

BOWDOIN

NARRATIVE REPORTS

JANUARY-DECEMBER 1963

NARRATIVE REPORT ROUTING SLIP

REFUGE BOWDOIN PERIOD September - December 1963

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RESOURCE MANAGEMENT: Mr. Stollberg _____ Mr. Lumb _____

OPERATIONS: Mr. Huenecke _____ Mr. Regan _____

PUBLIC USE: Mr. DuMont _____ Mr. Monson _____

NARRATIVE REPORT
BOWDOIN NATIONAL WILDLIFE REFUGE

CREEDMAN COULEE
LAKE THIBADEAU
BLACK COULEE
HEWITT LAKE

September through December 1963

REGULAR PERSONNEL

Russell R. Hoffman	Refuge Manager
Eldon L. Bates	Maintenanceman II
Rene R. DeMontigny	Maintenanceman I
Dorothy H. Garland	Clerk-typist

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NARRATIVE REPORT

BOWDOIN NATIONAL WILDLIFE REFUGE

September 1, to December 31, 1963

I. GENERAL

A. Weather Conditions.

This refuge does not operate a weather station. All of the weather statistics used in this report were compiled by the Bureau of Reclamation from the operation of their weather station. The normal temperatures were computed from records of the 40 year period, 1909 to 1949. Precipitation averages are from records including the period 1909 to 1958.

Table I shows the amount of precipitation for the period to be 1.54 inches as compared to 2.21 inches last year and a period average of 2.63 inches. No one month was outstanding this period as has been true the two previous years.

The average temperature for this period was similar to that of the same period last year and 4.2 degrees above the normal for the period which is 37.2 degrees. The average temperature for 1963 fall period was 41.4 degrees and for the same period in 1962 it was 41.7 degrees. The average of minimum temperatures for this period of 3 degrees was the same as the 1961 average. The average minimum temperature for the same period in 1962 was 11.5 degrees or 8.5 degrees above 1961 and 1963.

The average maximum temperature for this period has progressively increased for the past three years from 69 degrees in 1961, to 71 degrees in 1962, and to 74 degrees in 1963.

Table II compares the weather data for the entire years of 1962 and 1963. This year had a precipitation of 12.20 inches compared to an annual average of 12.83 inches and an all time high of 21.17 in 1962.

The annual maximum average temperature for the year was 78 degrees or 3 degrees above last year. The annual minimum average was 12.5 degrees or 2.6 degrees above last year. The yearly average temperature for 1963 was 46.15 degrees compared to 42.9 degrees in 1962 and a normal of 42.3.

B. Habitat Conditions

1. Water

At the beginning of the period the water levels were the

lowest of the year. Warm winds through the summer evaporated more water than was added by rainfall. Rainfall was below average this fall and considerable evaporation was caused by the high, dry, and warm winds that prevailed.

The lakes were frozen completely during the week of November 24 this fall compared to December 8 of last year.

TABLE I
PERIOD WEATHER DATA

Month	Precip.	Temperatures (degrees F.)				
	<u>Inches</u>	<u>Max.</u>	<u>Min.</u>	<u>Ave.</u>	<u>Norm.</u>	<u>*Dev.</u>
<u>1963</u>						
Sept.	.67	90	36	63.8	57.3	6.6
Oct.	.42	86	17	53.6	45.5	8.1
Nov.	.19	60	-13	32.0	29.2	2.8
Dec.	<u>.26</u>	<u>59</u>	<u>-28</u>	<u>16.4</u>	<u>16.6</u>	<u>-0.2</u>
Totals	1.54	74	3	41.4	37.2	4.3
<u>1962</u>						
Sept.	.57	87	22	55.4	57.3	-1.9
Oct.	1.43	76	24	49.1	45.5	3.6
Nov.	.11	65	10	38.0	29.2	8.8
Dec.	<u>.10</u>	<u>56</u>	<u>-10</u>	<u>24.5</u>	<u>16.6</u>	<u>7.8</u>
Totals	2.21	71	11.5	41.7	37.2	4.8

* Deviation

Table III shows the gauge readings for the refuge this period. Dry Lake was the only unit below level. Lakeside was at operational level during this period and remained this way until frozen. Water was added this fall to supply Dry Lake through the east canal and for irrigation of the fields below.

Water was added to Bowdoin Lake in September and brought to operational level. This was held until the end of the period. Water was put into Dry Lake through Bowdoin Lake to bring the level to 2206 feet to provide increased nesting habitat next spring. The lake bed was drier this year as compared to last fall and more water soaked away after filling than was expected.

A total of 7791 acre feet of water was added to the units this fall to bring the water to operating levels. This is about 1800 acre feet less than last year's total.

TABLE II
ANNUAL
WEATHER DATA

Month	Precip.	Temperatures (degrees F.)				
	Inches	Max.	Min.	Ave.	Norm.	*Dev.
<u>1963</u>						
Jan.	.67	52	-36	13.4	12.0	1.4
Feb.	.52	58	-27	27.4	14.9	12.5
Mar.	.07	73	26	38.8	28.4	10.4
Apr.	.80	82	20	45.3	44.9	.4
May	1.81	87	25	54.4	55.8	-1.4
June	4.00	87	41	64.3	63.7	.6
July	1.54	103	46	74.5	71.2	3.3
Aug.	1.25	98	43	69.9	68.2	1.7
Sept.	.67	90	36	63.8	57.3	6.5
Oct.	.42	86	17	53.6	45.5	8.1
Nov.	.19	60	-13	32.0	29.2	2.8
Dec.	<u>.26</u>	<u>59</u>	<u>-28</u>	<u>16.4</u>	<u>16.6</u>	<u>-0.2</u>
Totals	12.20	78	12.5	46.15	42.3	3.8
<u>1962</u>						
Jan.	.29	52	-27	15.3	12.0	3.3
Feb.	.53	67	-41	15.6	14.9	.7
Mar.	.37	65	-26	20.3	28.4	-8.1
Apr.	.23	87	15	48.6	44.9	3.7
May	4.37	72	31	51.5	55.8	-4.3
June	4.24	91	40	62.9	63.7	-0.8
July	6.08	90	44	66.3	71.2	-4.9
Aug.	2.85	92	37	67.1	68.2	-1.1
Sept.	.57	87	22	55.4	57.3	-1.9
Oct.	1.43	76	24	49.1	45.5	3.6
Nov.	.11	65	10	38.0	29.2	8.8
Dec.	<u>.10</u>	<u>56</u>	<u>-10</u>	<u>24.5</u>	<u>16.6</u>	<u>7.8</u>
	21.17	75	9.9	42.9	42.3	.6

*Deviation

Drumbo Lake was not as full at the close of this period as in the past two years because this is entirely dependent upon runoff water and rainfall was below average. This lake has a good watershed and will be filled this spring.

Black Creek Coulee ran less this fall as irrigation was at a minimum. A few rains were hard enough to produce water in excess and cause this to flow.

TABLE III

PERIOD GAUGE READINGS

<u>End of Month</u>	<u>Bowdoin Unit</u>	<u>Lakeside Unit</u>	<u>Dry Lake Unit</u>
<u>1963</u>			
Sept.	2206.50	2224.30	2206.10
Oct.	2206.60	2223.80	2205.70
Nov.	2206.60	2224.80	2205.70
Dec.	Frozen	Frozen	Frozen
<u>1962</u>			
Sept.	2204.50	2223.30	Dry
Oct.	2205.30	2223.30	2205.25
Nov.	2206.50	2223.00	2206.25
Dec.	2206.50	2223.00	2206.25

2. Food and Cover

Conditions remained excellent this period for food and cover for wildlife. Surplus grain left from combining in fields was always available. Natural upland vegetation was more than enough for all forms of wildlife. Feeding flights of ducks and geese were regular and common.

Sago pondweed in Bowdoin Lake remained bountiful and was available in quantity. This was utilized by waterfowl all through the fall. Other aquatics were also abundant. Widgeon grass, though overshadowed by sago, grew in fair abundance in Bowdoin Lake. Lakeside, Demonstration Pond, and Patrol Road Pond had a variety of aquatics consisting of coontail, various pondweeds, myriophyllum and water plantain. The smartweed at Lakeside Extension made an excellent growth but at Lakeside a good growth this summer. When this was flooded this fall, it produced large quantities of food for ducks. This became a regular feeding ground for mallard ducks.

TABLE IV
ANNUAL
GAUGE READINGS

<u>End of Month</u>	<u>Bowdoin Unit</u>	<u>Lakeside Unit</u>	<u>Dry Lake Unit</u>
<u>1963</u>			
January	Frozen	Frozen	Frozen
February	Frozen	Frozen	Frozen
March	2206.90	2222.55	2205.80
April	2207.00	2222.96	2205.80
May	2206.89	2222.80	2206.80
June	2206.70	2222.50	2205.70
July	2206.40	2222.50	2205.50
August	2205.88	2224.22	2205.50
September	2206.50	2224.30	2206.10
October	2206.60	2223.80	2205.70
November	2206.60	2224.80	2205.70
December	Frozen	Frozen	Frozen
<u>1962</u>			
January	Below gauge	2223.50	Dry
February	2204.00	2223.50	Dry
March	2204.00	2223.50	Dry
April	2204.00	2222.12	Dry
May	2204.00	2222.12	Dry
June	2205.50	2222.30	Dry
July	2205.70	2222.40	Dry
August	2204.88	2223.80	Dry
September	2204.50	2223.30	Dry
October	2205.30	2223.30	2205.50
November	2206.50	2223.00	2206.25
December	2206.50	2223.00	2206.25

The bulrushes, spike rush, sagittaria, and cattail made good dense growths this summer producing an abundance of food and cover this fall. Bulrushes at the west end of Dry Lake made a good growth with this ideal water level.

Grass and herbs of the upland grew as seldom seen here before. The food and cover from this summer growth was apparent on the refuge this fall period. This was utilized greatly by wildlife.

The apple, plum, and Russian olive trees all had good crops this year and this was utilized by wildlife. Many species of birds fed heavily on the Russian olives in the trees around headquarters.

Grain that had been planted for wildlife food crops was utilized extensively by wildlife this period. The grain field at Lakeside was used by geese, ducks, gray partridge, grouse, other small birds and antelope. This has been a desirable improvement to this area of the refuge.

II WILDLIFE

A. Migratory Birds.

Waterfowl remained on the refuge until the week of November 24 - 30 when the lake froze completely. All lakes were frozen by the week previous except for a very small hole at the north end of Bowdoin Lake. Weather this fall was mild but this was not an unusual departure date. Freezing conditions began during the last week of October and ice had formed along the edges of the big lake by the first of November. Small lakes and potholes were frozen.

Excellent conditions on the refuge this fall increased the total days use by waterfowl. As recorded on the NR-1, the total duck days use is 4,352,292, geese 168,371, and coot 638,414 days. Last year, the fall weather was also mild so a comparison is logical. In 1962 the total duck use days were 3,409,392, geese 157,714, and coot 313,537 days. This shows an increase in days use for all birds listed. The goose use figures are not as significant as the other two.

The southern migrational flights of ducks shows a peak population during the week of September 22 and remaining here until the middle of October. The number of ducks gradually decreased until November 30 when the last ducks were recorded. The NR-1 also shows that the migration of geese peaked during the last week of October and the first week of November. Flocks of migrating geese were common during this period and calls could be heard most any time. Coot migrated south during the last weeks of October.

Table V shows a general increase this fall in numbers of ducks in peaks and total use days. There was an obvious decrease in pintail, blue-winged teal, shoveler, canvasback, and bufflehead total use days. Because of the mild fall in 1962, ducks stayed two weeks longer as compared to 1963. In spite of this, the total use days show a 28% increase this year.

The usual variety of waterfowl were found here this fall and the mild weather and abundance of food held the bulk of the birds until the middle of November. Whistling swan migrated into the refuge during the week of October 13 and built up in number to 115 by November 3. These birds stayed to the very last. Usually snow geese were observed migrating through the area but this year no observations were made.

TABLE V
COMPARISON OF PEAK NUMBERS, PEAK DATES, AND TOTAL DAYS USE
Refuge: Bowdoin National Wildlife
Period: September to December, 1963

Species	Peak Numbers		Percentage of change		Peak Dates		Total Days Use		% of change	
	1963	1962	-	+	1963	1962	1963	1962	-	+
C. Geese	4,400	3,110		41	10/31	10/13	167,671	154,938		8
Coots	16,050	7,500		100+	10/3	10/13	638,414	318,537		100+
Mallards	28,775	15,213		88	10/24	11/10	1,471,022	1,018,803		45
Gadwall	7,225	5,700		27	10/24	9/15	310,037	324,191		4
Baldpate	15,377	5,775		100+	10/3	10/13	618,926	409,318		51
Pintail	11,560	6,256		84	9/26	10/27	265,076	314,608		16
G.W. Teal	6,475	3,285		99	10/24	10/27	403,018	196,238		100+
B.W. Teal	3,660	3,400		6	9/5	9/29	99,876	134,435		26
Ring-necked	4			100+	9/5		28			100+
Shoveler	7,210	9,580		25	9/26	10/27	345,744	463,295		25
Redhead	7,500	2,460		100+	10/3	10/6	315,280	108,297		100+
Canvasback	665	1,125		41	10/3	10/6	33,628	43,365		25
Scaup	6,275	5,050		44	10/24	10/13	259,231	206,969		25
Goldeneye	5,520	1,700		100+	11/7	11/24	114,576	62,286		84
Bufflehead	650	1,500		57	10/31	11/10	15,855	49,077		68
Ruddy	1,100	1,675		34	10/10	9/22	99,995	83,510		20
Total Ducks	75,945	46,584		63	9/26	10/27	4,352,292	3,409,392		28

An article shown on the following page from The Blue Jay mentions that E. Kuyt, a Canadian wildlife Service Biologist found a moulting goose on the Thelon River (101° W 64° N) in 1960 that had been banded at Bowdoin National Wildlife Refuge as a preflight young in 1957.

The last coot were seen on the refuge on November 15 but the bulk of the birds left by the last week of October. Grebes left earlier as the last were seen during the second week of October.

White pelicans had a very successful nesting season this summer and most of these birds had moved south by the middle of September. The last few remained on the refuge until October 11.

Gulls also had an excellent nesting season this summer and the greater number of these birds moved out of the area gradually by the end of September. One exception to this was a flock of 40 gulls using the refuge to roost at night but were not seen after the first week of November. Hunters reported seeing gulls on small reservoirs in the area late in the hunting season.

A few American bittern used the refuge this fall and the last was seen on September 21. Most shorebirds were southbound by the middle of October except for a few hardy avocets and greater yellowlegs that remained until the middle of November.

B. Upland Game Birds.

The effects of the second year of an excellent vegetative cover resulted in greater numbers of upland game than has been seen in this area for many years. Pheasants are very abundant on the refuge this fall and the hunting season seemed to have little effect on the numbers. The bag limit allowed 3 pheasants one of which could be a hen. The refuge has excellent roosting sites and pheasants can be seen flying in from adjacent farms to roost in the evening.

Four different flocks of gray partridge have been seen on the refuge this fall. These are now a common sight. One afternoon 37 of these birds were seen feeding in the wheat field at Lakeside. Sharp-tailed grouse and sage grouse are on the refuge this fall in greater numbers than usual. The hunting season in eastern Montana on game birds was very successful and a great many birds were killed this fall.

C. Big Game Animals

The number of antelope using the refuge remains about the same as in past years. There is a total of 125 antelope and they can be found in groups in various parts of the refuge. The animals are

Wascana Goose Summers on the Arctic Prairie

by R. Thomas Sterling, Ducks Unlimited (Canada), Saskatoon

Although it is known that the Canada Goose (*Branta canadensis*) is a relatively common breeder in Saskatchewan (Caldwell, 1963) and that they do not normally breed before their third year, the location of non-breeding birds during the mid-summer has remained a mystery. These one and two-year-old birds have never been found within their known breeding range at this season in the numbers in which they are known to exist.

The resident flock of Canada Geese on the Wascana Marsh at Regina has been under closer observation than any other of comparable size in Saskatchewan. Fred G. Bard, Director of the Saskatchewan Museum of Natural History (pers. comm., 1963), has noted the annual phenomenon of the disappearance in the spring of a large portion of the wintering birds, with reappearance by early fall. Similar occurrences have been witnessed on other major goose nesting marshes. Flocks of obviously unpaired geese arrive in April shortly after the local breeders and leave again by late May or early June. Since subsequent sightings would certainly be made if they remained on our prairie or parkland marshes, we have assumed they must travel to isolated areas further north to summer. Ted Jonasson, a Conservation Officer in the Department of Natural Resources of Uranium City (pers. comm., 1963), on June 6, 1963, noted such a major northward flight of large Canada Geese over the east end of Lake Athabasca. Subsequently, on June 19, A. H. McPherson, Canadian Wildlife Service biologist (pers. comm., 1963), noted a major influx of large-type Canada Geese into the Aberdeen Lake region of the Northwest Territories. Previously, large mid-summer moulting concentrations of what were believed to be the larger races of Canada Geese had been noted and recorded by Canadian Wildlife Service personnel and others (Clarke, 1937) on the Thelon River, Northwest Territories. There was speculation that the Saskatch-

ewan birds might be associated with them.

Dr. I. McTaggart Cowan, Head of the Department of Zoology, University of British Columbia (1954), reported on two juvenile Canada Geese (*B.c.moffitti*) banded in southern British Columbia and subsequently recovered in the Bathurst Inlet area, providing positive proof that these birds at least occasionally did travel to Arctic regions. E. Kuyt, Canadian Wildlife Service biologist (1962), provided the first firm evidence that the geese moulting on the Thelon were from the large-type races breeding further south. On June 19, 1960, he captured a moulting goose at approximately 101° 48'W, 64° 21'N, which had been banded as a pre-flight young in 1957, at the Bowdoin National Wildlife Refuge, near Malta, Montana.

In July of this year (1963) I conducted some preliminary investigations concerning the geese on the Thelon River. Through arrangements made by A. Dzubin, Canadian Wildlife Service biologist with Ducks Unlimited, I had the privilege of joining R. A. Ruttan's Canadian Wildlife Service Barren Ground Caribou tagging crew, located on the Thelon River between Beverley and Aberdeen Lakes. It was planned that I should have the opportunity of taking a census of the geese on 150 miles of the river and connected lakes and of collecting some for identification purposes.

On July 12, 1963, the caribou tagging teams combined on a drive in which 500 Canada Geese out of a total of approximately 2000 were caught and banded, at 100° 07'W, 64° 33'N. Twenty-nine previously banded geese were caught in the drive. Ten of these had been banded near Rochester, Minnesota, where *B.c.maxima*, once thought to be extinct, was recently rediscovered (Kimball, 1963). The remainder had been banded at Oak Point, Lake Manitoba, and on known wintering areas of birds breeding in Manitoba.

Of special interest to Saskatchewan

was a banded goose collected July 3 from a flock of about thirty moulters. This female had been trapped in June, 1962, as a pre-flight young from the Regina flock, and banded and released on the South Saskatchewan River west of Saskatchewan Landing, by J. Nelson, then with the Saskatchewan Wildlife Branch. From Ducks Unlimited (Canada) banding records on file in Saskatoon, we know the geese raised on that section of the river winter at least as far south as western Nebraska. On its first north-bound migration then, this yearling goose chose to travel an additional 1000 miles beyond its birthplace to summer in sub-arctic habitat.

A noted authority on geese, J. Delacour (1954) mentions the tendency for non-breeding Canada Geese to wander in the summer. E. Kuyt (1962) believed this might be why these geese were found on the Thelon, suggesting that their presence might be a recent phenomenon possibly compelled by increasing drought on the breeding marshes or an increasing population. In the light of what we know of conditions on the southern breeding grounds and the new data gathered this summer, I rather suspect this northward movement is traditional, being neither recent nor random. Further investigation may show, I believe, that these geese are as consistent in their use of extended northern travel routes and even moulting sites, as they have already been shown to be in their use of breeding and wintering localities.

Three successive aerial inspections, with a few days elapsing between each flight, were made of a few of the moulting groups of Canada Geese on the Thelon. No change in the location of the groups was noted and nearby groups appeared to remain segregated. This and the preliminary banding data support the belief that each group of moulting geese may be a distinct segment of a fly-way or sub-flyway population. Should this prove true, the ease of making a census and banding of birds in this area suggests some intriguing possibilities for obtaining unique data for Canada Goose management. Information concerning where these birds were shot and when they re-identify themselves with their respective breeding flocks would then become of supreme importance. It is hoped these last major gaps in the knowledge of the range and movements of these geese may soon be filled. This will further enable management agencies to develop the full potential of these magnificent birds.

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Bill Reese, Dept. of Indian Affairs, Fred Riddle, Dept. of Northern Affairs, and 600 moulting Canada Geese trapped on the Thelon River, Northwest Territories, July 12, 1963.



Kuinangnak, a local Eskimo, holding one of the several large-type Canada Geese trapped on the Thelon River, July 12, 1963, which had distinctly white foreheads.

In excellent shape and utilize the grain fields to a great extent. One large buck antelope was found dead a short distance inside the east boundary of the refuge that had apparently been wounded in another area during the hunting season. Blood stains were found on the left hip and flank of the animal.

One white-tailed doe deer was killed by a passing motorist a few hundred yards from the west boundary of the refuge. The deer was being chased by hunters when it jumped in front of a car traveling west. Refuge personnel picked up the carcass and turned it over to the State of Montana authorities.

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

The number of muskrat using the refuge have increased this year many times compared to the population of a year ago. Two house counts were made this fall. The first from the ground revealed 24 houses and the second from the air showed 53 houses. The population is now estimated at approximately 700 animals. The many houses built in the bulrush will be welcomed for goose nesting sites next spring. No trapping has been allowed because of this. Some control has been necessary as one small group of muskrats have been working in a coffer dam at Dry Lake. These animals are using the dam for passage and live in an adjacent bank.

The number of other fur-bearing mammals seem to be about the same. One coyote was seen on the refuge this fall. A hunter reported seeing a bobcat at the entrance gate in October. Several bobcats were killed by hunters around Malta this fall during the upland game bird season. The increase in game bird numbers was apparently the attributing factor.

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

As many as 9 golden eagles were seen through September and the first one-half of October. One afternoon these 9 eagles plus 2 mature bald eagles were seen at Lakeside and Lakeside Extension. This was because of a concentration at the time of about 25,000 ducks and geese on these small lakes.

Two flocks of crows used the refuge for three weeks while migrating through to other areas. The birds were seen first on October 19 and the flocks numbered 225 crows.

Magpies have increased in number this year and approximately 100 are wintering here.

F. Other Birds.

A migration of song birds passed through here during the first two weeks of October. The last robin was seen this fall on

October 3. Black-capped chickadees arrived on October 7 and slate-colored juncos on October 15.

Of special interest was the observation of 3 mountain chickadees seen on the refuge December 18. The mountain chickadees have a white line over the eye differentiating it from black-capped chickadees.

G. Fish.

The usual number of fish are found in the waters of the refuge. Lakeside units provide food for birds that eat fish and that reside here during the warmer seasons of open water.

H. Reptiles.

Numbers and varieties of reptiles and amphibians remain about the same as previously reported.

I. Disease.

Botulism continued through the third week of September increasing in severity following a period of warm weather beginning in the second week. Only 27 birds were found the first two weeks compared to 109 the last week. Subsequent checks revealed no further mortality as weather cooled rapidly. Records of birds recovered are found recorded in the May-August 1963 report and the NR-5 of this report. No other disease was noted.

III REFUGE DEVELOPMENT AND MAINTENANCE

A. Physical Development.

Roads and patrol trails were graded and maintained. Weeds were mowed where necessary. Sweet clover grew to such heights and thickness this year that trails were almost obliterated.

Alfalfa was planted in the goose pasture for food and cover.

The headquarters yard was graded and larger rocks removed. This was surfaced with gravel and graded. Edges were sterilized with Trysben to prevent noxious weed growth and to eliminate a constant maintenance problem.

Areas around refuge signs were treated with Trysben to eliminate plant growth which has been a perpetual maintenance problem.

Gravel was hauled to the boat ramps and these were resurfaced prior to hunting season. The water action this summer made this repair necessary.

A new parking and turn area was built on the patrol trail at the south boundary of the hunting area. This has been needed for some time as many hunters park here and hunt Southwest Bay of Bowdoin Lake.

An additional 290 feet was added to the drainfield of the sewer system of Quarters #1 and #3. The existing field is saturated and has been mostly inoperative this past year. Two distribution boxes with removeable covers were placed in the line so that cleaning could be accomplished when necessary. Perforated orangeberg pipe was used throughout. The trenches were dug and the pipe placed on 6 inches of gravel. A $1\frac{1}{2}$ inch strip of heavy building paper was put on the pipe for protection and insulation and covered with 6 inches of gravel. Soil was replaced and leveled. Two pits were dug at each end of the lateral and these were filled with 3" to 4" size rock for better drainage. The lateral with drain pits and cleanout distribution boxes should not give any trouble for many years to come.

A section of fence was repaired at A-1 and other fences were maintained.

A section of fence at Hewitt Lake National Wildlife Refuge was repaired.

An entrance sign post was replaced at Black Coulee National Wildlife Refuge. The post that had broken during a severe wind was removed and the sign brought to headquarters for refinishing.

Hunting signs were put up around the hunting area prior to the hunting season and removed following the close of the period. Safety signs were placed in strategic places at headquarters.

Fallen trees and debris were removed from windbreaks at headquarters.

Improvements were made to the water structure at Lakeside.

Equipment was maintained and winterized.

Storm windows for Quarters #1 were reglazed and painted.

Eave troughs were soldered to stop leaks and troughs were hung on the south side of Quarters #1.

1" by 2" strips were put around the doors of the boathouse for the winter eliminating the cracks by the doors to keep the sparrows out to prevent bird droppings over everything inside.

The chicken yard was temporarily rebuilt to hold pheasants caught for the State of Montana Game Farm.

Repairs were made to a coffer dam damaged by muskrat.

Many leaks were stopped in the water structures at A-dike and Lakeside caused by freezing and thawing conditions.

A table was made for the hunter record book to be used at the check station during the hunting season.

Boxes were made for pamphlets and papers to be placed in the refuge library.

The furnaces were winterized according to the Refuge Fire Plan.

Refuge personnel patrolled during the hunting season.

The John Deere combine was sold for the second time and was picked up on schedule.

Pictures were catalogued. Slides were edited.

The refuge safety sign hanging brackets were repaired and the signs hung.

B. Plantings.

The plantings this period included seeding the goose pasture to alfalfa for better green forage for the goslings raised during the summer. This should result in a good mixture of alfalfa, sweet clover, and dandelions. The sweet clover offers excellent cover while the other two are the preferred green forage of young geese. The "ice cream" plant is dandelions.

A scalped hillside was seeded to crested wheat grass this period to replace cover and stop any erosion that might occur.

C. Collections and Receipts.

Please refer to Grazing, Resource Management.

D. Control of Vegetation.

Vegetation was controlled around headquarters and refuge entrance signs where the soil was sterilized with Trysben. The application of this was recommended by the weed control agent of Phillips County. Please refer to NR-12.

E. Planned Burning.

No burning was accomplished on the refuge this period.

F. Fires.

No fires occurred on the refuge this period.

IV RESOURCE MANAGEMENT

A. Grazing.

Grazing permits were issued to the following ranchers during the year at \$1.50 per AUM for cattle and \$1.00 for horses.

BOWDOIN

Permit Number	Permittee	AUM's	
		Cattle	Horses
34593	Roy Kindle	45.70	
34594	James Sintler	164.71	
34595	Wm. Shiroishi	107.41	
34596	See below		
34597	Robert Simanton Jr.	143.42	
34598	Lee Schumacher	193.56	
34599	Curtis Kron	14.06	
34600	R. A. Thompson	208.07	
Bow. #1	See below		
Bow. #2	Carl Ohs	50.00	
Bow. #3	See below		
Bow. #4	Richard Simanton		28.00
Bow. #5	Bill Simanton		40.00
Bow. #6	Dick Schwartz		24.00
Bow. #7	Carl Ohs		18.00
Bow. #8	James Teter		6.00
	Totals	926.93	116.00

BLACK COULEE

34596	Guy Riggin 320 acres	
	@ .15 per acre	
Bow. #1	Wm. Helgesen	107.67
Bow. #3	Guy Riggin 320 acres	
	@ .15, per acre	

* Permit dated 7/1/62 -- 6/30/63 not previously reported.

B. Hay.

No hay was harvested this period.

C. Fur Harvest.

No harvest of furs was allowed this period as the population of muskrats was estimated to be too low.

D. Timber Removal.

The refuge does not have timber.

E. Commercial Fishing.

There has been no commercial fishing this period.

F. Other Uses.

No other use was made of the refuge.

V FIELD INVESTIGATIONS AND APPLIED RESEARCH

A. Progress Report.

There were no field investigations this period.

VI PUBLIC RELATIONS

A. Recreational Use.

Although summer travel decreased by the beginning of this period, travel continued into the fall and visitors stopped at refuge headquarters throughout the hunting season. Many people were sight-seeing or photographing birds and animals while others were out on a family ride. Many people came to see the waterfowl concentration on the lake this fall.

The visitors here because of the hunting season are recorded in the section headed Hunting.

B. Refuge Visitors.

See Table VI

C. Refuge Participation.

The refuge Manager attended Kiwanis regular and directors meetings.

The refuge Manager attended the directors meeting of the Malta Public Employees Credit Union.

The refuge Manager gave a slide talk on Alaska Wildlife to the Malta Luthern Brotherhood on October 16.

TABLE VI
REFUGE VISITORS

<u>Date</u>	<u>Name</u>	<u>Affiliation</u>	<u>Address</u>	<u>Purpose</u>
9/27 to 12/22	Elmer Davis	Game Warden MDF&G	Malta, Montana	Numerous visits Info. & pheasant trapping
10/16	Dale Witt	Biologist, MDF&G	Freezeout Lake	Sandhill crane info.
10/16	Ray Buller	Central Flyway Representative USBSFW	Albuquerque, N. Mex.	Sandhill crane info.
10/18	Owen Vivion	Refuge Manager, USBSFW Medicine Lake Nat'l Wlf. Ref.	Medicine Lake, Mont.	Pick up motor
10/18	Alton Waller	Maintenanceman, USBSFW Medicine Lake Nat'l Wlf. Ref.	Medicine Lake, Mont.	Pick up motor
10/21	R. A. Leavitt	Farmer	Spokane, Washington	Pick up combine
10/22	Merle Burge	Sales & Service, Gov't Prod. Div., Kaiser Jeep Corp.	Denver, Colorado	Courtesy call
11/15	W. A. Brann	USGMA, USBSFW	Helena, Montana	Courtesy call
11/15	D. W. Combs	USGMA, USBSFW	Lewistown, Montana	Courtesy call
11/22	Larry Worden	Assist. Refuge Manager Chas. Russell Refuge	Fort Peck, Montana	Courtesy call
12/17	Robert Green	Game Farm Supervisor, MDF&G	Warm Springs Montana	Pheasant trapping
12/18	Larry Worden	Assist. Refuge Manager Chas. Russell Refuge	Fort Peck, Montana	Duck trapping

The refuge Manager gave a slide talk on Alaska Wildlife to the Kiwanis Club on November 5.

The refuge hosted the Malta Luther League on a hay ride on the refuge on October 27.

The refuge hosted the Malta Luthern Church Youth group on a hay ride on December 29.

The refuge personnel cooperated with Montana Fish and Game Department and started a pheasant trapping program to supply the Game Farm at Warm Springs with 200 pheasants.

The refuge Manager and Maintencemen Bates conducted the Christmas Bird Count on December 26.

The refuge Manager assisted the Charles Russell Game Range with patrol activities during the opening days of pheasant season, November 10 and 11.

D. Hunting.

A short duck season, 35 days, included the period October 13 through November 16 and the goose season began on October 6 and continued until December 19. Compared to 1962, this was an additional 10 days of duck season and nearly two weeks of goose hunting. This was a relaxation of the length of season. The season on redhead and canvasback ducks remained closed for the fourth year.

The seasonal bag limits this year included a total of 4 ducks of which not more than two could be mallards and a possession limit of 8, not more than 4 mallards; coot 8, possession limit 16; and geese 5, possession limit 5. The goose daily bag or possession limit could not include more than 1 Ross's goose or in the alternative, 2 Canada geese or subspecies, 1 Canada goose or subspecies and 1 white-fronted goose; or 1 white-fronted goose. This is the first year the limits have allowed the taking of Ross's geese.

The shooting area or the public hunting area was posted prior to the season this year and the checking station was in operation. Information from this station revealed that the number of hunters using the area was the same when the figures on the NR-1C are compared to last year's figures.

The goose season once again started 7 days prior to the duck season, as last year. Table VII shows the number of available hunting days from 1959 through 1963. The duck season in 1961 allowed 30 days hunting compared to 25 in 1962 and 35 in 1963. The waterfowl kill for each year is included in this table.

Hunter kill data for the years 1959 through 1963 are shown in Table VII.

TABLE VII
HUNTER KILL DATA

	<u>1963</u>	<u>1962</u>	<u>1961</u>	<u>1960</u>	<u>1959</u>
No. available hunting days	75	60	42	31	33
No. hunter use days - waterfowl season	323	323	290	402	253
No. hunter use days - duck season	169	117	156		
No ducks bagged	160	95	41	300	250
No. geese bagged	50	56	57	56	48
No. ducks per hunter day	.947	.812	.263	.744	.98
Ave No. hunters per day	5	5	7	15	7

The figures compiled after the 1963 hunting season shows some interesting aspects. Table VII shows an improved success ratio for the duck hunter and this matches the ratio of 1959 but is still below that of previous years. The trend is upward following a low in 1961. The number of days of available hunting in 1963 was 35 days for ducks and in 1959 it was 33 which is nearly the same amount.

The figure showing the number of ducks per hunter day for 1961 was changed on Table VII this year to include only those hunters that hunted during the duck season instead of all hunters using the area.

The goose kill remains about the same but slightly lower than the past 3 years. Records show that the goose kill has been steadily increasing. The number of hunters using the area has been fairly consistent over the period of years records have been kept. Some hunters have learned to hunt the area and are consistently successful. The waterfowl season occurs in Montana when many other seasons are open and the hunting pressure is spread to other game. Hunting pressure is not great on waterfowl as ducks and geese are usually concentrated in the area open to hunting on the refuge throughout the season. With a little effort a limit of ducks could be taken almost anytime while the ducks were here. The number of ducks allowed was not the restrictive element this year as was voiced so strongly during the 1962 season.

Table VIII shows the breakdown of kill by species for the period of 1959 through 1963.

TABLE VIII
KILL BY SPECIES

	<u>1963</u>	<u>1962</u>	<u>1961</u>	<u>1960</u>	<u>1959</u>
Mallards	88	27	36	155	124
Gadwall	15	19		26	6
Pintail	2	22	1	7	18
Green-winged teal	3	8	1	7	3
Blue-winged teal	12			7	2
American Widgeon	14	11	1	15	10
Shoveler	20	5		8	12
Redhead				2	5
Lesser Scaup	2	2	2	1	2
American Goldeneye	2	1			1
Ruddy	2				
	<u>160</u>	<u>95</u>	<u>41</u>	<u>228</u>	<u>183</u>

E. Violations.

There were no known violations this period.

F. Safety Meetings.

Three meetings were held during the period.

There were no lost time accidents during the time covered by this report with 311 man-days worked. At the end of the period, there were 4070 calendar days without a lost time accident.

VII OTHER ITEMS

A. Items of Interest.

A son, Paul Steven, was born to Mr. & Mrs. Eldon L. Bates on September 30, 1963

Mr. William T. Schmidt Jr. terminated his duties on September 20, 1963.

B. Photographs.

Pictures shown on the picture pages were taken by refuge personnel during this period.

SIGNATURE PAGE

Submitted by:

Russell R. Hoffman
(Signature) Russell R. Hoffman

Refuge Manager
(Title)

Date: January 17, 1963

Approved, Regional Office:

Date: FEB 4 1964

Richard E. Griffith
(Signature)

Chief, Division of Wildlife
(Title)

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

WATERFOWL

REFUGE Bowdoin National Wildlife Refuge

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	:9/29-10/5 : 5	:10/6-12 : 6	:10/13-19 : 7	:10/20-26 : 8	:10/27-11/2 : 9	:11/3-9 : 10
Swans:										
Whistling							6	7	65	115
Trumpeter										
Geese:										
Canada	1509	715	1472	2000	1844	1535	1250	1195	4400	4400
Cackling										
Brant										
White-fronted										
Snow									100	
Blue										
Other Total Geese	1509	715	1472	2000	1844	1535	1250	1195	4500	4400
Ducks:										
Mallard	5275	2706	13170	20550	22710	28410	28410	28775	26930	21800
Black										
Gadwall	2296	3805	5325	7525	3850	3700	3700	7225	3400	2625
Baldpate	2460	3892	6990	9650	15377	13377	13377	6600	7925	4820
Pintail	4588	2535	6890	11560	2210	2585	2585	1125	1045	2500
Green-winged teal	4430	1999	5035	6110	6200	6300	6300	6475	5200	5500
Blue-winged teal	3660	2583	1220	1095	490	2520	2520	180		
Cinnamon teal										
Shoveler	2340	4937	4600	7210	2765	3565	3565	5110	5475	5900
Wood										
Redhead	2505	1565	6835	6300	7500	6700	6700	2300	1975	2425
Ring-necked	4									
Canvasback	429	825	220	535	665	510	510	260	470	345
Scaup	1768	1055	1095	2565	2500	4320	4320	6275	4710	5325
Goldeneye			3	5	35	50	50	245	4660	5520
Bufflehead					20	165	165	160	650	625
Ruddy	2545	1460	2070	2840	2500	1100	1100	405	60	110
Other Total Ducks	32300	27362	53453	75945	66822	73302	73302	65135	62500	57495
Coots	2420	4760	13022	15950	16050	16050	16050	6320	345	100

3 -1750a

Cont. NR-1
(Rev. March 1953)WATERFOWL
(Continuation Sheet)REFUGE Bowdoin National WildlifeMONTHS OF September TO December, 1963

(1) Species	(2) Weeks of reporting period								(3) Estimated waterfowl days use	(4) Production Broods: Estimated seen : total
	11/10-16	11/17-23	11/24-30	12/1-7	12/8-14	12/15-21	12/22-28	12/29-1/4		
Swans:	80	40							2,191	
Whistling										
Trumpeter										
Geese:	2800	825	8						167,671	
Canada										
Cackling										
Brant										
White-fronted										
Snow									700	
Blue										
Other Total Geese	2800	825	8						168,371	
Ducks:	8800	2350	260						1,471,022	
Mallard										
Black										
Gadwall	770	70							310,037	
Baldpate	3950								618,926	
Pintail	245								265,076	
Green-winged teal	3450	575							403,018	
Blue-winged teal									99,876	
Cinnamon teal										
Shoveler	3800	125							345,744	
Wood										
Redhead	235								315,280	
Ring-necked									28	
Canvasback	35								33,628	
Scaup	3000	100							259,231	
Goldeneye	5300	500							114,576	
Bufflehead	425	55							15,855	
Ruddy	95								99,995	
Other Total Ducks	30,105	3,775	260						4,352,292	
Coot:	135								638,414	
				(over)						

	(5)	(6)	(7)
	Total Days Use	Peak Number	Total Production
Swans	2,191	115	
Geese	168,371	4500	
Ducks	4,352,292	75,945	
Coots	638,414	16,050	

SUMMARY

Principal feeding areas are Bowdoin Lake unit, SW & SE bays of Bowdoin, Lakeside, Lakeside Extension and Drumbo Lake.

Principal nesting areas

Reported by Russell R. Hoffman

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

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

3-1751

Form NR-1A
(Nov. 1945)

MIGRATORY BIRDS

(other than waterfowl)

Refuge Bowdoin National Wildlife Months of September to December 1956

(1) Species	(2) First Seen		(3) Peak Numbers		(4) Last Seen		(5) Production			(6) Total
Common Name	Number	Date	Number	Date	Number	Date	Number Colonies	Total # Nests	Total Young	Estimated Number
I. <u>Water and Marsh Birds:</u>										
Western Grebe					2	11/12				40
Horned Grebe										100
Eared Grebe					300	10/5				5000
Pied-billed Grebe										50
Double-crested Cormorant					7	10/31				50
White Pelican					5	10/11				200
American Bittern					1	9/21				5
Great Blue Heron					2	11/15				15
Black-crowned Night Heron					1	10/15				30
II. <u>Shorebirds, Gulls and Terns:</u>										
California Gull					15	11/5				4000
Ring-billed Gull					15	11/5				4000
Franklin's Gull					30	10/4				2000
Common Tern					8	9/23				1000
Black Tern					2	9/23				300
Wilson's Phalarope					150	10/7				1500
Avocet					2	11/3				500
Long-billed Dowitcher					20	10/4				1000
Marbled Godwit					8	10/15				2000
Greater Yellowlegs					2	10/31				75
Lesser Yellowlegs					15	10/4				250
Western Willet					35	9/21				1000
Long-billed Curlew					1	10/4				75
Killdeer					2	10/4				1500

(over)

(1)	(2)		(3)		(4)		(5)			(6)
III. <u>Doves and Pigeons:</u>										
Mourning dove					2	10/10			100	
White-winged dove										
IV. <u>Predaceous Birds:</u>										
Golden eagle- Resident			9	10/10					10	
Duck hawk										
Horned owl- Resident			4	9/23					3	
Magpie- Resident			115	9/11					65	
Raven										
Crow	150	10/12	225	10/26	25	11/7				
Bald Eagle	2	10/3			2	10/10				
Reported by <i>Russell R. Hoffman</i> Russell R. Hoffman										

INSTRUCTIONS

- (1) Species: Use the correct names as found in the A.O.U. Checklist, 1931 Edition, and list group in A.O.U. order. Avoid general terms as "seagull", "tern", etc. In addition to the birds listed on form, other species occurring on refuge during the reporting period should be added in appropriate spaces. Special attention should be given to those species of local and National significance. Groups: I. Water and Marsh Birds (Gaviiformes to Ciconiiformes and Gruiformes)
II. Shorebirds, Gulls and Terns (Charadriiformes)
III. Doves and Pigeons (Columbiformes)
IV. Predaceous Birds (Falconiformes, Strigiformes and predaceous Passeriformes)
- (2) First Seen: The first refuge record for the species for the season concerned.
- (3) Peak Numbers: The greatest number of the species present in a limited interval of time.
- (4) Last Seen: The last refuge record for the species during the season concerned.
- (5) Production: Estimated number of young produced based on observations and actual counts.
- (6) Total: Estimated total number of the species using the refuge during the period concerned.

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

WATERFOWL HUNTER KILL SURVEY

Refuge Bowdoin

Year 1963

(1) Weeks of Hunting	(2) No. Hunters Checked	(3) Hunter Hours	(4) Waterfowl Species and Nos. of Each Bagged	(5) Total Bagged	(6) Crippling Loss	(7) Total Kill	(8) Est. No. of Hunters	(9) Est. Total Kill
1	145	931	C. Goose (29)	29	15	44	149	46
2*	59	299	C. Geese (1), Mallard (13), Gadwall (6), Am. Widgeon (4), BW Teal (11), GW Teal (2), Shoveler (5), <u>Ducks (41)</u>	42	18	60	60	62
3*	20	130	C. Geese (5), Mallard (17), Gadwall (6), Pintail (2), GW Teal (1), Shoveler (5), L. Scaup (1), Ruddy (1), <u>Ducks (33)</u>	38	15	53	20	53
4*	23	122	C. Geese (6), Mallard (12), Widgeon (3), Shoveler (1), <u>Ducks (16)</u>	22	12	34	23	34
5*	26	143	C. Geese (3), Mallard (21), Widgeon (6), Shoveler (5), Goldeneye (2), <u>Ducks (34)</u>	37	15	52	26	52
6*	41	207	C. Geese (2), Mallard (25), Gadwall (3), Am. Widgeon (1), BW Teal (1), Shoveler (4), L. Scaup (1), Ruddy (1), <u>Ducks (36)</u>	38	20	58	43	60
<u>7</u> 7	<u>9</u> 323	<u>66</u> 1898	C. Geese (4)	<u>4</u> 210	<u>4</u> 99	<u>8</u> 309	<u>9</u> 330	<u>8</u> 315

Duck Season - Oct. 13 - Nov. 16 - Start first day of 2nd week and end last day of 6th week.
Total hunters 169, hunter hours 901.

(over)

INSTRUCTIONS

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

3-1752
Form NR-2
(April 1946)

UPLAND GAME BIRDS

Refuge Bowdoin National Wildlife

Months of September to Decembet, 1963

(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'v'd.	Estimated Total	Percentage	Hunting	For Re- stocking	For Research	Estimated number using Refuge	Pertinent information not specifically requested. List introductions here.
Sage grouse	8000	80							100	
Ring-necked Pheasant	2500	1.25			1M:2.5F				2000	
Gray Partridge	8000	53.3							150	
Sharptailed grouse	1000	25							40	

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 Bowdoin National Wildlife

Calendar Year 1963

(1) Species	(2) Density	(3) Young Produced	(4) Removals				(5) Losses			(6) Introductions		(7) Estimated Total Refuge Population		(8) Sex Ratio
Common Name	Cover types, total Acreage of Habitat	Number	Hunting	For Re- stocking	Sold	For Research	Predation	Disease	Winter Loss	Number	Source	At period of Greatest use	As of Dec. 31	
Pronghorn	8,000	50										135	125	22M 47F 50Kids
Mule deer	Transient use	1										2	0	
White-tailed deer	" "	2										3	0	

Remarks:

Reported by Russell R. Hoffman
Russell R. Hoffman

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 Bowdoin National Wildlife

Year 1963

Botulism

Lead Poisoning or other Disease

Period of outbreak 7/28 to 9/21/63

Period of heaviest losses 7/28 to 8/17, 9/20/63

Losses:

	Actual Count	Estimated
(a) Waterfowl	<u>497</u>	<u>1600</u>
(b) Shorebirds	<u> </u>	<u>75</u>
(c) Other	<u> </u>	<u> </u>

Number Hospitalized	No. Recovered	% Recovered
10	10	100
20	18	90
30	25	83
40	35	87
50	45	90
60	55	91
70	65	92
80	75	93
90	85	94
100	95	95

(a) Waterfowl	<u>184</u>	<u>77</u>
(b) Shorebirds	<u> </u>	<u> </u>
(c) Other	<u> </u>	<u> </u>

Areas affected (location and approximate acreage)			
SW Bay Bowdoin	200 Acres	Bowdoin	50 Acres
SE Bay Bowdoin	300 Acres	Borrow Pit Dry Lake	10 Acres

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

1 to 6 feet

Condition of vegetation and invertebrate life Good

Remarks Filamentous Algae prevalent over effected area,
especially in vegetative slicks.

Kind of disease

Species affected

Number Affected		
Species	Actual Count	Estimated

Number Recovered

Number lost

Source of infection

Water conditions

Food conditions

Remarks _____

PUBLIC RELATIONS
(See Instructions on Reverse Side)

Refuge BowdoinCalendar Year 1963

1. Visits

a. Hunting 323 b. Fishing none c. Miscellaneous 17,000 d. TOTAL VISITS 17,323

1a. Hunting (on refuge lands)

TYPE	HUNTERS	ACRES	MANAGED BY
Waterfowl	<u>323</u>	<u>4220</u>	<u>BSFW</u>
Upland Game	<u>0</u>	<u>0</u>	
Big Game	<u>0</u>	<u>0</u>	
Other	<u>0</u>	<u>0</u>	

Number of permanent blinds 0Man-days of bow hunting included above 0

Estimated man-days of hunting on lands adjacent to
refuge 2500

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

TYPE OF AREA	ACRES	MILES
Ponds or Lakes	<u>0</u>	<u>0</u>
Streams and Shores	<u>0</u>	<u>0</u>

1c. Miscellaneous Visits

Recreation 16,800 Official 125Economic Use 75 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	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
Bird and Garden Clubs	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
Schools	<u>4</u>	<u>150</u>	<u>5</u>	<u>1,510</u>
Service Clubs			<u>4</u>	<u>200</u>
Youth Groups			<u>1</u>	<u>100</u>
Professional-Scientific	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
Religious Groups	<u>4</u>	<u>195</u>	<u>1</u>	<u>20</u>
State or Federal Govt.	<u>1</u>	<u>5</u>		
Other				

3. Other Activities

TYPE	NUMBER	TYPE	NUMBER
Press Releases	<u>4</u>	Radio Presentations	<u>0</u>
Newspapers (P.R.'s sent to)	<u>2</u>	Exhibits	<u>1</u>
TV Presentations	<u>0</u>	Est. Exhibit Viewers	<u>100</u>

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
(Rev. June 1960)

(1)

NONAGRICULTURAL COLLECTIONS, RECEIPTS, AND PLANTINGS

Refuge Bowdoin National Wildlife Refuge Year 19 63

Species	Collections and Receipts (Seeds, rootstocks, trees, shrubs)						Plantings (Marsh - Aquatic - Upland)						
	Amount (Lbs., bus., etc.)	(2) C or R	Date	Method or Source	Cost	(3) Total Amount on Hand	Location of Area Planted	Rate of Seeding or Planting	Amount Planted (Acres or Yards of Shoreline)	Amount and Nature of Propagules	Date	Survival	Cause of Loss
Scirpus paludosis	250 500	R R	3/25 7/18		.019	1900#							

- (1) Report agronomic farm crops on Form NR-8
(2) C = Collections and R = Receipts
(3) Use "S" to denote surplus

Remarks: On hand at beginning of year —2650#

Total acreage planted:

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

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

Fish and Wildlife Service Branch of Wildlife Refuges

CULTIVATED CROPS - HAYING - GRAZING

Refuge Bowdoin National Wildlife County Phillips State Montana

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			
Spring wheat					10	250	10	Spring wheat	10
Sp. wheat & barley					15	450	15	Sp. wheat & barley	15
Alfalfa			3	1	6	2		Alfalfa	9

No. of Permittees: Agricultural Operations 0 Haying Operations 0 Grazing Operations 13

Hay - Improved (Specify Kind)	Tons Harvested	Acres	Cash Revenue	GRAZING	Number Animals	AUM'S	Cash Revenue	ACREAGE
Alfalfa	1	3	\$12.00	1. Cattle	392	926.93	\$1390.40	5470
				2. Other Horses	29	116.00	116.00	1000
				1. Total Refuge Acreage Under Cultivation				60
Hay - Wild				2. Acreage Cultivated as Service Operation				60

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 Bowdoin National Wildlife Calendar Year 1963

Facilities

Picnic areas: areas 0 tables 0 fireplaces 0 toilets 0

drinking water 0 shelters 0

Swimming: designated areas 0 bathhouses 0

Boating: launching sites 1 rental facilities 0

service facilities 0

are motors allowed yes maximum horsepower 0
During waterfowl hunting season only.

Camping: permitted 0 or not permitted 0

tent camps 0 total capacity 0

group camps 0 total capacity 0

hunter camps 0 total capacity 0

trailer camps 0

lodges 0 capacity 0

cabins 0 motels 0 total units 0

Tours: Season Summer frequency intermittent

self-guided nature trails 0 is trail leaflet available yes

self-guided auto tour route yes is tour leaflet available no

Access points: estimate number in public use 6
(Turnouts on highway)

General - Brief statement of two to five lines on recreational opportunities available on refuge (suitable for inclusion in refuge leaflets or briefing reports).

Area affords excellent opportunities for sight-seeing, wildlife observation, and photography. Hunting is permitted for waterfowl on designated portions of the refuge.

(Over)

INSTRUCTIONS

Supply numbers wherever appropriate. These may be estimated if necessary.

Where operation and maintenance is supervised by this Bureau, but the responsibility of a concessioner, group or agency, indicate by a single *. Where supervision of such activities is by another Federal Bureau indicate by two **.

3-1570
NR-8a
(4/54)

REFUGE GRAIN REPORT

Refuge Bowdoin

Months of September through December, 1963

(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
Spring Wheat	250	0	250	0	20	130	150	100	20	80	0
Winter Wheat	45	0	45	0	0	0	0	45	45	0	0
Barley	127	0	127	0	10	0	10	117	20	97	0

(8) Indicate shipping or collection points _____

(9) Grain is stored at Bowdoin Refuge grainery

(10) Remarks _____

*See instructions on back.

REFUGE GRAIN REPORT

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

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

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

3-1979 (NR-12)
(9/63)

Bureau of Sport Fisheries and Wildlife

Refuge

ANNUAL REPORT OF PERSTICIDE APPLICATION

Bowdoin National Wildlife

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)
Oct. 31 & Nov. 12	C. thistle Kochia (fireweed) Wheat grasses Can. rye grasses Milkweed Sweet clover	Road edges - head- quarters, areas at base of refuge entrance and information signs	2.75	Trysben	55 gal.	20 gal. per acre	Water 1 to 10 (550 gal)	Spray

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

Cost -- \$1.83 per gallon or \$100.49, labor costs, 6 hours -- \$16.62.

First application to sterilize soil around refuge entrance and information signs and along edges of roadway and courtyard of headquarters to eliminate vegetation that creates constant maintenance through the summer. This was applied according to recommendations by Phillips County Weed Control Agent and the results will not be known until after the growing period next summer. No other chemicals were applied last year.

DEC 1963



Additional drainfield was built to sewage system for quarters #1 and #3. Roll 133, Exp, 4

DEC 1963



Dumping gravel into lateral drainfield addition.
Roll 133 Exp.8



DEC 1963

Horses wintering on grazing lease G-5, Drumbo.
Roll 133, Exp. 0



DEC 1963

Concentration of mallards at opening of ice just before
freezing and just prior to leaving. Roll 133, Exp. 2

NARRATIVE REPORT

BLACK COULEE NATIONAL WILDLIFE REFUGE

September through December 1963

I GENERAL

A. Weather Conditions.

No weather station is operated in this area, please refer to the Bowdoin Report.

B. Habitat Conditions.

Rain was adequate in the area as evidenced by the good grain harvest and excellent grass cover on the hills. There was no surplus runoff for storage.

Black Coulee Lake held a satisfactory amount of water this summer and into this period. Bulrush stands remain dense at the head of the two arms and along some of the shoreline. Aquatics also flourished in the lake and produced not only a variety but abundant food for waterfowl. This was evidenced by their feeding habits on the lake.

The upland vegetation produced excellent forage during the summer and this remained on the slopes into this period. Grass was short in the portion grazed this summer.

The surface of the lake was about two-thirds frozen on the last visit on November 8. Birds were using the open area and walking around on the ice.

The level of the lake was about $1\frac{1}{2}$ feet below the overflow on the dike in November.

C. Fires.

There were no fires on the refuge this period.

II. WILDLIFE

A. Migratory Birds.

The waterfowl days use this fall was down somewhat from the same period last year. The total days use for ducks of 274,190 was lower than the 387,555 days use last year. Goose use of 7,350

days was almost one-half of the total days use of 16,695 found last year in the fall. Total days use for coot found to be 3570 days was about one-third of last year's figures of the use days of the refuge. This was 9,520 days.

Geese used the area but utilized the grain fields in the surrounding country. Flights from the lake to the feeding fields were commonly seen.

B. Other Birds.

Sage grouse were seen on every visit to Black Coulee Refuge this fall. Young birds were noted in September using the area around the spillway.

IV. RESOURCE MANAGEMENT

A. Grazing.

Two grazing permits were issued for this refuge this period. Mr. William Helgesen was issued permit number Bow #1 for 17 horses for 107.67 A.U.M. on 600 acres. Mr. Guy Riggin was issued an on-off permit number Bow #3 for 320 acres at \$0.15 per acre. This permit is in effect until June 30, 1964.

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

W A T E R F O W L

REFUGE Black Coulee National Wildlife

MONTHS OF September TO December, 19 63

(1) Species	(2) Weeks of reporting period									
	: 9/1-7	: 9/8-14	: 9/15-21	: 9/22-28	: 9/29-10/5	: 10/6-12	: 10/13-19	: 10/20-26	: 10/27-11/2	: 11/3-9
	: 1	: 2	: 3	: 4	: 5	: 6	: 7	: 8	: 9	: 10
Swans:										
Whistling										
Trumpeter										
Geese:										
Canada	50	50	50	50	50	100	100	100	100	100
Cackling										
Brant										
White-fronted										
Snow										
Blue										
XXXXXX Other Total Geese	50	50	50	50	50	100	100	100	100	100
Ducks:										
Mallard	500	500	500	500	500	750	1,000	1,000	1,000	1,000
Black										
Gadwall	150	150	150	150	150	150	300	300	200	200
Baldpate	150	150	150	150	300	700	1,200	1,200	1,000	1,000
Pintail	650	650	650	600	600	600	600	600	400	300
Green-winged teal	300	300	300	300	300	300	400	400	400	400
Blue-winged teal	800	800	800	800	800	500	150	150		
Cinnamon teal										
Shoveler	250	250	250	250	250	250	300	300	300	300
Wood										
Redhead	250	250	200	200	200	200	100	100	100	100
Ring-necked										
Canvasback	50	50	50	50	25	25	25	25	25	25
Scaup	85	85	85	85	85	50	50	50	50	50
Goldeneye							15	15	15	25
Bufflehead							25	25	25	25
Ruddy	100	100	100	100	100	75	75	50	20	20
XXXXXX Other Total Ducks	3,285	3,285	3,235	3,185	3,310	3,600	4,240	4,215	3,535	3,445
Coots	60	60	60	60	60	60	25	25	25	25

3 -1750a

Cont. NR-1

(Rev. March 1953)

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

REFUGE Black Coulee National WildlifeMONTHS OF September TO December, 19 63

(1) Species	(2) Weeks of reporting period								(3) Estimated waterfowl days use	(4) Production : Broods: Estimated : seen : total	
	11/10-16 11	11/17-23 12	11/24-30 13	12/1-7 14	12/8-14 15	12/15-21 16	12/22-28 17	12/29-1/4 18			
Swans:											
Whistling											
Trumpeter											
Geese:											
Canada	100	100	100						7,350		
Cackling											
Brant											
White-fronted											
Snow											
Blue											
OTHER Total Geese	100	100	100						7,350		
Ducks:											
Mallard	500	300	100						57,050		
Black											
Gadwall	200	150	50						16,100		
Baldpate	500	125	25						46,550		
Pintail	200	200							42,350		
Green-winged teal	250	250	25						27,475		
Blue-winged teal									33,600		
Cinnamon teal											
Shoveler	300	300	50						23,450		
Wood											
Redhead	50	15							12,355		
Ring-necked											
Canvasback	10	5							2,555		
Scaup	25								4,900		
Goldeneye	50	15	15						1,050		
Bufflehead	25	25	25						1,225		
Ruddy	20	20	10						5,530		
OTHER Total Ducks	2,130	1,405	300						274,190		
Coot:	25	25							3,570		
				(over)							

	(5) Total Days Use	(6) Peak Number	(7) Total Production
Swans	None	None	None
Geese	7,350	100	
Ducks	274,190	4,215	
Coots	3,570	60	

SUMMARY

Principal feeding areas Black Coulee Lake and marsh areas,
and fields surrounding refuge.

Principal nesting areas _____

Reported by

Russell R. Hoffman
Russell R. Hoffman

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

Fish and Wildlife Service Branch of Wildlife Refuges

Refuge	Black Coulee National Wildlife	County	Blaine	State	Montana
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No. of Permittees:	Agricultural Operations	Haying Operations	Grazing Operations	2
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Hay - Improved (Specify Kind)	Tons Harvested	Acres	Cash Revenue	GRAZING	Number Animals	AUM'S	Cash Revenue	ACREAGE
				1. Cattle	320 acres	.15 per ac.	\$48.00	320
				2. Other Horses	17	107.67	40.38	600
				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.

NARRATIVE REPORT

CREEDMAN COULEE NATIONAL WILDLIFE REFUGE

September through December 1963

I. GENERAL

A. Weather Conditions.

No weather station is maintained on the area, please refer to the Bowdoin report. The drought still persists in this part of Montana and precipitation was very limited this period as it was last summer. Rains came during the summer months at the right time for growth of an average grain crop. Winter wheat planted was beginning to show a green growth this fall despite the dry weather. No excess water was available for storage in the lake. Strong winds and warm weather increased the evaporation rate helping to lower the water level.

B. Habitat Conditions.

The water level of Creedman Coulee Lake was $4\frac{1}{2}$ feet below the automatic weir this fall. This is the lowest it has been for some time. Birds used this lake all of this period that it was not frozen. Except for a long narrow opening in the center, the lake had an ice cover by November 8 this year.

With the lowered water level in the lake, a greater amount of mud flats ~~was~~ exposed. Birds feeding upon fish used the lake all fall showing that a fish population persisted in these waters.

Aquatics in the lake furnished food for the variety of birds using the refuge this fall. The swale area below and east of the lake provided dense cover and food for many forms of wildlife. Vegetation on the upland was only in fair shape with the restricted grazing this year.

C. Fires.

No fires occurred on the refuge this period.

II. WILDLIFE

A. Migratory Birds.

The refuge has had less use by migratory birds this fall as compared to last year and many other years. The total use by ducks

this fall was 42,385, geese 16,275 and coots 2,800 days. Last fall during the same period the total days use by ducks was 166,425, geese 57,813 and coots 4,550 days. The use of the refuge is in direct proportion to the water available and the comparatively low use figure brings this out. Water areas are lacking in the surrounding country as during the past three years. A factor to consider is the shift of the migration of birds to areas where water is abundant.

B. Other Wildlife.

Pelican and great blue heron were seen on the lake at each visit. Other birds commonly seen included the western grebe, godwits, willets and killdeer. Two golden eagles were seen on one visit.

Pheasants were reported using the area in previous reports and these birds were still seen in the thickets below the lake. Rabbits and hare were common. Six antelope used the refuge during the entire period but no deer were seen this fall.

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

W A T E R F O W L

REFUGE Creedman Coulee National Wildlife

MONTHS OF September TO December, 1963

(1) Species	(2) Weeks of reporting period									
	9/1-7	9/8-14	9/15-21	9/22-28	9/29-10/5	10/6-12	10/13-19	10/20-26	10/27-11/2	11/3-9
	1	2	3	4	5	6	7	8	9	10
Swans:										
Whistling										
Trumpeter										
Geese:										
Canada	150	150	150	150	150	200	250	250	250	250
Cackling										
Brant										
White-fronted										
Snow										
Blue										
Other Total Geese	150	150	150	150	150	200	250	250	250	250
Ducks:										
Mallard	200	200	200	150	150	100	35	35	35	35
Black										
Gadwall	50	50	50	50	50	50	15	15	15	15
Baldpate	50	50	50	50	50	50	25	25	25	25
Pintail	125	125	100	100	50	50	25	25	25	25
Green-winged teal	50	50	75	75	50	50	10	10	10	10
Blue-winged teal	125	125	100	100	50	50	5	5		
Cinnamon teal										
Shoveler	35	35	35	35	50	50	15	15	15	15
Wood										
Redhead	100	100	100	75	75	25	5	5	5	5
Ring-necked										
Canvasback	50	50	50	50	25	10	5	5		
Scaup	130	125	125	100	50	25	5	5	5	5
Goldeneye							25	25	25	25
Bufflehead							20	20	20	20
Ruddy	75	75	75	50	50	25	5			
Other Ducks-Total	990	985	960	835	650	485	195	190	180	180
Coots	60	60	60	60	50	50	10	10	10	10

3 -1750a

Cont. NR-1
(Rev. March 1953)WATERFOWL
(Continuation Sheet)REFUGE Creedman Coulee National WildlifeMONTHS OF September TO December, 1963

(1) Species	(2) Weeks of reporting period								(3) Estimated waterfowl days use	(4) Production Broods: Estimated seen : total	
	11/10-16: 11	11/17-23: 12	11/24-30: 13	12/1-7: 14	12/8-14: 15	12/15-21: 16	12/22-28: 17	12/29-1/4: 18			
Swans:											
Whistling											
Trumpeter											
Geese:											
Canada	250	100	25						16,275		
Cackling											
Brant											
White-fronted											
Snow											
Blue											
Other	250	100	25						16,275		
Ducks:											
Mallard	35	35	25						8,645		
Black											
Gadwall	15								2,625		
Baldpate	25	25							3,150		
Pintail	25								4,725		
Green-winged teal	10	10	10						2,940		
Blue-winged teal									3,920		
Cinnamon teal											
Shoveler	15	15							2,310		
Wood											
Redhead	5	5							3,535		
Ring-necked											
Canvasback									1,715		
Scaup	5	5	5						4,130		
Goldeneye	25	25	25						1,225		
Bufflehead	20	20	20						980		
Ruddy									2,485		
OTHER Total Ducks	180	140	85						42,385		
Coot:	10	10							2,800		

(over)

	(5)	(6)	(7)
	Total Days Use	Peak Number	Total Production
Swans	None	None	
Geese	16,275	250	
Ducks	42,385	990	
Coots	2,800	60	

SUMMARY

Principal feeding areas are Creedman Lake

Principal nesting areas

Reported by Russell R. Hoffman

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).

NARRATIVE REPORT

HEWITT LAKE NATIONAL WILDLIFE REFUGE

September through December 1963

I. GENERAL

A. Weather Conditions.

Please refer to the Bowdoin Report as no weather station is maintained on this area.

B. Habitat Conditions.

Runoff was adequate this spring to fill the lake basin and rain was average this year providing good water conditions in the refuge for migratory birds. The level of water dropped through the period from evaporation until just the west end of the lake remained partially full of water. This is the deepest part of the lake and is influenced some by water from springs in a valley west of the lake.

A fair cover of vegetation exists around the lake and on the slopes of the hills. Some areas of very thick cover is found in spots along the shoreline of the lake. This provides excellent habitat for birds and animals.

II. WILDLIFE

A. Migratory Birds.

Birds used this refuge again during the migration but not to the extent of last year. This was partly due to the water level that receded decreasing the area of the lake. The total duck days use for this year was 83,720, geese 2,625 and coots 5,425 days. Compared to 1962 when the duck days use was computed to be 177,240 and geese 53,550 days, this is considerably less.

Grebes, curlews and godwits were commonly seen as was the striking avocet in the area before they migrated this fall. Long-billed curlews used the areas to a greater extent this summer and fall than in previous years. The abundant cover was an important factor.

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

W A T E R F O W L

REFUGE Hewitt Lake National Wildlife

MONTHS OF September TO December, 1963

(1) Species	(2) Weeks of reporting period									
	9/1-7	9/8-14	9/15-21	9/22-28	9/29-10/5	10/6-12	10/13-19	10/20-26	10/27-11/2	11/3-9
	1	2	3	4	5	6	7	8	9	10
Swans:										
Whistling										
Trumpeter										
Geese:										
Canada	35	35	35	35	35	20	20	20	40	40
Cackling										
Brant										
White-fronted										
Snow										
Blue										
Other Total Geese	35	35	35	35	35	20	20	20	40	40
Ducks:										
Mallard	300	300	300	300	200	100	100	100	100	100
Black										
Gadwall	200	200	200	200	100	50	50	25	25	25
Baldpate	250	250	200	200	200	50	50	40	40	40
Pintail	300	300	250	250	150	25	25	20	20	20
Green-winged teal	200	200	150	150	150	75	75	35	35	35
Blue-winged teal	300	300	250	250	200	100	100			
Cinnamon teal										
Shoveler	500	500	300	300	300	150	150	100	100	100
Wood										
Redhead	25	25	10	10						
Ring-necked										
Canvasback	10	10								
Scaup	150	150	75	75	50	20	20	20	20	20
Goldeneye								5	5	5
Bufflehead										
Ruddy	20	20	10	10						
Other Total Ducks	2,255	2,255	1,745	1,745	1,350	570	570	345	345	345
Coots	100	100	100	100	75	75	75	50	50	25

Cont. NR-1
(Rev. March 1953)

WATERFOWL
(Continuation Sheet)

MONTHS OF September TO December, 1963

(1) Species	(2) Weeks of reporting period								(3)	(4)	
	11/10-16: 11	11/17-23: 12	11/24-30: 13	12/1-7: 14	12/8-14: 15	12/15-21: 16	12/22-28: 17	12/29-1/4: 18	Estimated waterfowl days use	Production Broods:Estimated seen : total	
Swans:											
Whistling											
Trumpeter											
Geese:											
Canada	40	20							2,625		
Cackling											
Brant											
White-fronted											
Snow											
Blue											
Other Total Geese	40	20							2,625		
Ducks:											
Mallard	100	20							14,140		
Black											
Gadwall	25								7,700		
Baldpate	40								9,520		
Pintail	20								9,660		
Green-winged teal	35	20							8,120		
Blue-winged teal									10,500		
Cinnamon teal											
Shoveler	100	25							18,375		
Wood											
Redhead									490		
Ring-necked											
Canvasback									140		
Scaup	20	20							4,480		
Goldeneye	5	5							175		
Bufflehead											
Ruddy									420		
Other Total Ducks	345	90							83,720		
Coot:	25								5,425		

(over)

	(5)	(6)	(7)
	Total Days Use	Peak Number	Total Production
Swans	None	None	
Geese	2,625	40	
Ducks	83,720	2,255	
Coots	5,425	100	

SUMMARY

Principal feeding areas are Hewitt Lake

Principal nesting areas _____

Reported by Russell R. Hoffman

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.
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- (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).

NARRATIVE REPORT

THIBADEAU NATIONAL WILDLIFE REFUGE

September through December 1963

I. GENERAL

The area has been dry during the entire period.

This area was visited once during the period and no wildlife was seen. The upland vegetation is in fair condition and game trails indicate a use. Game birds and animals should find suitable habitat in places here. Birds and animals indigenous to the area no doubt have used the refuge this period.