	White top, carex and manna grass	Small plots scattered throughout the refuge	0.803	Baron ✓	3 gallons	0.10 gals per acre	water 1 to 5	back-pack pump

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

Success or results of the above treatments will be determined in 1964. All herbicide treatment accomplished under the Pothole Vegetation Control Study initiated August, 1963.