

BOWDOIN

NARRATIVE REPORT

JANUARY-DECEMBER 1964

(1)
Division of Wildlife Refuges
Narrative Report Routing Slip

Refuge BOWDOIN Year 1964

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NARRATIVE REPORT

BOWDOIN NATIONAL WILDLIFE REFUGE

CREEDMAN COULEE
LAKE THIBADEAU
BLACK COULEE
HEWITT LAKE

January 1 to December 31, 1964

REFUGE PERSONNEL

Russell R. Hoffman	Refuge Manager
Eldon L. Bates	Maintenanceman II
	Transferred 9/15/64
Rene R. DeMontigny	Maintenanceman I
Henry C. Engstrand	Maintenanceman I
	Entered on duty 10/25/64
Dorothy H. Garland	Clerk-Typist
Wm. T. Schmidt Jr.	Student Trainee

TEMPORARY PERSONNEL

Lester Knapp	5/18/64 to 10/4/64
Willard N. Brandon	5/15/64 to 11/7/64

UNITED STATES DEPARTMENT OF THE INTERIOR

FISH AND WILDLIFE SERVICE

BUREAU OF SPORT FISHERIES AND WILDLIFE

Malta, Montana

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NARRATIVE REPORT

BOWDOIN NATIONAL WILDLIFE REFUGE

January 1 to December 31, 1964

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 forty years period, 1909 through 1949. The normal precipitation averages are from records including the period 1909 through 1958.

Precipitation recorded this year at 12.13 was slightly below the average compared to the fifty year period and nearly the same as last year which was 12.20 inches.

Table I compares weather data for 1964 and 1963 and shows the deviations from normals. Except for December, the precipitation pattern this year is nearly the same as last year with June recording more rainfall than any other month. December precipitation was considerably higher. Snow accumulation in depth on the ground by the end of the year amounted to 12 inches although 18 inches had been recorded during the last two months.

Monthly temperatures for the year 1964 were about average with six months below and six months above normal as shown in Table I. This table also compares temperatures for the last two years. January and February were warmer than usual and December much colder. This shows a comparison of the two winters.

Generally weather conditions included strong winds most of the year. One severe storm occurred this year in December when gale velocity winds caused a blizzard with temperatures dropping to 31 degrees below zero. This lasted for nearly three days and many head of livestock succumbed to this storm. Residents in town who have lived here many years state that they have never seen a storm equal to this. The last storm comparable in snow depth occurred in 1949-50.

B. Habitat Conditions.

1. Water

Snow that had accumulated this past winter produced little runoff. Very little water was gained in any unit this spring from

TABLE I

ANNUAL WEATHER DATA

Month	Precip.	Temperatures (degrees F.)				
	Inches	Max.	Min.	Ave.	Norm.	*Dev.
<u>1964</u>						
Jan.	.16	33.9	12.2	23.0	12.0	11.0
Feb.	.08	40.0	19.6	29.8	14.9	14.9
Mar.	.39	41.6	14.5	28.1	28.4	- .3
Apr.	1.29	39.1	31.2	45.1	44.9	.2
May	2.05	70.9	43.0	56.9	55.8	1.1
June	3.37	75.8	49.7	62.7	63.7	- 1.0
July	1.36	89.5	56.8	73.1	71.2	1.9
Aug.	1.64	81.6	48.9	65.5	68.2	- 2.7
Sept.	.31	67.4	39.1	53.2	57.3	- 4.1
Oct.	.16	66.8	31.6	49.2	45.5	3.7
Nov.	.18	41.6	13.3	27.4	29.2	- 1.8
Dec.	<u>1.14</u>	<u>11.0</u>	<u>-10.0</u>	<u>.5</u>	<u>16.6</u>	<u>-16.1</u>
Totals	12.13	54.9	29.1	42.9	42.3	6.8
<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	21.17	75	9.9	42.9	42.3	.6

* Deviation

from natural conditions. In fact, the reverse occurred when warm "chinook" winds brought thawing temperatures to melt surfaces of the ice and cause some evaporation. Loss of water by seepage or by any other way was not gained back by melting snow or subsequent rains. Lakeside and Dry Lake units lost water over winter but Bowdoin held the same level. This was due to evaporation and seepage and was in direct proportion to amount of watershed in each unit which gathered whatever runoff occurred. Water was not available to the refuge from the Malta Irrigation District this spring.

Bowdoin Lake opened partially during the first week of April but other units remained frozen until April 16. Ice did not completely disappear until the third week of April.

Lake levels were below operational stages this spring. Bowdoin was .4 of a foot, Lakeside was one foot, and Dry Lake was .6 of a foot below spring levels. These levels dropped continually all summer. Some water became available during the middle of July and this was added to Lakeside as the level was too low for bait trapping of ducks. Lakeside Extension was left to recede to expose shore line for projection trapping. Water was again added at Lakeside during the second week of August to maintain levels. This manipulation was correct as the trapping program was successful to nearly fill quotas.

All units were filled in September and October to operational levels by addition of water from the Malta Irrigation District. A total of 11,540 acre-feet of water was added this way. This fall repairs were necessary to the water supply wasteway and these were accomplished by the Irrigation District during the last week of September. There was concern that water flowing from the canal might work into spaces formed from the sides pulling away from the bottom and wash out the entire structure. After repairs were accomplished, water was turned on at a velocity that never before has been exceeded. Because of the late date for purchasing water, a possibility existed that things might freeze before lakes were filled. Water was added to Dry Lake through Lakeside Unit and Bowdoin canal to speed delivery. Water was turned off 12 days before all units froze on November 15. Table II compares gauge readings for 1964 and 1963.

With the amount of snow on the ground in December, a good chance exists that the units will be filled to capacity or overflowing from runoff. This is also true of small ponds and reservoirs in the area that have dried during the summer because of a lack of runoff this past spring.

Heavy rains south of Bowdoin brought high water in the Beaver Creek watershed and put water to the flashboards at Dry Lake structure. This level remained at freeze-up so the possibility is good for water from this watershed this spring to help fill Dry Lake and Bowdoin.

TABLE II

ANNUAL GAUGE READINGS

<u>End of Month</u>	<u>Bowdoin Unit</u>	<u>Lakeside Unit</u>	<u>Dry Lake Unit</u>
---------------------	---------------------	----------------------	----------------------

1964

Jan.	Frozen	Frozen	Frozen
Feb.	Frozen	Frozen	Frozen
Mar.	Frozen	Frozen	Frozen
Apr.	2206.54	2223.00	2205.90
May	2206.29	2222.74	2205.80
June	2206.29	2222.38	2205.80
July	2206.85	2223.45	2205.48
Aug.	2205.34	2223.34	2205.10
Sept.	2205.10	2224.80	2204.85
Oct.	2206.50	2224.80	2206.35
Nov.	Frozen	Frozen	Frozen
Dec.	Frozen	Frozen	Frozen

1963

Jan.	Frozen	Frozen	Frozen
Feb.	Frozen	Frozen	Frozen
Mar.	2206.90	2222.55	2205.80
Apr.	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
Aug.	2205.88	2224.22	2205.50
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

2. Food and Cover

Food was plentiful all year on the refuge until December when a severe blizzard drifted snow to a depth unequaled for many years. Temperatures remained low so that snow did not melt. After the first blizzard, strong winds did not occur and blow snow from fields to expose available food for wildlife. A small amount of supplementary feeding was necessary by the end of the year but a serious condition did not exist as food had not all been depleted and was still available, to an extent. Russian olives provided food for pheasants, sharp-tailed grouse and partridge. Some of the grain left standing is above the snow. Hay piled in fields has been used by antelope and should last for several months. Marsh plants were available through the snow. In the event of a thaw, food would again appear plentiful for all winter. Wildlife, especially antelope, prefer natural foods and will leave supplements that are provided at the first opportunity.

With an average amount of rainfall during the growing period, vegetation grew to usual expectations. Cover for wildlife was not lacking. Grass did well and flourished providing excellent forage for domestic livestock and wildlife.

Vegetation in low areas and marshes provided the usual excellent food and cover for a variety of wildlife. Bulrush grew thick and in some places, rank, forming the characteristic cover, especially in Southwest Bay of Bowdoin Lake. Lack of water retarded the growth of bulrush in Dry Lake this summer. A large number of ducks concentrated again this fall at the head of Southeast Bay when patches of three-square were flooded with water.

Early in spring, widgeon grass began its growth in Bowdoin Lake and was well along when ice disappeared. This aquatic became dominant until summer when it was overshadowed by sago pondweed. Sago again grew profusely throughout the lake forming extensive "slicks" comparable to last year. The appearance of these sago "slicks" was entirely different this year as the filamentous algae was absent. A cold spell in summer retarded growth of new algae and winds dispersed any that had already formed. Existing evidence was revealed by windrows of dried plant material along shore. Lack of this algae growth was pleasantly accepted.

Shelterbelts were irrigated in spring and fall. This extra water helped produce excellent growth and a healthy condition to force more fruit on trees and shrubs. The abundant food was utilized this fall and heavily cropped during December. The Russian olive proved to be the most used late in fall but caragana, plum, and chokecherry were taken when available.

Cereal grains planted as food patches provided oats, wheat, and barley for wildlife even after winter snow covered food that fell

or grew low to ground level. Grain had not been knocked down so some was left stand with heads above snow level. Wheat and barley in surrounding fields was used extensively all fall by waterfowl. The marsh at the head of Southwest Bay of Bowdoin Lake provided ample forage for antelope through winter and this was chosen even over the supplied grain or hay.

II. WILDLIFE

A. Migratory Birds.

Total days use by ducks this year was 28% higher as compared to 1963. Total days use by geese was computed to be 88% higher this year. Table III and NR-1 shows a total days use for ducks to be 9, 872,457. This year's nesting population was 20,675 birds. The figures reveal that 1,225 Canada geese remained during the nesting season and a total days use of 556,444 this year.

Peak numbers of geese were higher compared to last year and a greater number remained here during fall. This increased the total days use considerably. Peak numbers of ducks were generally lower this year compared to 1963. This shows that a general and gradual movement of ducks occurred this fall rather than any large migrational flights. The number of ducks using the refuge was higher this year than last.

The total days use for coot was within 1% of last year's figures as shown on Table III and NR-1. A total days use figure was computed to be 1,028,455 and a population of 2,450 coots were here during the nesting period. Peak numbers followed the pattern of ducks and geese with a 27% lower figure. The drift through was gradual compared to a sudden influx of birds last year during the fall migration.

Spring migration is usually spectacular and brings in more than the nesting population. This year the migration was eventful in one respect with a major difference deviating from the usual. A flight of gadwall and greenwinged teal stopped enroute before lakes had become clear of ice. This flight, estimated to include 1,000 gadwall and 1,200 green-winged teal, stayed only a few days and departed in total. The following week found neither of these species present. More waterfowl were subsequently counted in the spring migration than last year.

Geese arrived in numbers on March 15 and approximately 1/3 began nesting activities immediately. Reports received gave forewarning of this influx of geese as birds were known to be waiting at the Missouri River for a break in weather. Geese migrated through fast this spring but 1,225 remained to nest.

TABLE III

COMPARISON OF PEAK NUMBERS, PEAK DATES, AND TOTAL DAYS USE

Refuge: Bowdoin National Wildlife

Period: January through December, 1964

Good CHART

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Species	Peak Numbers		Percentage of change		Peak Dates		Total Days Use		% of change	
	1964	1963	-	+	1964	1963	1964	1963	=	+
C. Geese	6,000	4,400		36	10/25	10/31	556,444	289,982		88
Coots	11,700	16,050		27	10/11	10/3	1,028,455	1,013,747		1
Mallards	23,525	28,775		18	11/1	10/24	2,477,685	2,159,311		10
Gadwall	8,830	7,225		21	9/20	10/24	1,016,659	660,079		54
Baldpate	8,775	15,377		49	10/25	10/3	934,185	877,135		7
Pintail	9,300	11,560		20	11/1	9/26	869,260	588,266		47
G.W. Teal	5,600	6,475		13	9/20	10/24	662,690	806,169		18
B.W. Teal	7,025	3,660		100 +	9/20	9/5	938,455	247,443		100 +
Cinnamon Teal	5	4		25	5/24	9/5	490	42		100 +
Shoveler	4,650	7,210		35	9/20	9/26	621,040	603,092		3
Redhead	4,075	7,500		46	8/30	10/3	444,220	633,836		30
Canvasback	3,000	665		100 +	7/12	10/3	274,225	63,721		100 +
Scaup	4,500	6,275		28	9/20	10/24	600,425	568,743		6
Goldeneye	3,275	5,520		22	10/18	11/7	221,970	138,124		60
Bufflehead	300	650		53	10/25	10/31	16,975	16,471		4
Ruddy	5,950	2,363		100 +	8/16	8/9	793,100	316,946		100 +
*Total Ducks	78,860	75,945		4	9/20		9,872,457	7,680,729		28
*Mergansers	50	14			4/12		868	1,169		26

Other birds migrated about as usual but less noticeable. Swan stopped this spring and 20 remained for a short time before moving on. Refer to Table IV for comparative arrival dates of migratory waterfowl.

Production this year was excellent for all species. Brood counts of ducks showed an average of 5.6 ducks per brood which was slightly less than 1963. (See Table V.) Total figures were completed showing production of ducks this summer to be 34,813. This is an increase of approximately 3,000 over last year. This may be the result of more intensive brood counts and breeding pair counts to determine a production figure. Secondly, conditions were much better for conducting these counts.

A
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OF

REFUGE!
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Goose production was very good this year and found to be 894. Counts of pairs and broods can be successfully made from a plane. A total of 231 nests or nesting pairs was counted from the air on May 11, 1964. Lakeside islands alone had 65 of these. Big Island had a group of 31 nests along the west shore, Southwest Bay had 31 nests and Drumbo Lake had 22 pairs along shore. Each pair was counted and assumed nesting as nests were not always visible but a total of nests was found by counting paired geese and nests when the nest was used by other than the geese already counted.

The average goose brood was found to be 4.2 this year. Renesting attempts appeared to be successful in that only 14 non-breeding geese were seen this summer. When nesting attempts became unsuccessful, the number of nonbreeders immediately increase. By season's climax, this number had increased to 30 but was not significant to denote unsuccessful renesting at this late date. These were probably geese moving in from surrounding areas where ponds dried during warmer weather.

Coot production was high and the unusual looking little birds could be seen commonly in bulrush thickets around shorelines. Numbers of these birds increased steadily all summer. A good migration occurred this fall and coots were common until just a week prior to total freeze.

The fall migration began so gradually that it was almost unnoticed but waterfowl numbers increased daily. Bowdoin harbored a good number of waterfowl all fall and the usual migrational pattern followed. Teal left early, widgeon and divers built up numbers. Mallards steadily increased and these birds were the last to leave after lakes had frozen. Some moved to open riffles in Milk River along with a few goldeneyes.

Two occurrences noteworthy of mention. During the first week of August, canvasback ducks arrived at Bowdoin Lake and one raft was estimated to contain 2,700 birds. This is high for this area.

TABLE IV

ARRIVAL TIMES OF MIGRATORY BIRDS

<u>Species</u>	<u>Arrival Dates</u>				
	<u>1964</u>	<u>1963</u>	<u>1962</u>	<u>1961</u>	<u>1960</u>
W. Swan	4-9	3-28	4-8	3-22	4-1
G. Goose	3-13	2-28	3-17	3-9	3-18
Mallard	3-13	3-28	3-23	3-16	4-1
Gadwall	4-2	3-28	4-11	4-6	4-18
A. Widgeon	3-27	3-28	3-29	3-22	4-1
Pigtail	3-27	3-28	3-22	3-14	3-25
G. W. Teal	3-13	3-28	4-3	3-31	3-30
B. W. Teal	4-20		4-11	3-22	4-18
Shoveler	4-2	4-4	4-11	4-6	3-25
Redhead duck	4-2	3-28	4-11	3-31	4-1
Canvasback duck	4-2	3-28	4-5	3-31	3-30
Lesser Scaup	4-2	3-28	4-11	3-31	4-1
C. Goldeneye	3-27	3-28	4-3	3-16	3-25
Bufflehead	4-9	4-19	4-17	3-31	
Ruddy duck	4-20	4-4	4-19	4-20	
Merganser	4-2	4-4	4-24	3-30	3-27
Coots	4-2	4-19	4-17	4-17	3-31

MIGRATORY BIRDS

Arrival Dates and Sight Records

California Gull	3-28	Sparrow Hawk	3-25, 3-28
Common Tern	4-1	Barn Owl	6-18
Double-crested		Snowy Owl	11-10
Cormorant	4-11	Yellow-shafted	
Am. White Pelican	4-8	Flicker	3-30, 4-26
Cinnamon Teal	4-11	Eastern Kingbird	4-25
Canada Geese	3-13	Western Kingbird	4-26
Whistling Swan	4-1	Crow	3-25, 4-5
American Bittern	5-4	Starling	3-17
Great Blue Heron	4-6, 5-11	Yellow-headed	
Snowy Egret	7-1	Blackbird	4-20
Black-crowned		Red-winged Blackbird	3-17
Night Heron	4-16	Meadow Lark	4-7
Sandhill Crane	4-10	Harris's Sparrow	5-4
Marbled Godwit	4-28	White-crowned Sparrow	4-23
Lesser Yellow-legs	5-4	Slate-colored Junco	3-17
Virginia Rail	4-11	Song Sparrow	4-23
Willet	4-3	Rufous-sided Towhee	4-12
Long-billed Curlew	4-16	Lark Bunting	4-28
Killdeer	4-6	Yellow Warbler	5-3
Mourning Dove	4-1, 4-26	Myrtle Warbler	4-26
Swainson's Hawk		Audubon's Warbler	4-5
(nesting)	6-18	American Redstart	4-12
Golden Eagle	3-23	Brown Thrasher	5-13
Bald Eagle	3-17, 21, 28	House Wren	4-6, 5-3
Prairie Falcon	5-26	Robin	4-7
Duck Hawk	5-15, 5-18		

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TABLE V

BROOD COUNTS

Species	Broods	IA : Ave.		IB : Ave.		IC : Ave.		IIA : Ave.		IIB : Ave.		III : Ave.		Tot.	Ave.
Mallard	74	39	5.5	74	5.3	39	5.5	49	7.0	147	6.0	63	4.5	411	5.6
Gadwall	77	31	6.2	88	6.3	63	6.3	52	4.7	90	5.3	110	5.5	434	5.6
Pintail	90	18	6.0	95	5.6	159	5.7	60	5.0	103	4.3	24	4.0	459	5.1
G.W. Teal	28			46	5.7	87	5.8					24	4.8	157	5.6
B. W. Teal	24	16	5.3	13	4.3	17	5.6	23	4.6	17	3.4	26	5.2	112	4.7
A. Widgeon	12			42	8.4	23	7.7	6	6.0	11	5.5	5	5.0	87	7.2
Shoveler	21			38	7.6	52	7.4	43	7.1	5	5.0	12	6.0	150	6.6
Redhead	5			6	6.0			11	5.5	9	4.5			26	5.2
Canvasback	7	23	7.6	7	7.0	4	4.0					15	7.5	49	7.0
L. Scaup	1											5	5.0	5	5.0
Ruddy	3	9	9.0			7	7.0	12	12.0					28	9.3
Total	342	136	6.1	409	5.9	451	6.0	256	5.7	382	5.1	284	5.1	1918	5.6

These did not remain all fall but drifted south in September leaving a fair number of canvasback during the early fall.

Five trumpeter swan arrived at the refuge via the north wind during the last week of October. These were identified only by their loud call which is so much different than other swan on the lake. A
FIRST ?

Other migratory birds had a successful season this year and were abundant all summer. Grebes nested, hatched and successfully brought off broods on Bowdoin and Lakeside. Hatching was over by June 18. One colony was formed late in early summer at Lakeside and was built in open water without cover around. This is unusual; not only that the colony was found without cover but to be built at so late a date. Eventually all birds abandoned this colony because of continual harassment by gulls.

Gulls produced gulls in great numbers this summer. A count of nests on islands and peninsulas revealed a production figure of 16,500 ring-billed gulls and 17,900 California gulls. There were 1.8 young gulls average per nest. Franklin's gulls began hatching on June 13 but California gulls and ring-billed gulls were earlier and hatching began by May 26.

Double-crested cormorants increased in number this year too, producing about 500 young. An average of 3 young cormorants were found in each nest. Hatching was over by June 13.

Counts of white pelican nests showed that 5,750 was the population of adult birds producing 6,000 young to a flying stage as determined from 3682 nests. An average of 2 young pelican were found to be in a nest. The first group were hatched and taking to water by June 13, but hatching continued through July. These figures are considered conservative by all means. The last pelican attained flight at the onset of hunting season in October and most birds had migrated by then. A few remained a while longer.

Great blue herons were nesting in greater numbers this year but mostly on the ground on islands in Bowdoin Lake. An estimate of 45 young were produced as 2.3 young were found to be average for a nest. Hatching was over by June 13 and young birds were about one week old. The first eggs to hatch were seen May 11 on Long Island where two nests were located in a low tree. Herons remained on Bowdoin Lake until the second week of November.

Black-crowned night heron numbers were nearly the same as last year. Every attempt to get nest counts failed because of the seclusion of the nest area. These birds nest in places along Big Island in bulrush making it a difficult approach by boat. Several attempts were made to get to the colony but continual disturbance is not beneficial so this was given up. A small boat may be the answer.

A estimate of 250 young were produced by this colony of 200 adults. These birds were early migrants and the bulk of them left as soon as duties were over and flight was possible. A few remained until October.

Shorebirds were here in normal numbers. Avocets were down some in population numbers but those here successfully brought off young birds. Long-billed curlews had a very successful season this year and one flock of 200 was counted at Lakeside Extension in August. American bitterns and Virginia rails were seen throughout the summer.

Two snowy egrets resided at Lakeside Unit all summer and were seen regularly. No nesting attempts were noted. This is the first positive record of these birds on Bowdoin during the past three years but egrets have been seen at Beaver Creek during this time.

B. Upland Game Birds.

Habitat conditions on Bowdoin Refuge are adequate to hold a high population of upland game birds. Cover at the west side of the refuge holds a significant place in keeping pheasants at a high level in the community as pheasants use surrounding fields to feed returning to roost in low marsh areas ideally suited for this. This not only increases the number of birds vulnerable to hunting pressure, outside the refuge but keeps adding to any depletion that might occur from this or other reasons. Hunting pressure, however, has not been great enough to reduce numbers of birds in the surrounding valley to any noticeable extent.

Upland game survived last winter strong with little snow and good cover conditions providing ample food. Snow cover during December this year was great enough to be of some concern and a small amount of supplementary feeding was deemed necessary. Pheasants, gray partridge, and sharp-tailed grouse responded to this.

Clutches were successful for all species of upland game this summer. Nesting activities were started and completed normally without interference of unusual weather conditions that would inhibit hatching success. Young pheasants were seen into September. Birds were observed using fields of wheat at Lakeside this summer. Pheasants have increased with ideal weather these past few years so that a very high population exists throughout Phillips County. Areas along creek bottoms that normally had some pheasants, now provide excellent hunting.

Mourning dove nesting increased again this year and sight records show that these birds are beginning to use this area again after a period of absence. A flock of 100 doves were seen in tree groves this fall around headquarters.

Three flocks of sage grouse were observed this spring showing that young grouse were brought off successfully. Although young sharp-tailed grouse were not seen, adults were present during nesting. Three flocks of gray partridge were observed all year and nesting is assumed successful. Partridge were most common at Lakeside

C. Big-Game Animals.

After conducting an annual antelope count on August 17, 1964, tallying a total of 125 animals, the population was computed to be the same as last year or 135. A breakdown of results of this count shows a different relationship than recorded before.

RATIOS

100 females	:	74 males
1.3 females	:	1 male
.48 kids	:	1 adult
.92 kids	:	1 female

More animals were seen during this annual count. The difference was that counting was not done from a vehicle on the ground but an aerial count was made from a small plane. Animals seen were bucks totaling 35, 47 females, and 43 kids were tabulated. Less kids were seen this year and this is considered partially due to the different counting method. Next year, a ground count check should be made to determine differences which possibly occur to help determine more closely a total population.

Two buck antelope were found as winter kills this spring. One young male was taken dead from a fence where it had gotten tangled. Another young female was killed by a car at headquarters. A buck was found dead after being shot by a passing motorist on Highway #2. One young doe white-tailed deer was killed on Highway #2 along the refuge boundary this summer. Animals or parts of animals considered in good condition were turned over to the rest home in Malta for consumption.

Deer were more common this year and a total regularly seen was 7 of which 5 were whitetailed and 2 mule deer. Of the 5 white-tailed deer, 4 fawns were raised but no doubt more were actually reared. Two white-tailed deer used Dry Lake during summer as much of the lake bed was dry exposing a considerable amount of shore line and flats providing plants that otherwise would be flooded or unobtainable. Other deer were seen around headquarters using windbreaks and thickets. Mule deer were seen on occasion. One could be seen usually at Black Creek Coulee and the other along the north boundary west of Lakeside. No mule deer fawns were seen but one doe could have raised hers somewhere north but close to Highway #2.

By summer's end, all deer had vanished for parts unknown, as usual, probably to Beaver Creek watershed where white-tailed deer could always be found. Bowdoin Refuge offers excellent cover and food for fawning grounds for deer and a few usually are found at this time of year.

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

Muskrats have increased in number during the past year and the population is now estimated at 1,400 animals. Few houses were built this fall. The Malta Irrigation District found it necessary to hold water delivery until the wasteway was repaired. This repair work took about a week followed by a short cure of a few more days. They chose to do this in September so water was not turned on until October. Levels were fluctuating with added water until a few days before lakes froze. Bowdoin level rose above normal then came back as Dry Lake was filled. This precluded most muskrat house building and only a comparatively few houses exist this winter. This is unfortunate as each muskrat house is cherished for goose nesting. Counts, therefore, were not made. Weather conditions were not right for den counts through the ice as heavy snow occurred soon after the lake froze, and before ice was strong enough for travel.

Some muskrat damage has occurred. Damage to a coffer dam reported last year continued until all animals were disposed of or trapped. Roads on two dikes caved in along areas where muskrat activity was prominent. Because of this and the number of muskrats using the refuge, a trapping program was approved for this winter. A total of 750 muskrats are to be trapped by two local trappers each taking one-half of the refuge according to the Fur Management Plan. Severe weather has hampered activities this fall to the extent that trapping was suspended for the time. If ice conditions become favorable, the trappers will continue this winter but more than likely, will hold off until spring. Only 20 muskrat were trapped this fall.

Red fox numbers have increased sharply over the entire refuge. As the season progressed from spring, some fox dens were located and families of fox observed. The spread of this animal was understood and watched and a population now totals 45 animals. This number and the potential increase is not in line with refuge objectives. A control program to eliminate about 75% of the predators has been approved. Strychnine baits have been distributed in known areas of fox activity.

Fox were consistently taking ducks from bait traps working along Bowdoin Lake this summer. In one instance a fox drowned in a duck trap trying to escape after killing several ducks. This has been a continual problem and all fox in this area could not be controlled. Traps were later moved to another place thereby eliminating the problem.

One night predators, fox tracks were seen, forced open a hole in the chicken yard fence and carried off 25 of the Refuge Manager's chickens. These were cached in a den near by. Most of these were prize roosters averaging about 10 pounds each.

Badger are common and remain about the same in number. A few cause problems to refuge personnel by digging in dikes and roads for burrowing animals. These excavations are not minor by any means and usually require considerable repair work.

Mink and weasel do not appear to increase in number and are generally found near the large marsh area at the head of Southwest Bay.

Skunks are becoming more numerous but so far, have not reached proportions to be of concern. Several family groups were observed this summer.

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

Besides the known and regular nesters including marsh hawks, great-horned owls, burrowing owls, short-eared owls, and magpies; two nests of Swainson's hawks were watched until young hawks flew from the nest. One nest was found in a tree at field A-1 and the other in a small tree at the gravel pit south of the railroad tracks.

Short-eared owls were not very common this summer in contrast to an overwhelming population last year. This is in direct relationship to the numbers of mice. The explosion in mouse numbers ended sharply in the fall and short-eared owls disappeared leaving in evidence a much greater number of fox which apparently rose with this available food.

Two golden eagles chose to make this home late this summer and one extended the visit through winter. Several bald eagles would appear for short periods. These birds lived on ducks, geese, other birds, and small mammals. They would often be seen hunting and feeding on different birds and animals.

One barn owl was observed by Mr. Allan Cruikshank at Dry Lake this summer. This is a first for the refuge and a new bird for the bird list. One very heavily barred snowy owl was seen this fall at Lakeside. One of the pictures taken is shown in the photograph section.

F. Other Birds.

The migration through this area was noticeable and many birds stopped for periods of rest. Most welcome of birds on passing flights is migrant warblers that dress up thickets with brilliant yellows and hues of orange. The migration was swift and over almost too soon. New birds were added to the bird list with the operation of a mist net

during this migration. The black-billed cuckoo arrived again this summer and was seen in the brush at Black Creek Coulee apparently nesting.

Birds to be added to bird list and seen this summer.

White-rumped sandpiper
 Short-billed dowitcher
 Black-billed cuckoo
 Cliff swallow
 Sprague's pipit
 Warbling vireo
 Red-breasted nuthatch
 Bobolink
 Brewer's sparrow
 LeConte's sparrow
 Vesper sparrow
 Baird's sparrow
 Clay-colored sparrow
 Mountain chickadee
 Lazuli bunting
 Barn owl

Most observations were verified by Mr. & Mrs. Allan Cruikshank, Audubon Society, who spent over a month photographing and observing birds on the refuge.

G. Fish.

Fish have not increased enough to create a problem. Carp were seen spawning this summer but large fish were observed. Water was added so late that comparatively few fish entered the lake through the irrigation canal. A fish barrier was built at the waste-way in Bowdoin Lake and across the canal at Lakeside. Because water was turned on at a higher than normal rate, barriers would not hold without constant maintenance day and night. This was not practical so this project was abandoned. Next year a fence will be built at the mouth of the ditch in Bowdoin and Lakeside lakes which will trap fish coming down from the irrigation canal.

H. Reptiles.

Snakes, turtles, toads, frogs, and salamanders are common everywhere. No rattlesnakes were seen this summer on the refuge but several were observed in adjoining areas. Rattlers were much more common this year from all reports.

I. Disease.

Botulism was minor this summer and algae poisoning was only possible during a period early in summer as a period of cool weather retarded its growth to an extent that it never returned to usual abundance. Effected birds were found for one month beginning August 2 to September 4. Following is a list of some of the birds picked up sick and dead to show a representative sample of effected birds with botulism.

Mallard	24
Gadwall	4
Pintail	37
GW Teal	26
BW Teal	19
Widgeon	8
Shoveler	5
Redhead	1
Goldeneye	1
Ruddy	1
Total	126

A total of 203 birds were picked up sick or dead apparently victims of botulism. Of this number, 45 were hospitalized and 36 or 80% recovered, after being treated with antitoxin. This disease accounted for an estimated 500 waterfowl this season. Deaths were so gradual that pickups were hard to make as only a few seemed to be diseased at one time but dead birds continued to show up. Periodic checks showed no change.

Summer temperatures were normal, rainfall normal, evaporation normal and no water was added to Bowdoin Lake all summer. Gradually receding lake levels were at proper stages to prevent a major outbreak of this disease. Water temperatures remained low until late because of a cool spring and were again cooled suddenly in fall with dropping temperatures stopping the disease.

III. REFUGE DEVELOPMENT AND MAINTENANCE

A. Physical Development.

Two dikes were built this year under the Soil and Moisture Program that will catch seep and runoff water to form two small ponds in the Black Creek Coulee drainage of the refuge. Initial dragline work was done by a local firm, Jack Schye Excavating, Glasgow, Montana. Rip rap work, finishing and seeding will be done by refuge personnel. These will utilize much wasted water and provide added nesting areas for waterfowl.

1. Work to control muskrats at Dry Lake Structure continued through March as these animals continued to burrow into a coffer dam built to keep water from reaching the control structure.
2. Control structures were maintained all winter to stop leaks caused by freezing conditions forcing flashboards apart.
3. The chicken pen was rebuilt to hold pheasants trapped.
4. A total of 120 pheasants were trapped for the State of Montana game farm at Warm Springs.
5. Buildings were maintained and kept in good order.
6. 20 library boxes were built to file library material to keep control of pamphlets and small books.
7. Boxes were built to fit components of the canon trap for easy handling and good storage.
8. Made shelves for material storage in office.
9. Refinished entrance signs for Black Coulee and Creedman Coulee refuges.
10. Obtained a new mimeograph machine, excess, from Corp. of Engineers, Fort Peck, Montana.
11. Painted the floor in brooder house which makes cleaning easier and faster.
12. Put incubator in operation in April and cleaned up after process was over in June.
13. Made three nesting islands and hauled straw to fill them for the nesting island.
14. Put a wheel jack on fire trailer.
15. All boundary fence was checked this spring and repairs made where needed.
16. A mile and one-fourth of interior fence was built to make another grazing lease.
17. All patrol roads and trails were graded.
18. Doors on the Service and Equipment building were painted this spring.

19. The tower fence was painted.
20. All fence was checked at Hewitt Lake and repairs made.
21. Weeds were sprayed along roads, trails and ditch banks.
22. Areas at headquarters and around signs were sterilized with a weed killer, Dybar.
23. A boat ramp was constructed to aid in launching airboat. This has not been put into operation as work still is necessary.
24. Weeds and vegetation was burned in irrigation ditches.
25. The Demonstration Pond was filled with water and all trees, bushes, and alfalfa was watered in the spring and fall.
26. Went to Medicine Lake Refuge to get airboat for goose banding operation and returned it afterwards.
27. Crew banded geese with State Personnel.
28. A-1 and A-6 were summer fallowed.
29. Alfalfa hay was mowed, raked, and stacked.
30. New office furniture was purchased, the old taken out and stored.
31. Installed a syphon at Lakeside water structure.
32. Weeds and vegetation was mowed on roads and trails prior to grading. All were in good shape this summer.
33. All vehicles were maintained and inspected periodically this year.
34. Personnel worked with SCS engineers to help survey dikes and possible ditching project.
35. A rock crossing and repairs to the culvert at Black Creek Coulee crossing was made and the road rebuilt and widened. A turn area was also made here.
36. Fire guards were graded and kept in good shape this summer.
37. Repairs were made to the Creedman Coulee Refuge water gate that has been in need of repairs for many years. This work was completed without much outlay of money except for new parts. The lake was almost dry making the job possible.

38. New fire cache boxes were made to replace the old "Chick Sales" houses around the refuge. These will be have to be put on piling.

39. A new cement floor was put down inside the granary to seal off moisture that caused considerable grain spoilage.

40. Water was turned into the refuge and structures and ditches checked.

41. Water readings were made continually.

42. The hunting area boundary signs were put in place prior to the season. Because of heavy snows these were not taken down after hunting as usual but will be changed this spring.

43. Planted winter wheat in A-1, A-3, and A-6. Work was done by a local rancher with his deep furrow drill

44. Made new flashboards for water structure on A-dike that leaked so bad last winter and made a tightening devise to hold the boards in place.

45. A new roll-up awning was installed on the east window of the office.

46. A quarters survey was made this fall by Realty Personnel.

47. Repairs and improvements were made to Quarters #1, bathroom sink and toilet replaced as the old ones had been eaten up by rust. A new linoleum floor was put down in the bathroom. The sewer was repaired.

48. Iron filters and water softeners were serviced by the dealer.

49. A property inventor was made.

50. A water line developed a leak and was dug up and repaired.

51. Two fish barriers were made and installed at Bowdoin and Lakeside but the flow of water and debris was excessive. Because of this, the barriers were not practical as maintenance was necessary around the clock.

52. Dike fill was hauled and rip rap work done on Dike #1.

53. A small hill was removed on the road to the boathouse and the gravel pushed into a pile nearby. This eliminated a traffic hazard and stored the best gravel on the refuge for future use.

54. Storage bins and shelving was made for the Service Building and shop.

55. Snow was plowed when necessary this winter.

56. A tool cabinet was built to replace the tool board in the shop.

57. A new Minneapolis-Moline tractor with loader, rear blade, and mower was purchased this year. A rotary mower was obtained on surplus. A John-Deere two bottom plow was purchased. A "Shaver" post driver was purchased for the MM tractor. (A big work saver.)

58. Equipment surveyed: John-Deere combine, Johnson outboard motor, two typewriters, boat, grinder, and binoculars.

59. Refuge headquarters area was graded and leveled.

60. A new road, parking and turn area is being built for tourists to use to view Bowdoin Lake and for photography.

B. Plantings.

Plantings this year included 25 acres of winter wheat, 8 acres of spring wheat, and 9 acres of alfalfa with a nursery crop of oats.

The winter wheat provided green browse for all wildlife, spring wheat and oats ~~were~~ left standing and ~~were~~ utilized by wildlife for food. Alfalfa plantings did not grow and will be reseeded again this year.

Canary grass reported in 1963 is making good but low growth in dry land conditions.

C. Collections and Receipts..

Please refer to Resource Management.

D. Control of Vegetation.

As reported on NR-12 in Narrative Report, September to December, 1963, some areas at headquarters were treated with Trysben on October 31 and November 12 to eliminate vegetative growth to reduce maintenance and cutting of grass. This control was effective with a 99% kill resulting. This chemical is supposed to sterilize soil for a two year period. Dybar used this year should prevent vegetative growth for five years and is ideally suited as it is applied dry; it can be used in very small areas effectively.

E. Planned Burning.

Irrigation ditches were burned to control weeds and grass to open ditches to transport water more effectively.

F. Fires.

No known fires occurred on the refuge this year.

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		Value
		Cattle	Horses	
Bow. #9	See below			
Bow. #10	R. J. Simanton	139.35		\$ 209.04
Bow. #11	Roy Kindle	49.55		74.33
Bow. #12	Wm. Shiroishi	106.45		159.68
Bow. #13	James Sintler	163.23		244.84
Bow. #14	Lee Schumacker	195.00		292.50
Bow. #15	See below			
Bow. #16	See below			
Bow. #17	R. A. Thompson	208.39		312.58
Bow. #18	Carl Ohs	50.00		75.00
Bow. #19	Kristen Sundseth	95.00		142.50
Bow. #20	See below			
Bow. #21	See B. Gravel			
Bow. #22	Carl Ohs		19.92	19.92
Bow. #23	Wm. H. Simanton		40.00	40.00
Bow. #24	Richard Simanton		24.00	24.00
Bow. #25	Richard Schwartz		23.00	23.00
Bow. #26	See below			
	Totals	1,006.97	106.92	\$1,617.39

BLACK COULEE

Bow. #16	Guy Riggin	320 acres @ 15¢ per acre		48.00
Bow. #20	Wm. H. Helgesen		62.71	23.41
Bow. #26	Riggin Grazing Assoc.	Transferred from Guy Riggin		
	Totals		62.71	\$ 71.41

CREEDMAN COULEE

Bow. #9	Margaret Turner Clack	80 acres @ 15¢ per acre		12.00
	Total			\$ 12.00

B. Gravel

Bow. #21	Phillips County, 1736 Cu. Ft. gravel @ 5¢			\$ 86.80
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C. Fur Harvest.

There were 20 muskrats harvested for pelts in the trapping program in December. Because of inclement weather and snow conditions, trapping has been postponed until next year. Full report will be given in 1965 Narrative.

D. Timber Removal.

The refuge does not have timber.

E. Commercial Fishing.

There has been no commercial fishing this year.

F. Other Uses.

No permits to cut hay on the refuge were issued during the year. Refuge personnel cut and stacked alfalfa hay from Unit 4 for supplemental winter feeding for wildlife.

V. FIELD INVESTIGATION OR APPLIED RESEARCH

A. Canada Goose Egg Salvage Project.

The project to salvage goose eggs from nests when either the eggs or young geese would be ultimately destroyed resulted in a total of 138 eggs collected. These were put under incubation during the period beginning April 4 through April 28 when the last eggs were salvaged.

Of the total 138 eggs incubated, 99 hatched apparently healthy goslings, 29 eggs were infertile and 10 pipped but did not complete hatching. During the first weeks of life, 8 goslings died of natural causes. ||

All geese raised were released on Bowdoin Lake when goslings had attained at least one month of age. All were banded prior to release on June 26. This group of birds responded very well to natural conditions and soon disappeared from the release area where they stayed for a time. Since many goslings were very young, food was provided for a short period after release and these were kept watch over for a period. All went well except for two that died on the beach.

B. Goose Banding.

Goose banding this summer was not nearly as successful as anticipated or desired. This is a cooperative effort with State Fish

and Game personnel to trap and band a representative number of geese in the Phillips County area. Groups of birds adequate for banding could not be found.

A total of 193 geese were banded of which 58 came from Bowdoin refuge. The most successful drive occurred at a reservoir about 30 miles north of Chinook. The total results netted 104 geese. Success is usually good around Bowdoin Refuge area but this condition was not the same.

The following table gives a breakdown of geese banded. Of the total 284 shown in the table, 91 were hand-reared geese raised from the egg salvage project.

TABLE VI

Geese Banded

<u>Area</u>	<u>Adult Male</u>	<u>Adult Female</u>	<u>Local Males</u>	<u>Local Females</u>	<u>Totals</u>	<u>Retraps</u>
Bowdoin		2	53	62	117	0
Lakeside	1	2	14	15	32	0
Ableman	2	1	10	6	19	0
Area 8			5	7	12	0
Chinook	7	6	42	49	104	3
	<u>10</u>	<u>11</u>	<u>124</u>	<u>139</u>	<u>284</u>	<u>3</u>
		<u>Adults</u>		<u>Locals</u>		<u>Total</u>
Banded		21		263		284
Retrap		<u>3</u>		<u> </u>		<u>3</u>
Total		24		263		287

C. Duck Banding.

A total of 1412 ducks were banded this summer on Bowdoin Refuge. Seven bait traps were used during the entire banding period. and these were the small welded wire portable trap. Wheat and barley was used for bait.

All attempts to make the projection trap operate failed until a new 50-cap detonator was purchased. The fault was not with the 10-cap detonator obtained last winter. Wire used was steel telephone wire aquired surplus. This had too much resistance and the jolt from a 10-cap detonator was not sufficient to blast the cannons.

Two successful shots of the projection trap caught 486 ducks. The first netted 401. This was highly successful but birds had been baited to the area with wheat and barley for a time.

DUCKS BANDED

Mallards	540
Gadwalls	1
Pintails	339
G. W. Teal	17
B.W. Teal	397
Am. Widgeon	58
Redheads	54
Coots	6
Total	1,412

D. Other Birds Banded.

A mist net was operated for a short period this summer and gained excellent results as many birds were caught that will be new in our bird list. (See following list.) Maintenceman Bates and Refuge Manager Hoffman worked the trap but Mr. Bates did most of the banding. Refuge Manager Bob Fields, Slippery Ann Station, Charles Russell Refuge was gracious enough to show us how to set up the net.

The Maintenceman and Student Trainee caught the blackbirds in nests from cattail and bulrush marshes.

OTHER BIRDS BANDED

<u>Species</u>	<u>Number</u>	<u>Species</u>	<u>Number</u>
Sora Rail	1	American Goldfinch	3
Northern Phalarope	4	McCown's Longspur	1
Mourning Dove	2	Clay-colored Sparrow	1
Yellow-shafted Flicker	4	Warbling Vireo	2
Red-shafted Flicker	3	Yellow Warbler	3
Western Kingbird	2	Myrtle Warbler	3
Western Wood Pewee	2	Audubon's Warbler	2
Least Flycatcher	1	American Redstart	1
Yellow-headed Blackbird	2	Brown Thrasher	4
Red-winged Blackbird	62	Swainson's Thrush	20
Baltimore Oriole	2	Robin	3
Common Grackle	11	Total	139

VI PUBLIC RELATIONS

A. Recreational Use.

Visitor use was greater this year than last year as travel increased on Highway #2. This increased travel lasted later in the year than is usual. Antelope along the highway was a continual attraction and tourists stopped to watch or photograph the animals. Birds also attracted many people to the refuge and they would stop to inquire or tour the refuge if time permitted.

A greater number of people toured the refuge this summer. Hunting increased this fall. Many nature students stopped to study birds or photograph them as the opportunity presented itself. Several groups came back for a few days to study the area more closely. Most stated that it was a pleasure to get so close to birds.

Many groups toured the refuge this summer and each is listed in the section on refuge participation. Some youth organizations had skating parties and hay rides on the refuge this past winter. Some organizations feel that this is a good place for a hay ride as the group is not plagued with traffic.

A trail, turnout and parking area is being built for tourists to use on the north side of the refuge. This provides an access to an area to take photographs of the lake as it offers an excellent view of Bowdoin Lake, nesting islands and Big Island. (See following map and photographs in photo section) As added interest, an old indian tepee ring was located so that the road could be placed next to it. Signs will be put up explaining this.

B. Refuge Visitors.

See table VII for a list of refuge visitors.

C. Refuge Participation.

1. The manager attended all weekly Kiwanis meetings and monthly director's meetings. He was chairman of the Vocational Education Committee and spearheaded a Careers Day Program at the local High School. He was also in charge of getting high school students to spend a day or two with different businesses as guidance to a vocation. Two boys spent two days on the refuge.

2. Manager Hoffman, MM Bates and Clerk Garland completed a First Aid Course given by the Red Cross in March.

3. Personnel of Bowdoin in cooperation with Montana Fish and Game Department, trapped 120 pheasants for the Warm Springs Game Farm. This was done in January.

U. S. DEPARTMENT OF THE INTERIOR
FISH AND WILDLIFE SERVICE
BUREAU OF SPORT FISHERIES AND WILDLIFE
BOWDOIN NATIONAL WILDLIFE REFUGE.
PHILLIPS COUNTY, MONTANA

1961

SCALE 0 1/2 1 2 MILES

Tourist turnout, parking
area and view point.



VICINITY MAP

SCALE OF MILES 0 5 10

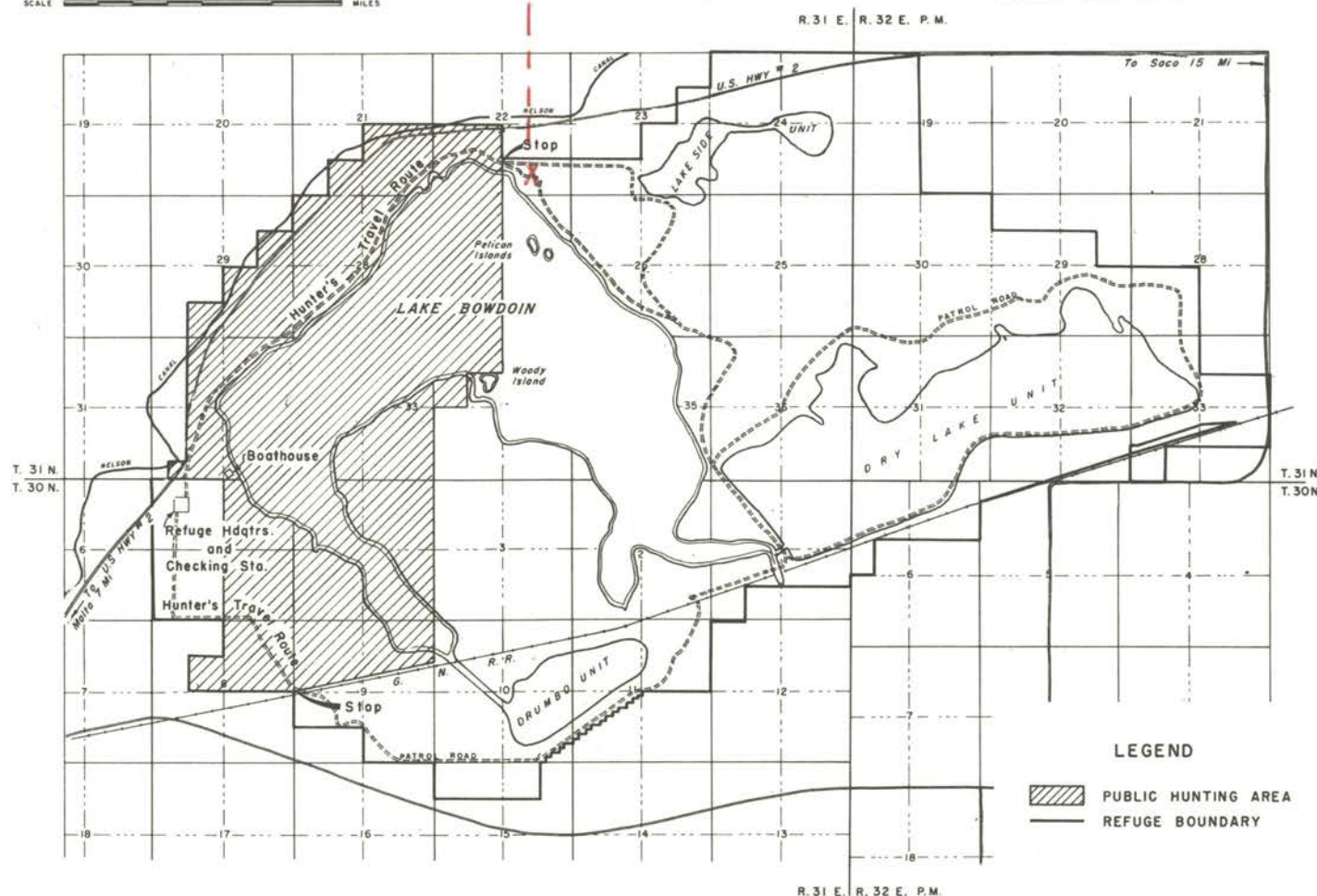


Table VII

TABLE VII
REFUGE VISITORS

<u>Date</u>	<u>Name</u>	<u>Affiliation</u>	<u>Address</u>	<u>Purpose</u>
1/7	Elmer Davis	Game Warden, MSDF&G	Malta, Montana	Pheasant trapping
1/7	D. W. Combs	USGMA, USBSF&W	Lewistown, Montana	Courtesy call
1/8	Elmer Davis	Game Warden, MSDF&G	Malta, Montana	Pick up pheasants
1/9-13	Henry Enghbrecht	Maintenance Foreman Montana State Game Farm	Warm Springs, Montana	Pheasant trapping
1/14	Alton Waller	Maintenanceman, USBSF&W	Medicine Lake, Montana	Brought seed
1/31	Robert Green	Game Farm Supervisor, MSDF&G	Warm Springs, Montana	Picked up pheasants
2/12	Owen Vivion	Refuge Manager, USBSF&W	Medicine Lake, Montana	Courtesy call
	Alton Waller	Maintenanceman, USBSF&W	Medicine Lake, Montana	Courtesy call
2/13	Richard Huff	Reality Specialist, BLM	Malta, Montana	Land Aquisition
2/18	Richard Huff	Reality Specialist, BLM	Malta, Montana	Purchase of land
2/22	Elmer Davis	Game Warden, MSDF&G	Malta, Montana	Post driver
2/24	Marvin Kashke	Range Biologist Charles M. Russell Refuge	Slippery Ann Station Lewistown, Montana	Courtesy Call
2/26	Larry Worden	Assistant Manager, Charles M. Russell Refuge	Fort Peck Station Lewistown, Montana	Courtesy call
3/11	Gene Koesmahl	Corp. of Engineers	Fort Peck, Montana	Photographs
	Don Beckman	Corp. of Engineers	Fort Peck, Montana	Photographs
3/30	Elmer Davis	Game Warden, MSDF&G	Malta, Montana,	Land ownership
4/1	Dick Trueblood	Biologist, MSDF&G	Glasgow, Montana	Regulations on refuges
4/1	Norman Nybo	Phillips Co. Sheriff	Malta, Montana	Jury duty, DeMontigny
4/2	Buck Davis	Corp. of Engineers	Fort Peck, Montana	Visitations this summer

4/10	Richard Huff	Reality Specialist, BLM	Malta, Montana	Land exchange
4/11	Allan & Marjorie Powell		Havre, Montana	Photography
4/15	F. Collins	Minneapolis-Moline Representative	Havre, Montana	Tractor attachments
4/21	Dave Hickock	Assistant Refuge Manager Charles M. Russell Refuge	Lewistown, Montana	Courtesy call
	Lloyd Ramali	Assistant Refuge Manager Charles M. Russell Refuge	Lewistown, Montana	Courtesy call
5/5	Mr. & Mrs. Robert Fields	District Refuge Manager Slippary Ann Station	Lewistown, Montana	Mist nets
	Leroy Anderson	Malta Irrigation	Malta, Montana	Captive golden eagle
	Richard Huff	Reality Specialist, BLM	Malta, Montana	Land exchange at Hewitt Lake
5/18	Robert Fields	District Refuge Manager, Slippary Ann Station	Lewistown, Montana	Corn planter
5/30	Robert Fields	District Refuge Manager, Slippary Ann Station	Lewistown, Montana	Borrow bands
6/1	Don Lewis	Game Warden, MSDF&G	Glasgow, Montana	Brought regulations
6/3	Dave Hickock	Assistant Manager Charles M. Russell Refuge	Lewistown, Montana	Courtesy call
	Vernon Ekedahl	Assistant Regional Supervisor	Portland, Oregon	Courtesy call
6/5	Dr. & Mrs. Allan Cruikshank	Christmas Bird Count Editor Audubon Society Photographer	Rockledge, Florida	Photography
6/5&6	Vernon Ekedahl	Assistant Regional Supervisor	Portland, Oregon	Inspection
6/8	Jack Schye	Dragline Operator	Glasgow, Montana	Ponding Project
6/10	Mr. & Mrs. Jack Jacques <i>and Lawrence Lee Jacques</i>	Author and artist	<i>Mt. Mans.</i>	Photography

6/15	Harris Wiltzen	Work Unit Conservationist	Malta, Montana	Engineering survey
	Charles Graden	Soil Conservationist	Malta, Montana	Engineering survey
	Henry W. Fausch	Area Conservationist	Lewistown, Montana	Engineering survey
6/8	W. H. Berry	Assistant Regional Supervisor	Washington, D.C.	S & M Inspection
	George L. Wiseman	Regional Office	Portland, Oregon	S & M Inspection
	Elroy Lumb	Central Office	Washington, D. C.	S & M Inspection
6/19	Tim Knopf	Biologist, MSDF&G	Havre, Montana	Banding
7/3 & 4	Mr. & Mrs Victor Hall	River Basins	Devils Lake, N. Dak.	Study
7/21	Mr. & Mrs. Cooke	Retired Parks Naturalist	Sedona, Arizona	Toured Refuge
7/28	Murl R. Dodge	Former Employee	Seattle, Washington	Old payroll information
7/29	K. F. Jacobson	Business Man	Saco, Montana	Pictures for tourist center
8/18	Fred Staunton	Refuge Manager Charles M. Russell Refuge	Lewistown, Montana	Courtesy call
8/20	Mr. & Mrs. Owen Vivion	Refuge Manager, Medicine Lake	Medicine Lake, Mont.	Courtesy call
8/25	Paul Berg	River Basins	Billings, Montana	Beaver Creek watershed
8/26	Fred Zellemaker!	Student Trainee	Medicine Lake, Mont.	Courtesy call
9/14	Charles Graden	Soil Conservationist	Malta, Montana	Survey
	Dick Trueblood	Biologist, MSDF&G	Glasgow, Montana	Hunting season
	Westley Woodgerd	District Supervisor, MSDF&G	Glasgow, Montana	Hunting season
9/15	Mr. Murrell	River Basins	Minot, North Dakota	Courtesy call
	Mr. Sweden	River Basins	Minot, North Dakota	Courtesy call

9/29	Vernon Hill	Photographer	Kremlin, Montana	Photography
10/8	Harold W. Preston	Budget & Finance Officer	Portland, Oregon	Administrative Inspection
	Gibson E. Bassett	Servicing Personnel Officer	Portland, Oregon	Administrative Inspection
	Russell E. Miller	Personnel Management Specialist	Portland, Oregon	Administrative Inspection
10/12	W.E. Helgesen	Permittee	Turner, Montana	Grazing permit
	Mr. Anderson		Turner, Montana	
10/17	Richard Mundinger	Appraiser, USBSF&W	Portland, Oregon	Quarters Appraiser
10/3 & 11/1	D. W. Combs	USGMA, BSF&W	Lewistown, Montana	Enforcement duties
11/4	Frank B. Jacox	Refuge Management Assistant	Portland, Oregon	Courtesy call
	Bert DeGraw	Administration Assistant	Lewistown, Montana	Driving for Jacox
	Charles M. Russell	Refuge		
11/25	Elmer Davis	Game Warden, MSDF&G	Malta, Montana	Antelope violations
12/7	Westley Woodgerd	District Supervisor, MSDF&G	Glasgow, Montana	Hunting regulations
12/7	John Brough	Trapping	Havre, Montana	Muskrat trapping
	Charles E. Copple	Trapping	Glasgow, Montana	Muskrat trapping
	Fuller Laugemen	Trapping	Stanford, Montana	Muskrat trapping
	R. Wollen	Trapping	Glasgow, Montana	Muskrat trapping
12/31	D.W. Combs	USGMA, BSF&W	Lewistown, Montana	Duck depredations

4. Malta Christian Church youth group held a skating party on Bowdoin Lake on January 19.

5. The refuge manager showed the movie "Waterfowl in North America" to the Kiwanis Club and was in charge of a wildlife program.

6. During Wildlife Week, Refuge Manager Hoffman showed two movies on the theme to each of 7 schools, 1 adult group and one 4-H club. This was a total of 1370 children and 125 adults.

7. Maintenance man Bates took a group of cub scout on a tour of the refuge on April 4.

8. Refuge Manager Hoffman and MM Bates were election judges at the polls at Strater School on April 4.

9. The refuge Manager took 8 scouts through two merit badges, Wildlife Management and Nature over a period of 6 weeks.

10. Mr. and Mrs. Hoffman took a group of exchange students to Swift Current, Canada in a Kiwanis sponsored project of exchanging a group of high school students and teachers for a week.

11. Refuge Manager Hoffman took two third grade classes from Malta Grade School on a tour of the refuge on May 12 and 13.

12. Cree Crossing Grade School was taken on a tour of the refuge by the Refuge Manager.

13. The refuge Manager was in charge of the lunch given at the High School Rodeo.

14. Mr. and Mrs. Hoffman attended the retirement party at Great Falls for Biologist Watson Beed on September 26.

15. Mr. and Mrs. Hoffman attended the refuge picnic given at Medicine Lake Refuge.

16. Refuge Manager Hoffman showed a nature film at the regular Kiwanis Club on November 3.

17. Manager Hoffman is a Director of the Phillips County Federal Credit Union and attended all monthly meetings. He is a Director of the Malta Lutheran Church and President of the Mens Club.

18. Refuge Manager's wife, Rosemary, is Chairman of the Phillips County Blood Drawing and the refuge manager is obligated to give blood as a donor at each drawing.

Naturally

D. Hunting.

A total of 75 days has been allowed for waterfowl hunting for each of the last three years. This year, duck season was increased five days over last year to 40 days beginning October 4 and extending through November 12. Goose season began the same day but continued through December 17.

The daily bag limits included a total of 4 ducks but could not include more than 2 mallards, 2 canvasback ducks, 2 redhead ducks or one of either of the latter two species. Possession limits included not more than 4 mallards, 2 canvasback ducks, 2 redhead ducks or 1 of each of the latter two species. The daily bag and possession limit for geese was 5 but could not include more than one Ross's goose or in the alternate, 1 white-footed goose; 1 white-fronted goose and 1 Canada goose or subspecies; or 2 Canada geese.

The goose season began on the same day as duck season for the first time in three years. This eliminated an enforcement problem. Table VIII shows the number of available hunting days for years from 1960. Duck hunting has increased from 25 days in 1962 to 40 this year. The significance or results of this liberalization is not known here but comparing duck populations for the same years, it appears that this is in line with current management.

Data from the waterfowl bag and hunter kill statistics for years 1960 through 1964 hunting season are shown in Table VIII.

Figures in Table VIII compiled after the 1964 hunting season shows some interesting aspects. Hunter use days during the waterfowl season increased from 323 in 1963 to 433 in 1964 and for ducks from 169 to 430. The greatest change is shown in the number of hunters during duck season. Comparing waterfowl season for the past six years, a greater number of hunters used Bowdoin this year. More ducks were bagged this year than any of the six years recorded. The number of ducks taken per hunter each day was about average at .847 and below last year's figure. This increase relates to the number of hunters recorded showing an average of 10 which is double of 1963 and 1962, both years of short duck seasons.

A picture, opposite in perspective, is shown when comparing goose kills for this 5 year period. In 1964, only 43 geese were taken compared to 50 and higher for all preceding years. This is in spite of the fact that hunter use has increased and goose numbers were relatively higher and stable all season. This is also interesting as ducks are taken only incidentally by many hunters who come here to hunt geese. Some hunting pressure was exerted from a group of hunters from Glasgo and Malta who come here primarily for the duck hunting.

TABLE VIII

HUNTER KILL DATA

	<u>1964</u>	<u>1963</u>	<u>1962</u>	<u>1961</u>	<u>1960</u>
No. available hunting days	75	75	60	42	31
No. hunter use days- waterfowl season	433	323	323	290	402
No. hunter use days- duck season	430	169	117	156	
No. ducks bagged	364	160	95	41	300
No. geese bagged	43	50	56	57	56
No. ducks per hunter day	.847	.947	.812	.263	.744
Ave. No. hunters per day	10.	5.	5.	7.	15.
Ave. No. hours per hunter day	5.47				

TABLE IX

KILL BY SPECIES

	<u>1964</u>	<u>1963</u>	<u>1962</u>	<u>1961</u>	<u>1960</u>
Mallard	222	88	27	36	155
Gadwall	22	15	19		26
Pintail	44	2	22	1	7
G. W. Teal	11	3	8	1	7
B. W. Teal	5	12			7
Am. Widgeon	32	14	11	1	15
Shoveler	5	20	5		8
Redhead	6				2
Canvasback	10				1
L. Scaup	3	2	2	2	1
Am. Goldeneye	1	2	1		
Coot	2				
Unknown	<u>1</u>				
	364	158	95	41	229

Further computations shows that 10 hunters used the refuge 54.7 hours each day to bag 9 ducks and 1 goose. This year, it took about 55 hours to kill a goose and 9 hours to bag a duck. This was figured on actual days hunted rather than total days in the entire waterfowl hunting season.

A kill by species is shown in Table IX for years 1960 through 1964. More mallards, 222, were taken this year than has been recorded for a period of time. Mallards were also more numerous than other ducks this hunting season. A total of 44 pintails bagged followed mallards in number taken and 32 widgeon came next. Canvasback ducks were allowed this season and a total of 10 were taken on the refuge including one that was the first duck checked.

E. Violations

Two men, Francis L. Kendall and Martin L. Elshire, Glasgow Air Force Base, Montana were apprehended on October 31, 1964 for killing two antelope and wounding a third inside of the refuge boundary. Each forfeited bail paid of \$200.00 plus \$3.50 court costs in Justice of the Peace court in Malta. The violations occurred at a parking area along Highway #2 where these men saw a group of antelope cross the road and enter the refuge through the fence. Since their permits were issued for Phillips County south of Highway #2, they jumped out and shot these animals without checking boundary signs. One antelope was wounded and later killed by refuge personnel. It was turned over to the State Game Warden.

This case was a fine example of cooperation between refuge personnel, a state game warden, a deputy county sheriff and local residents. A local resident reported seeing this violation to the deputy county sheriff in Saco, Montana who immediately called the refuge. The game warden was contacted and met refuge personnel at the scene. Evidence revealed that the culprits had fired 13 times with a 30/06 and .308 rifle, dragged some animals through the fence and left in the direction of Malta. Two ranchers taking cattle back from their grazing lease reported seeing a green automobile at the scene. In Malta, the two defendants were found in a cafe with two antelope that had not been dressed attached to the front of their car.

One young antelope was shot by a passing motorist along Highway #2. No other evidence was found to complete this case.

Student Trainee, William Schmidt, saw a passing motorist plink at a flock of ducks on the refuge from his car on the highway. He took pursuit and chased this violator who's car was much faster than the refuge power wagon and Schmidt was unable to even get a license number. A mobile radio with proper frequencies would help stop much of this type of violation.

F. Safety.

SAFETY meetings were held monthly all year and several had some very interesting discussions. Discussions, on-the-spot, involving individual aspects of SAFETY was brought up many times during working hours especially to help improve conditions and make everyone aware and SAFETY conscious.

Fire drills were held quarterly and a fire extinguisher inspection was completed in December.

There were no lost time accidents this year and a total of 5329 calendar days have elapsed without a lost time accident.

VII OTHER ITEMS

A. Items of Interest.

ONE OF THE BEST IN THE SYSTEM!

Eldon L. Bates, Maintenceman II, transferred to Willapa National Wildlife Refuge, Illwaco, Washington on September 15, 1964.

Henry C. Engstrand, Maintenceman I, transferred from Benton Lake National Wildlife Refuge, Great Falls, Montana to Bowdoin Refuge on October 25, 1964.

Student Trainee, William T. Schmidt, Jr. returned for a tour of duty after a summer school session on August 10 and he returned to school on September 18. This was his second year at Bowdoin.

Willard N. Brandon, Maintenceman I (WAE) worked at Bowdoin this summer between the dates of May 15 and November 7. He was a big help to the refuge program.

Lester Knapp, Maintenceman I (WAE) worked at Bowdoin this summer from May 18 to October 4. His skill and experience was used extensively for a variety of jobs.

Dorothy Garland, Clerk, has worked part time at 20 hours each week, but now her hours have increased to 32 hours.

B. Photographs.

All pictures in this narrative report were taken by the refuge manager with a 35 mm Exacta and his personal Rollei.

THE WEATHER

Date	Max.	Min.	Prec.
Dec. 17	-10	-35	
Dec. 18	3	-22	T
Dec. 19	4	-10	T
Dec. 20	3	-7	.10
Dec. 21	3	-14	.08
Dec. 22	6	-3	.30
Dec. 23	9	-9	.15
Precipitation to date			11.91
Last year			12.32

Phillips Cour

Malta, Montana

THURSDAY, DECEMBER 24, 1964

VOL. 4



Worst Storm In History?

Five dead cattle were found in this fence corner where they were trapped by the raging blizzard. Old timers are pretty unanimous in their belief that the storm was the worst seen in these parts. The wind rarely blows with such velocity when temperatures are so low. (Larcombe Photo)

most of the space is not needed by these branches of city government. What do we do with the rest? For many years the building has been pretty much open to the public on a prior arrangement basis. Local non-profit groups have pretty much had free use of the building as well as quite a few groups engaged in youth activities, etc. Dances, roller skating and basketball practice have done a good job in providing the recreation space and programs that are continually said to be needed.

Several organizations, especially those dealing in youth activities, are now put in the position of not being able to pay even the minor fees requested by the city. Is this to be the end of the use of the hall for skating, dances, Scouting activities and other worthwhile uses? Many, many small organizations in Malta use the hall for meetings. Most of them can't afford to pay even the \$10 fee, or \$5 fee, for the

ing else real and abiding.

No Santa Claus! Thank God! He lives and he ever. A thousand years from now, Virginia, nay, ten thousand years from now, he will continue to the hearts of childhood.—Francis Church.



Santa to Arrive In Malta at 1 p.m. Today

In spite of more stormy weather during week and the forced of his trip to Malta day, Santa Claus will arrive in Malta this afternoon at 1 p.m.

He will be met at and brought to the city a sleigh drawn by two horses, so he will feel home. In times past, had to make the trip airport in a buggy.

Santa will have gifts for every child in Phillips. So the kids are urged hand if it is possible.

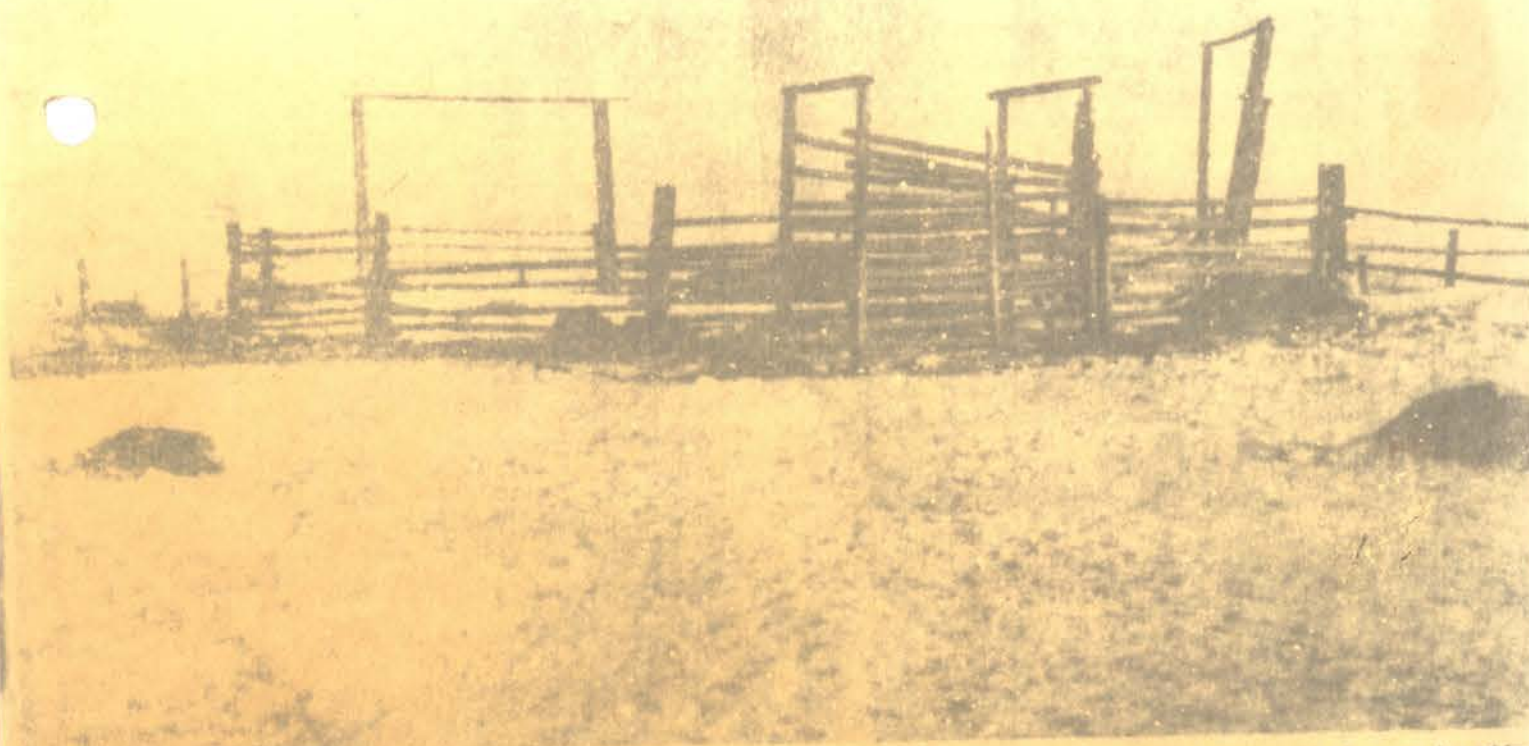
Brandt Funeral Services Held Saturday

Solemn Requiem Mass by Rev. Fr. Carl Eric Mary's Catholic church Dec. 19, for N. J. Brandt. Mr. Brandt passed at Wolf Point Dec. 15.

N. J. Brandt came in 1915 and settled in

ing as a fast break should be a top flight by mid-season, his

His school activities Varsity football and basketball his second, fourth years, track all and membership in the He was president of class and holds the sc



This corral on the Middle road in southern Phillips County was not a pretty sight after the two day blizzard last week when the temperature was over 30 below zero and the winds at least the same velocity. One visitor to this site counted 42 dead cows and calves in and around the corral. One cow still living can be seen

to the right. Her mouth was still frozen and she was breathing with extreme difficulty and didn't look as if she could walk. A later visitor to the same location said there were no animals alive then, so probably the cow died, or perhaps was moved. (Larcombe Photo)

Storm Loss Serious in Phillips County



Snow - drifting over roads, fences, piling deep in coulees covering Phillips County from Canadian line to the Missouri river and from east to west border has made this a "White Christmas" season. Snow has fallen every for the past week and a most usual freezing rain occurred Tuesday night. Travel conditions hazardous on all roads and ways. Much of the traffic in county is movement of hay feed to livestock. Snow depth Wednesday is estimated at a one foot. Lowest temperature during the week was 35 below on December 17.

Livestock losses in Phillips County as the result of last week's storm are going to be much more extensive than first believed. Reports of cattle found dead in frozen corners and suffering from frozen feet, noses and eyes which they will not recover, trickling in from rural corners and ranchers.

No estimate on the loss possible at this time, but believed that between 1,000-1,500 cattle died in the two blizzards. Some ranchers lost third of their cattle, while others reported only a few had died the storm.

The area from south Dodge to the southeast corner of the county appears to have been hardest by the severe blizzard. In cases ranchers saved their cattle by cutting fences and allowing cattle to drift and some are reported to have drifted 10 to 25 miles.

Some of the county's hardest hit include the KRM, Ford Barrett, Noel Emond, Cummings, Armand Tremblay and Ray Holzhay, in the country. Viljo Kangas, south of here, Howard Smith, Lester Nicholson brothers, Keenan, Lloyd LaBrie, Holman rancher, Bert Taylor and Willie Doll, Dodson, Wagner and Malta. Doll reports 32 animals, and 12 missing while some of found will die of exposure. Freezing Robert Taylor was missing 15 cows Tuesday and after Wilke reported 50 head and missing.

(Continued on Page 1)

Hungry Calf Eats Rose Bushes

This hungry calf was seen last Saturday morning following the blizzard in a creek bottom eating thorny rose bushes. Cattle which survived the storm were "humped up" and dazed and walking was difficult for many of them. Getting food to the scattered bunches of cattle was the main problem for stockmen after the cattle had been located. (Larcombe Photo)

Dinner for Men

Every widower and bachelor 65 years old or older in Phillips County is cordially invited to attend Fred L. Robinson's annual holiday party at the Malta club, Sunday, Jan. 3, at 2 p.m.

Last year 37 attended the Robinson party and dinners were taken to men at the hospital, rest home and those confined to their homes. The dinner has been held for many years with Mr. Robinson as host.

Correction . . .

Cost of regular rabies vaccination for dogs is \$3 instead of \$5 as reported last week, according

Distress Call Received from Gulf of Mexico

A call for help, not from the snowbound north Montana area, but from the Gulf of Mexico was picked up by two-way radios in Malta Tuesday, according to Pete Clausen who says that both M. J. Clinton and Mrs. Everett Holman heard the distress call.

The man calling for help was in a 42-foot cruiser about 30 miles off Federal Island. His steering went out in a storm and he was adrift. He sounded in desperate need of assistance and Clausen said he contacted Helena and a message had been relayed to the U. S. Coast Guard.

GA, MONTANA

THURSDAY, DECEMBER 24, 1964

by day

by D.A.Y.

Coffee

...e discussing the storm hasn't been) and someone how handy a team big work horses would be on farm, and how big a hard to get now and it would hardly pay to go around for limited use. Discussion turned to discussion of tractors for deep plowing, and then someone seeing a pulling concern an elephant and a high the elephant won another philosopher. In too bad elephants can't hold weather. If they very rancher and farmer

...canon. Elliot remarked: had they let the master out. They were equipped weather. If you could break them."

...you have made great work.

...found he had to fly upside down the gasoline from coming a hole in the bottom of the tank before you leak, radioed him.

...was trying to tell us that the smarter than men, but we see a man wearing a buttoned up the back.

...on a half rainy, half snowy day when Rudolph a communist from Moscow, Minn. to visit his cousin.

...now, remarked Gregor vain, contradicted Rn

...that the argument later

Losses Heavy on "KRM" Ranch

Mute and frozen evidence of the fury of the blizzard which struck Montana last week. This calf is part of over 40 that were found dead in one place on the Wellington D. Rankin ranch south of Malta, known previously as the KRM. Some ranchers had quite heavy losses and others had none, mostly depending on what sort of shelter was available for the livestock.

(Larcombe Photo)

Ray Bergeron is District MPC Manager

Raymond J. Bergeron, who has been serving as service advisor for the Montana Power company in this district, has been appointed district manager at Glasgow. He replaces Donald M. Leuschen who succeeds Robert Jones at Great Falls.



May the spirit of
the season bless
one and all.

to what is the basic purpose of

PAGE TWELVE

Storm . . .

(Continued from Page 1)

The oldest of the old timers in the area cannot recall such a damaging storm. There have been longer periods of cold weather and blizzards of comparable severity, but the combination of snow and terrific wind made this one of the record breakers.

Deer are reported to have sought shelter before the storm. Game Warden Elmer Davis said the antelope bunched up for protection and he has received reports that the elk moved into the rough breaks along the Missouri river. There have also been reports of loss of pheasants and many smaller birds.

County Agent Ruter Brownson says, in spite of a good supply of feed in the county, ranchers are hanging on to all they have on hand in anticipation of a hard winter and that there is a possibility of a feed shortage in the spring.

One of the more newsworthy stories to be related is from Raymond Williams who ranches in the Landusky area. Williams left the ranch to feed his cattle during the storm. As he approached the cattle, he saw they were stampeding in terror. Close on their heels was a pack of about 10 wild dogs, which for several years have been known to be roaming in the Little Rock mountains. The dogs are as large as wolves and described as resembling German shepherds. They got one animal down and he had to shoot it as it was being eaten alive.

Returning to the ranch for more ammunition he located the dogs again and shot into the bunch. He was afraid to leave the pickup because of the ferocity of the dogs. Williams said he had to go out of the sheep business some time ago because of depredations made by the dog pack and several years ago Pete Reaina lost a large number of sheep when dogs chased a bunch over a cliff in the mountains.

Canada Goose, Duck Hatch Excellent at Bowdoin Refuge

The Bowdoin Wildlife Refuge, 10 miles east Malta on Highway 2, is a busy place this time of the year. Thousands of ducklings are hatching, an excellent hatch of Canada goslings are just maturing and taking to the air, and the colony nesters, including pelican, cormorants and gulls, are just beginning to fly.

Manager Russell Hoffman says the season for waterfowl production has been excellent. There are 30,000 ducks on Bowdoin Lake at the present time. Males are gathering from nesting areas throughout the district for the molting season. The females will arrive as soon as their brooding season is over and the ducks will remain at the lake until migration time. The number will build up as more ducks arrive for the late summer, he says.

Hoffman says that increasing numbers of tourists are stopping to visit the refuge. They are taken on sightseeing tours. Among recent visitors was Vernon Ekedahl, formerly of Malta, who is assistant regional supervisor for the Portland, Ore. area. Ekedahl began his wildlife career under Ben Hazeltine, first manager of the Bow-

doin Refuge, in 1935. He succeeded Hazeltine as manager of the Bowdoin Refuge before being promoted to other jobs.

A quarter-mile dike which has created a 25-acre nesting pond out of a bullrush marsh, has recently been completed. Soil Conservation Service engineers have laid out a second dike which will impound about 30 acres. These ponds will provide more nesting areas and increase production. Several islands have been created in the middle of the lake for nesting areas by scooping dirt from the lake bottom with a dragline and piling it above the water line.

Annual Refuge Picnic

The annual Bowdoin Wildlife Refuge picnic for staff personnel and their families was held on the grounds at the headquarters building last Thursday evening. Those present included Mr. and Mrs. Russell Hoffman and family, Mr. and Mrs. Willard Brandon and family, Mr. and Mrs. George Garland, Mr. and Mrs. Eldon Bates and family, Game Warden and Mrs. Elmer Davis and family, and Tim Knopp, biologist with the Montana Fish and Game Commission.

Phillips Co News July 9, 1964

SIGNATURE PAGE

Submitted by:

Russell R. Hoffman
(Signature) Russell R. Hoffman

Refuge Manager
(title)

Date: January 22, 1965

Approved, Regional Office:

Date: FEB 12 1965

H. Nelson Elliott
(Signature) *DEL*

Acting Chief, Division of Wildlife
(Title)

3-1250a

A-3

Cont. A.R-1
(Rev. March 1953)WATERFOWL
(Continuation Sheet)REFUGE Bowdoin National Wildlife RefugeMONTHS OF January TO April, 1964

(1) Species	(2) Weeks of reporting period								(3) Estimated waterfowl days use	(4) Production Broods: Estimated seen : total
	3/8-11 11	3/15-21 12	3/22-28 13	3/29-4/4 14	4/5-11 15	4/12-18 16	4/19-25 17	4/26-5/2 18		
Swans:					18	25	20	8	497	
Whistling										
Trumpeter										
Geese:										
Canada		3550	3500	1310	1245	1137	1225	1225	92,344	
Cackling										
Brant										
White-fronted										
Snow										
Blue										
Other Total Geese		3550	3500	1310	1245	1137	1225	1225	92,344	
Ducks:										
Mallard			800	1180	2410	3085	4160	4260	111,265	
Black										
Gadwall		1000		240	972	1685	2555	2555	63,049	
Baldpate			5	475	1240	1335	3725	3655	73,043	
Pintail			150	1640	2510	2425	1365	1365	66,185	
Green-winged teal		1200		445	1755	1610	2740	2770	73,640	
Blue-winged teal							1595	2675	29,890	
Cinnamon teal										
Shoveler				490	1600	1875	3160	2970	70,665	
Wood										
Redhead				340	1435	1395	2460	2460	56,560	
Ring-necked										
Canvasback				60	305	310	500	500	41,725	
Scaup				295	1150	1250	2600	2600	55,205	
Goldeneye			150	1915	2850	2850	1300	300	65,535	
Bufflehead							110	110	1,540	
Ruddy							2325	2325	32,550	
Other				20	34	50			128	
		2200	1105	7100	16,261	17,860	28,595	28,595	711,662	
Coot:				45	85	295	2450	2450	37,275	
					(over)					

	(5) Total Days Use	(6) Peak Number	(7) Total Production
Swans	497	25	
Geese	92,344	3550	
Ducks	711,662	28,595	
Coots	37,275	2450	

SUMMARY

Principal feeding areas Are Bowdoin Lake, Lakeside Marsh, and Extension, Dry Lake and Drumbo Lake.

Principal nesting areas are the same.

Reported by

Russell R. Holman
Russell R. Holman

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).

A-1

REFUGE Bowdoin

MONTHS OF May TO August , 1964

Coot:

Cont. AR-1
(Rev. March 1953)

WATERFOWL
(Continuation Sheet)

MONTHS OF May TO August, 1964

(1) Species	(2) Weeks of reporting period								(3)	(4)	
	7/12-18	7/19-25	7/26-8/1	8/2-8/8	8/9-15	8/16-22	8/23-29	Estimated waterfowl days use	Production Broods:Estimated seen : total		
	11	12	13	14	15	16	17	18			
Swans:											
Whistling											
Trumpeter											
Geese:											
Canada	2,075	2,075	2,075	2,075	700	700	700	164,500	325	894	
Cackling											
Brant											
White-fronted											
Snow											
Blue											
Other Total Geese	2,075	2,075	2,075	2,075	700	700	700	164,500	325	894	
Ducks:											
Mallard	8,450	8,450	8,450	8,450	8,450	12,250	12,250	794,780	58	7113	
Black											
Gadwall	6,100	6,100	6,100	6,100	6,100	7,000	7,000	518,000	73	5400	
Baldpate	2,770	2,770	2,770	2,770	2,770	5,875	5,875	223,790	22	1950	
Pintail	2,700	2,700	2,700	2,700	2,700	5,150	5,150	223,300	66	5700	
Green-winged teal	3,365	3,365	3,365	3,365	3,365	4,550	4,550	293,230	14	1675	
Blue-winged teal	5,315	5,315	5,315	5,315	5,315	6,460	6,460	565,670	37	3575	
Cinnamon teal								210	1	5	
Shoveler	1,825	1,825	1,825	1,825	1,825	2,825	2,825	240,625	16	2450	
Wood											
Redhead	1,625	1,625	1,625	1,625	1,625	3,150	3,150	187,950	11	2425	
Ring-necked	5	5	5	5	5	5	5	490	0	0	
Canvasback	3,000	3,000	3,000	3,000	3,000	2,300	2,300	170,800	5	270	
Scaup	2,110	2,110	2,110	2,110	2,110	2,860	2,860	229,460	26	2250	
Goldeneye						10	10	140	0	0	
Bufflehead	30	30	30	30	30	30	30	2,940	0	0	
Ruddy	4,550	4,550	4,550	4,550	4,550	5,950	5,950	425,600	14	2000	
Other											
Total Ducks	41,845	41,845	41,845	41,845	41,845	58,415	58,415	3,876,985	342	24,813	
Coot:	4,900	4,900	4,900	4,900	4,900	6,650	6,650	453,250	126	7,595	
					(over)						

	(5)	(6)	(7)
	Total Days Use	Peak Number	Total Production
Swans			
Geese	164,500	2,075	894
Ducks	3,876,985	58,415	34,813
Coots	453,250	6,650	7,595 7,840

SUMMARY

Principal feeding areas Bowdoin Lake, Lakeside and Lakeside Extension, Drumbo, and Tatrol Road Pond.

Principal nesting areas SW and SE Bay, Bowdoin Lake, Within 1/4 mile of edge, Lakeside, Lakeside Extension, and Drumbo Lake Area.

Reported by Russell R. Holliman
Russell R. Holliman II

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).

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

W A T E R F O W L

REFUGE Bowdoin

MONTHS OF September TO December, 1964

(1) Species	(2) Weeks of reporting period									
	8/30-9/5	9/6-12	9/13-19	9/20-26	9/27-10/3	10/4-10	10/11-17	10/18-24	10/25-31	11/1-7
	1	2	3	4	5	6	7	8	9	10
Swans:					8	13	16	16	16	13
Whistling								5	5	
Trumpeter										
Geese:					8	13	16	21	21	13
Canada	1,850	1,850	2,000	3,750	4,000	4,000	4,000	4,000	6,000	6,000
Cackling										
Brant										
White-fronted										
Snow					100	100		30		
Blue										
Other Geese	1,850	1,850	2,000	3,750	4,100	4,100	4,000	4,030	6,000	6,000
Ducks:										
Mallard	14,750	14,750	14,750	19,750	19,750	19,750	19,750	23,510	23,510	23,525
Black										
Gadwall	7,830	7,830	7,830	8,830	8,830	8,830	8,830	2,600	650	85
Baldpate	7,050	7,050	7,050	8,550	8,550	8,550	8,550	8,275	8,775	8,775
Pintail	5,725	5,725	5,725	7,300	7,300	7,300	7,300	8,200	8,700	9,300
Green-winged teal	4,950	4,950	4,950	5,600	5,600	5,600	5,600	2,535	1,675	575
Blue-winged teal	6,800	6,800	6,800	7,025	7,025	7,025	7,025	375	110	
Cinnamon teal										
Shoveler	3,950	3,950	3,950	4,650	4,650	4,650	4,650	4,150	4,400	3,350
Wood										
Redhead	4,075	4,075	4,075	3,125	3,125	3,125	3,125	1,800	1,150	600
Ring-necked										
Canvasback	1,925	1,925	1,925	1,375	1,375	1,375	1,375	1,000	460	255
Scaup Lesser	4,150	4,150	4,150	4,500	4,500	4,500	4,500	4,350	4,375	3,525
Goldeneye	5,575	575	575	2,000	2,000	2,000	2,000	3,275	3,000	3,025
Bufflehead	100	100	100	200	200	200	200	275	300	110
Ruddy	5,950	5,950	5,950	5,950	5,950	5,950	5,950	2,875	2,025	1,300
Other C. Merganser				5	5	5	5			
Total Ducks	67,830	67,830	67,830	78,860	78,860	78,860	78,860	63,300	59,130	54,425
Coots	6,650	6,650	6,650	8,350	8,350	10,700	11,700	9,900	6,400	1,500

3 -1750a

Cont. R-1

(Rev. March 1953)

WATERFOWL
(Continuation Sheet)REFUGE BowdoinMONTHS OF September TO December, 19 64

(1) Species	(2) Weeks of reporting period								(3) Estimated waterfowl days use	(4) Production Broods: Estimated seen : total
	11/8-14 11	11/15-21 12	11/22-28 13	12/5-11 14	12/12-18 15	12/19-25 16	12/26-31 17	12/31 18		
Swans:										
Whistling	13	4							693	
Trumpeter									70	
Geese: Total Swan	13	4							763	
Canada	3,600	1,750							299,600	
Cackling										
Brant										
White-fronted										
Snow									1,610	
Blue										
Other	3,600	1,750							301,210	
Ducks:										
Mallard	23,525	7,200							1,571,640	
Black										
Gadwall	85								435,610	
Baldpate	8,775	1,100							637,350	
Pintail	7,250	3,000							579,775	
Green-winged teal	225								295,820	
Blue-winged teal									342,895	
Cinnamon teal										
Shoveler	1,800	100							309,750	
Wood										
Redhead	150	25							199,710	
Ring-necked										
Canvasback	110								91,700	
Scaup	2,400								315,700	
Goldeneye	2,400	900							156,275	
Bufflehead									12,495	
Ruddy									334,950	
Other									140	
Total Ducks	46,720	12,325							5,283,810	
Coot:									537,950	
				(over)						

	(5)	(6)	(7)
	Total Days Use	Peak Number	Total Production
Swans	763	21	
Geese	301,210	6,000	
Ducks	5,283,810	78,860	
Coots	537,950	11,700	

SUMMARY

Principal feeding areas Bowdoin Lake, Lakeside and Lakeside Extension, Drumbo, and Patrol Road Pond.

Principal nesting areas SW and SE Bay, Bowdoin Lake, within 1/4 mile of edge, Lakeside, Lakeside Extension, and Drumbo Lake area.

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).

3-1751

Form NR-1A
(Nov. 1945)MIGRATORY BIRDS
(other than waterfowl)Refuge BowdoinMonths of January to April 1964

(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>										
Eared Grebe	3	4/23	100	4/30						100
Double-crested Cormorant	10	4/11	75	4/30						75
White Pelican	8	4/8	5000	4/30						5000
Great Blue Heron	1	4/6	35	4/30						35
Black-crowned Night Heron	1	4/16	200	4/30						200
Sandhill Crane	200	4/10	200	4/10						200
II. <u>Shorebirds, Gulls and Terns:</u>										
California Gull	17	3/28	4000	4/30						4000
Ring-billed Gull	10	4/1	4000	4/30						4000
Franklin' Gull			10	4/15						10
Common Tern	2	4/1								
American Avocet	3	4/5	150	4/30						150
Marbled Godwit	1	4/28	10	4/30						10
Greater Yellowlegs	1	4/25	10	4/30						10
Lesser Yellowlegs	2	4/30	10	4/30						10
Western Willet	10	4/3	50	4/30						50
Long-billed Curlew	3	4/16	25	4/30						25
Killdeer	1	4/6	25	4/30						25

(over)

(1)	(2)		(3)		(4)		(5)			(6)
III. <u>Doves and Pigeons:</u>										
Mourning dove	1	4/1	10	4/30						10
White-winged dove										
IV. <u>Predaceous Birds:</u>										
Golden eagle	4	3/28	4	3/28	1	4/17				4
Duck hawk										
Horned owl -resident			2	4/30						2
Magpie - resident			65	4/30						65
Raven										
Crow	25	3/25	150	4/2	2	4/17				150
Marsh hawk - resident			25	4/30						25
Rough-legged hawk	2	2/12	4	3/10	3	3/15				4
Sparrow hawk	3	3/28	3	3/28	3	3/38				3
Swainson's hawk	1	2/22	8	3/5	2	3/10				8
Bald eagle	1	3/17	2	3/28	2	3/28				2
Short-eared owl - resident			30	4/30						30
Reported by <u>Russell R. Hoffman</u>										

INSTRUCTIONS

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

3-1751

Form NR-1A
(Nov. 1945)MIGRATORY BIRDS
(other than waterfowl)Refuge Bowdoin Months of May to August 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>										
Horned Grebe			250	7/20					100	500
Eared Grebe			11,000	8/1			3	2,700	6,000	10,000
White Pelican			12,000	8/5			4	3,683	5,957	11,000
Double-crested Cormorants			1,000	8/1			3	170	500	800
Great Blue Heron			60	8/1			3	17	44	25
Black-crowned night heron			550	7/29			1	150	325	300
America n Bittern			10	7/29					5	12
II. <u>Shorebirds, Gulls and</u>										
<u>Terns:</u>										
Kildeer			1,500	7/29					1,800	3,500
Long-billed curlew			500	8/25					150	250
Western willet			1,000	7/2					750	2,500
Greater Yellowlegs			200	7/29					25	200
Lesser Yellowlegs			850	7/29					40	2,000
Long-billed dowitcher			500	8/5						500
Marbled godwit			5,000	7/15					2,000	4,000
Avocet			1,000	7/15					1,500	3,000
Wilson's phalarope			2,500	7/25					1,500	5,000
California gulls			14,000	7/10			3	8,500	10,000	11,000
Ring-billed gulls			15,000	7/10			3	9,600	11,000	12,000
Franklin's gull			6,000	7/15			2	2,000	3,750	5,000
Common tern			500	7/25			2	125	200	300
Black Tern			75	7/25			1	25	45	50

(over)

(1)	(2)	(3)		(4)	(5)		(6)
III. <u>Doves and Pigeons:</u>		125	8/10		12	9	30
Mourning dove							
White-winged dove							
IV. <u>Predaceous Birds:</u>							
Golden eagle		4	6/12				1
Duck hawk		1	7/2				1
Horned owl		2	6/1				2
Magpie		125	8/30		30	42	2
Raven							
Crow							
Marsh hawk		10	8/30		2	8	8
Swinson's hawk		8	8/25		2	6	5
Short-eared owl		20	6/1		6	12	15
				Reported by <u>Russell R. Hoffman</u>			

INSTRUCTIONS

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

3-1751

Form NR-1A
(Nov. 1945)MIGRATORY BIRDS
(other than waterfowl)Refuge BowdoinMonths of September to December 1964

(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					4	10/15				10
Eared Grebe					12	10/15				7,000
Double-crested Cormorant					13	11/10				350
White Pelican					5	10/8				1,000
American Bittern					1	9/10				8
Great Blue Heron					2	11/11				25
Black-crowned Night Heron					150	9/3				250
II. <u>Shorebirds, Gulls and</u>										
<u>Terns:</u>										
California Gull					100	11/15				5,000
Ring-billed Gull					50	11/15				4,000
Franklin's Gull					500	9/14				2,000
Common Tern					10	9/17				200
Black Tern					7	9/3				75
Wilson's Phalarope					20	10/1				1,000
Avocet					3	9/22				500
Common Snipe	4	9/8	35	10/15	2	10/25				50
Long-billed Dowitcher					2	9/10				250
Marbled Godwit					20	9/29				1,500
Greater Yellowlegs					6	10/22				50
Lesser Yellowlegs					10	10/22				350
Western Willet			200	9/2	3	9/10				1,000
Long-billed Curlew			200	8/27	3	9/24				200
Killdeer					5	10/29				1,500

(over)

(1)	(2)		(3)		(4)		(5)			(6)
III. <u>Doves and Pigeons:</u>										
Mourning dove			100	9/18	20	9/16				100
White-winged dove										
IV. <u>Predaceous Birds:</u>										
Golden eagle -resident			3	10/2						3
Duck hawk										
Horned owl-resident			2	9/11						2
Magpie-resident			200	10/2						40
Raven										
Crow	25	9/8	125	9/21	125	9/21				125
Bald Eagle			1	9/11	1	9/11				1
Reported by <u>Russell R. Hoffman</u>										

INSTRUCTIONS

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

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

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

Refuge Bowdoin

For 12-month period ending August 31, 1961

Reported by Russell R. Hoffman

Title Refuge Manager

(1)	(2)		(3)	(4)	(5)
Area or Unit Designation	Habitat Type	Acreage	Use-days	Breeding Population	Production
Unit 1	Crops	25	Ducks	1,667,071	4,835
	Upland	115	Geese	92,029	350
	Marsh	660	Swans	567	0
	Water	500	Coots	266,350	800
	Total	1600	Total	2,026,017	5,985
Unit 2	Crops	0	Ducks	15,284	305
	Upland	40	Geese	1,137	25
	Marsh	80	Swans	0	0
	Water	3	Coots	1,865	25
	Total	123	Total	55,286	355
Unit 3	Crops	10	Ducks	360,791	1,118
	Upland	600	Geese	11,120	75
	Marsh	700	Swans	0	0
	Water	120	Coots	12,139	25
	Total	1430	Total	387,653	1,518
Unit 4	Crops	0	Ducks	1,501,972	3,871
	Upland	810	Geese	18,230	125
	Marsh	800	Swans	105	0
	Water	1400	Coots	165,795	500
	Total	1410	Total	1,719,102	4,499
Unit 5	Crops	0	Ducks	131,806	115
	Upland	600	Geese	11,701	100
	Marsh	850	Swans	0	0
	Water	950	Coots	3,920	50
	Total	2400	Total	150,430	565
Unit 6	Crops	0	Ducks	165,110	5952
	Upland	600	Geese	10,010	125
	Marsh	160	Swans	0	0
	Water	260	Coots	3,850	50
	Total	1020	Total	179,270	770
Unit 7	Crops	0	Ducks	5,369	15
	Upland	800	Geese	168	2
	Marsh	0	Swans	0	0
	Water	0	Coots	0	0
	Total	800	Total	5,537	17

(over)

INSTRUCTIONS

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

- (1) **Area or Unit:** A geographical unit which, because of size, terrain characteristics, habitat type and current or anticipated management practices, may be considered an entity apart from other areas in the refuge census pattern. The combined estimated acreages of all units should equal the total refuge area. A detailed map and accompanying verbal description of the habitat types of each unit should be forwarded with the initial report for each refuge, and thereafter need only be submitted to report changes in unit boundaries or their descriptions.
- (2) **Habitat:** Crops include all cultivated croplands such as cereals and green forage, planted food patches and agricultural row crops; upland is all uncultivated terrain lying above the plant communities requiring seasonal submergence or a completely saturated soil condition a part of each year, and includes lands whose temporary flooding facilitates use of non-aquatic type foods; marsh extends from the upland community to, but not including, the water type and consists of the relatively stable marginal or shallow-growing emergent vegetation type, including wet meadow and deep marsh; and in the water category are all other water areas inundated most or all of the growing season and extending from the deeper edge of the marsh zone to strictly open-water, embracing such habitat as shallow playa lakes, deep lakes and reservoirs, true shrub and tree swamps, open flowing water and maritime bays, sounds and estuaries. Acreage estimates for all four types should be computed and kept as accurate as possible through reference to available maps supplemented by periodic field observations. The sum of these estimates should equal the area of the entire unit.
- (3) **Use-days:** Use-days is computed by multiplying weekly waterfowl population figures by seven, and should agree with information reported on Form NR-1.
- (4) **Breeding Population:** An estimate of the total breeding population of each category of birds for each area or unit.
- (5) **Production:** Estimated total number of young raised to flight age.

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

UNITED STATES
DEPARTMENT OF THE INTERIOR
FISH AND WILDLIFE SERVICE
BUREAU OF SPORT FISHERIES AND WILDLIFE

WATERFOWL UTILIZATION OF REFUGE HABITAT

Refuge Bowdoin For 12-month period ending August 31, 1964

Reported by Russell R. Hoffman Title Refuge Manager

(1)	(2)		(3)	(4)	(5)	
Area or Unit	Habitat			Breeding		
Designation	Type Acreage		Use-days	Population	Production	
Unit 8	Crops	0	Ducks	516.222	925	1.665
	Upland	460	Geese	18.494	48	40
	Marsh	40	Swans	0	0	0
	Water	140	Coots	17.180	100	325
	Total	640	Total	581.896	1.073	2.030
Unit 9	Crops	35	Ducks	1.129.821	2.506	4.150
	Upland	625	Geese	56.238	175	131
	Marsh	100	Swans	273	0	0
	Water	200	Coots	221.130	400	1.245
	Total	960	Total	1.407.462	3.081	5.526
Unit 10	Crops	0	Ducks	3.410.190	5.787	10.222
	Upland	1300	Geese	169.785	200	175
	Marsh	360	Swans	1.743	0	0
	Water	2800	Coots	403.410	500	1.550
	Total	4460	Total	3.985.128	6.487	11.947
Totals	Crops	70	Ducks	8.940.939	20.675	34.813
	Upland	6280	Geese	425.215	1.225	894
	Marsh	3150	Swans	2.688	0	0
	Water	5373	Coots	1.128.939	2.450	7.595
	Total	14873	Total	10.497.781	24.350	43.302
	Crops		Ducks			
	Upland		Geese			
	Marsh		Swans			
	Water		Coots			
	Total		Total			
	Crops		Ducks			
	Upland		Geese			
	Marsh		Swans			
	Water		Coots			
	Total		Total			

(over)

INSTRUCTIONS

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

- (1) **Area or Unit:** A geographical unit which, because of size, terrain characteristics, habitat type and current or anticipated management practices, may be considered an entity apart from other areas in the refuge census pattern. The combined estimated acreages of all units should equal the total refuge area. A detailed map and accompanying verbal description of the habitat types of each unit should be forwarded with the initial report for each refuge, and thereafter need only be submitted to report changes in unit boundaries or their descriptions.
- (2) **Habitat:** Crops include all cultivated croplands such as cereals and green forage, planted food patches and agricultural row crops; upland is all uncultivated terrain lying above the plant communities requiring seasonal submergence or a completely saturated soil condition a part of each year, and includes lands whose temporary flooding facilitates use of non-aquatic type foods; marsh extends from the upland community to, but not including, the water type and consists of the relatively stable marginal or shallow-growing emergent vegetation type, including wet meadow and deep marsh; and in the water category are all other water areas inundated most or all of the growing season and extending from the deeper edge of the marsh zone to strictly open-water, embracing such habitat as shallow playa lakes, deep lakes and reservoirs, true shrub and tree swamps, open flowing water and maritime bays, sounds and estuaries. Acreage estimates for all four types should be computed and kept as accurate as possible through reference to available maps supplemented by periodic field observations. The sum of these estimates should equal the area of the entire unit.
- (3) **Use-days:** Use-days is computed by multiplying weekly waterfowl population figures by seven, and should agree with information reported on Form NR-1.
- (4) **Breeding Population:** An estimate of the total breeding population of each category of birds for each area or unit.
- (5) **Production:** Estimated total number of young raised to flight age.

3-1750r
Form N. C
(Sept. 1960)

WATERFOWL WINTER KILL SURVEY

Refuge Bowdoin

Year 1964

(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	173	1264	Mallard (53), C. Goose (30), Gadwall (12), Widgeon (12), Pintail (8), Redhead (6), Canvasback (6), L. Scaup (3), GW Teal (3), Shoveler (2), Coot (2), BW Teal (1)	138	22	160	175	162
2	66	426	Mallard (45), GW Teal (7), Gadwall (5), Pintail (5), Widgeon (3), Canvasback (3), BW Teal (2), Shoveler (1), Goldeneye (1).	72	13	85	70	90
3	49	159	Mallard (20), Widgeon (8), C. Geese (3), Pintail (3).	34	7	41	50	45
4	45	113	Mallard (33), Pintail (9), C. Geese (4), BW Teal (1), Widgeon (1), Canvasback (1).	49	9	58	47	60
5	52	222	Mallard (49), Pintail (13), Widgeon (6), Gadwall (4), C. Geese (4), Shoveler (2), G.W. Teal (1), B.W. Teal (1).	80	7	87	55	90
6	45	182	Mallard (22), Pintail (6), C. Geese (2), Widgeon (2), Gadwall (1), Unknown (1).	34	5	39	46	40
7	3	3		0	0	0	0	0
7 *	433 *	2369 *		407	63	470	443	487

* Duck season included all except last 2 days of 6th week. All hunters except those of 7th week hunted during duck season.

(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 1. -2

(April 1946)

UPLAND GAME BIRDS

Refuge BowdoinMonths of January to April, 1964

(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.
Ring-necked pheasant	1800	1.5							1200	
Gray partridge	8000	200							40	
Sage grouse	8000	160							50	
Sharp-tailed grouse	1000	40							25	

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.

3-1752

Form 1-2

(April 1946)

UPLAND GAME BIRDS

Refuge BowdoinMonths of May to August, 19 64

(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.
Ring-necked Pheasant	2500	1.4	23	850					1800	
Gray partridge	8000	46	2	50					175	
Sage grouse	8000	80	4	75					100	
Sharp-tailed grouse	800	16	2	25					50	

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.

3-1750
Form A-2
(April 1946)

UPLAND GA BIRDS

Refuge Bowdoin Months of September to December, 1964

(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.
Gray Partridge	8,000	40							200	
Sharp-tailed Grouse	1,000	20							50	
Sage Grouse	8,000	160							50	
Ring-necked pheasant	2,500	1.67			1 M:2.1 F				1,500	

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.

3-17
Form NR-3
(June 1945)

BI(AME

Refuge Bowdoin Calendar Year 1964

(1) Species	(2) Density	(3) Young Produced	(4) Removals				(5) Losses			(6) Introductions		(7) Estimated Total Refuge Population		(8) Sex Ratio
			Hunting	For Re- stocking	Sold	For Research	Predation	Disease	Winter Loss	Number	Source	At period of Greatest use	As of Dec. 31	
Common Name	Cover types, total Acreage of Habitat	Number												
Pronghorn	8,000	50										140	125	35 M 17 F 43 Kids
Mule deer	Transient use											3	0	M:1.3 F
White-tailed Deer	Transient use	5										7	0	

Remarks:

Reported by 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.

3-1'
Form NR-4
(June 1945)

SMALL MAMMALS

Refuge Bowdoin Refuge

Year ending April 30, 1964

(1) Species	(2) Density		(3) Removals					(4) Disposition of Furs					(5) Total	
Common Name	Cover Types & Total Acreage of Habitat	Acres Per Animal	Hunting	Fur Harvest	Predator Control *	For Re- stocking	For Re- search	Share Trapping			Total Refuge Furs Shipped	Furs Donated	Furs Destroyed	Popula- tion
								Permit Number	Trappers Share	Refuge share				
W. T. Jackrabbit	8500	5.3												1000
Cottontail Rabbit	2500													1800
Striped skunk	9000													150
Coyote	9000													2
Canada Lynx														1
Badger	9000													10
Red Fox	9000													12
Muskrat	4000				None									750
Mink	1000				None									10

* List removals by Predator Animal Hunter

* List removals by Predator Animal Hunter

REMARKS:

Reported by Russell B. Hoffman

INSTRUCTIONS

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

- (1) SPECIES: Use correct common name. Example: Striped skunk, spotted skunk, short-tailed weasel, gray squirrel, fox squirrel, white-tailed jackrabbit, etc. (Accepted common names in current use are found in the "Field Book of North American Mammals" by H. E. Anthony and the "Manual of the Vertebrate Animals of the Northeastern United States" by David Starr Jordan.)
- (2) DENSITY: Applies particularly to those species considered in removal programs. Detailed data may be omitted for species occurring in limited numbers. Density to be expressed in acres per animal by cover types. This information is to be prefaced by a statement from the refuge manager as to the number of acres in each cover type found on the refuge; once submitted, this information need not be repeated except as significant changes occur in the area of cover types. Cover types should be detailed enough to furnish the desired information but not so much as to obscure the general picture. Examples: spruce swamp, upland hardwoods, reverting agriculture land, bottom land hardwoods, short grass prairie, etc. Standard type symbols listed in Wildlife Management Series No. 7 should be used where possible. Figures submitted should be based on actual observations and counts on representative sample areas. Survey method used and size of sample area or areas should be indicated under Remarks.
- (3) REMOVALS: Indicate the total number under each category removed since April 30 of the previous year, including any taken on the refuge by Service Predatory Animal Hunter. Also show any removals not falling under headings listed.
- (4) DISPOSITION OF FUR: On share-trapped furs list the permit number, trapper's share, and refuge share. Indicate the number of pelts shipped to market, including furs taken by Service personnel. Total number of pelts of each species destroyed because of unprimeness or damaged condition, and furs donated to institutions or other agencies should be shown in the column provided.
- (5) TOTAL POPULATION: Estimated total population of each species reported on as of April 30.
- REMARKS: Indicate inventory method(s) used, size of sample area(s), introductions, and any other pertinent information not specifically requested.

DISEASE

Refuge BowdoinYear 1964

Botulism

Lead Poisoning or other Disease

Period of outbreak August 2 to September 4, 1964Period of heaviest losses August 2 to August 15, 1964

Losses:

	Actual Count	Estimated
(a) Waterfowl	<u>187</u>	<u>410</u>
(b) Shorebirds	<u></u>	<u>55</u>
(c) Other	<u></u>	<u>40</u>

Number Hospitalized	No. Recovered	% Recovered
(a) Waterfowl <u>45</u>	<u>36</u>	<u>80%</u>
(b) Shorebirds	<u></u>	<u></u>
(c) Other	<u></u>	<u></u>

Areas affected (location and approximate acreage)

SW Bay Bowdoin 200 a cres Bowdoin Lake-north 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 shallow water, warm, dense stand of emergent vegetation and dense growths of aquatics forming slicks and matted areas.

Condition of vegetation and invertebrate life goodRemarks Very little filamentous algae.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 1964

1. Visits

a. Hunting 443 b. Fishing 0 c. Miscellaneous 20,000 d. TOTAL VISITS 20,443

1a. Hunting (on refuge lands)

TYPE	HUNTERS	ACRES	MANAGED BY
Waterfowl	<u>443</u>	<u>4220</u>	<u>BSF&W</u>
Upland Game	<u>0</u>	<u>0</u>	<u>0</u>
Big Game	<u>0</u>	<u>0</u>	<u>0</u>
Other	<u>0</u>	<u>0</u>	<u>0</u>

Number of permanent blinds _____

Man-days of bow hunting included above _____

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

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

TYPE OF AREA	ACRES	MILES
Ponds or Lakes	<u>None</u>	<u>None</u>
Streams and Shores	<u>None</u>	<u>None</u>

1c. Miscellaneous Visits

Recreation 19,625 Official 175
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	<u>0</u>		<u>0</u>	
Bird and Garden Clubs	<u>0</u>		<u>0</u>	
Schools	<u>6</u>	<u>177</u>	<u>7</u>	<u>1520</u>
Service Clubs	<u>1</u>	<u>2</u>	<u>3</u>	<u>105</u>
Youth Groups	<u>4</u>	<u>32</u>	<u>0</u>	<u>0</u>
Professional-Scientific	<u>1</u>	<u>4</u>	<u>0</u>	<u>0</u>
Religious Groups	<u>1</u>	<u>16</u>	<u>1</u>	<u>30</u>
State or Federal Govt.	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
Other	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>

3. Other Activities

TYPE	NUMBER	TYPE	NUMBER
Press Releases	<u>1</u>	Radio Presentations	<u>2</u>
Newspapers (P.R.'s sent to)	<u>12</u>	Exhibits	<u>0</u>
TV Presentations	<u>0</u>	Est. Exhibit Viewers	<u>0</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 Year 1964

Collections and Receipts (Seeds, rootstocks, trees, shrubs)							Plantings (Marsh - Aquatic - Upland)						
Species	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						1900 lbs.							

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

Total acreage planted:

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

Remarks: No collections or receipts this year.

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

Fish and Wildlife Service Branch of Wildlife Refuges

CULTIVATED CROPS - HAYING - GRAZING

Refuge Bowdoin 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			
Oats					9		9	Oats - Mature browse	9
Spring wheat & barley					10		10	Wheat & barley - mature browse	10
Alfalfa			3	3	6	10		Alfalfa	9
Winter wheat							25	Winter wheat - green browse	25
								Fallow Ag. Land	25

No. of Permittees: Agricultural Operations 0 Haying Operations 0 Grazing Operations 12

Hay - Improved (Specify Kind)	Tons Harvested	Acres	Cash Revenue	GRAZING	Number Animals	AUM'S	Cash Revenue	ACREAGE
	None			1. Cattle	485	1006.97	1510.47	5770
				2. Other	27	106.92	106.92	1000
				1. Total Refuge Acreage Under Cultivation				
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.

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

REFUGE GRAIN REPORT

Refuge Bowdoin

Months of January through December, 1964

(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	100	240	340	40*	25	90	155	185	50	135	0
Winter wheat	45	0	45		45		45	0	0	0	0
Barley	117	0	117	10*		22	32	85	25	60	0

(8) Indicate shipping or collection points _____

(9) Grain is stored at Bowdoin Refuge headquarters granary

(10) Remarks * Grain spoiled and disposed of because of poor storage facilities. Granary was repaired.

*See instructions on back. Grain source - Medicine Lake National Wildlife Refuge

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
Bowdoin National Wildl Refuge

ANNUAL REPORT OF PESTICIDE APPLICATION

Proposal Number	Reporting Year
2-64	1964

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)
June 26	Milkweed, sweet clover, kochia, & C. thistle	Along roads, ditches banks, and trails	5	Weedone 64 - 2-4-D Amine	20 pints	4 pts. per a. or acid equivalent 2 # per acre.	Water 16 gal. per acre with equivalent of .99# active ingredient per acre.	Spray
June 29	Milkweed, sweet clover, kochia, & C. thistle	Along roads, ditch banks, and trails	5	Weedone 64 - 2-4-D Amine	20 pints	4 pts. per a. or acid equivalent 2# per acre.	Water 16 gal per acre with equivalent of .99# active ingredient per acre.	Spray

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

Effective control about 75%. Control produced neck-down of target plants beginning at various stages of plant growth; first noted on June 30 and July 2. Some plants were at a late stage of growth, other plants sprouted after application of chemical. This control was done in conjunction with mowing which produced excellent results with a minimum amount of maintenance. A total of 10 acres was treated with one application. No repeat applications were made. Light rain fell on June 27 and June 30. A 25% regrowth by September, mostly Milkweed and Kochia. Less rainfall this year helped keep Sweet Clover growth in check. Cost: Chemical \$16.00, labor \$75.00, total \$91.00 or \$9.10 per acre. No harmful effect to wildlife noted. Plant invasion by June 15, milkweed and kochia mostly, almost 80% from 1963 growing period. Milkweed is the most persistent invader and most difficult to control.

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

Bureau of Sport Fisheries and Wildlife

Refuge

Bowdoin National Wildlife Refuge

ANNUAL REPORT OF PESTICIDE APPLICATION

Proposal Number

1-64

Reporting Year

1964

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)
July 22	All vegetation	Around headquarters buildings, trails, & sign bases.	1	Dybar	86 lbs.	2 lbs. per 1000 sq. ft. or 21.5 active ingredient per acre.	Dry	Hand

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

80% control of all plants. Second year should show added control as more chemical becomes effective in the ground, according to manufacturers' recommendations. Examination of area next season should confirm results. Sterilization should last 5 years. Chemical was applied just prior to a light rain producing a carrier to dissolve chemical which would soak into the ground. First neck-down of plants noted July 27. By September, 80% control observed. Cost: Chemicals, \$138.00, labor \$15.00, total \$153.00. This is the cost per acre.

Trysben, a plant control chemical, was applied on October 31 and November 12, 1963 in other areas to sterilize soil for a period of time. This was reported on NR-12, September - December Narrative Report, 1963. Results of this shows a 99% kill this summer. Manufacturers recommendations states that this control can be expected to last 2 years.



Canada geese using a preferred place - Lakeside Unit.
Roll 148, Ex. 9



Mallards congregating on small open area in ice before
migration south. Roll 152, Ex.19



Winter set in and flocked the trees and bushes. Note the wire on landings of tower - usually invisible at this distance. Roll 153, Ex. 7



Winter came to Bowdoin. "And How" Roll 153, Ex. 9



A snowy owl visited the refuge this fall. These were common this year in the area. Roll 152, Ex. 14



Talking it up - recently hatched in our incubator.



A golden eagle turned over to us by a resident of Saco, Montana. Eagle had a broken wing. Was used by the State of Montana in wildlife exhibits.



Mrs. Eaton's 3rd grade. Roll 143, Ex. 2



Mrs. Smith's 3rd grade. Roll 143, Ex. 4



Cree Crossing school, Mrs. Keranen, teacher.
Roll 143, Ex. 7



Canada lynx track - lynx spent winter to April (last seen) on refuge.



Lynx trail in snow across pond west of headquarters buildings. Animal lived here because of concentration of pheasants and cottontails.



A young antelope killed by a car was turned over to charity.
Roll 148, Ex. 7



Ditch spoil leveled and seeded. Photo taken northeasterly.
Roll 149, Ex. 8



Our new "Shaver" post driver was happily received and works wonders building fence. Many man-hours saved by it.
Roll 150, Ex. 10.



Resurfacing headquarters area with crushed gravel made a considerable improvement. Roll 137, Ex. 12



Black Creek Coulee crossing at SW side of refuge. The culvert was lengthened and repaired. A rock crossing built to take care of flood waters. Roll 147, Ex. 3



Black Creek Coulee crossing at SW side of refuge. Trail grading after culvert was repaired and rock crossing built. Roll 147, Ex. 16



A badly needed road was built connecting the two roads past a branch to control traffic to eliminate scattered trails from getting started. This is also used as a road to a new view point overlooking Bowdoin Lake. This will be surfaced with gravel. Looking NE. Roll 149, Ex. 11



A view point parking area for tourist sightseeing & photography. The entire lake and most of the refuge can be seen from here. An Indian tepee ring is located just to the left of the trail. This will be marked and the area graveled next spring. Looking south. Roll 149, Ex. 12



This is the wasteway leading from the main canal where we get our water. It was resurfaced by Malta Irrigation District this fall. Roll 149, Ex. 5



Because of the repairs to the wasteway, we received more water per day than was considered safe before. Roll 149, Ex. 7



Taking down a steep hill on the patrol trail eliminating a traffic hazard and providing a small mountain of precious and needed gravel. Roll 147, Ex. 12



The patrol trail after the sharp hill was removed.
Roll 147, Ex. 8



A panoramic view of pond bed above dike No. 1. Photo taken from dike towards southwest. Note natural island in center of pond indicated by old growth of sweet clover. Roll 114, Ex. 3, 4, 11, & 12.



The extended limits of the dike will touch the higher land in the background of this photo. The heavy growth of cattails and bulrush will be inundated. Looking south.



Black Creek Coulee area looking east, to be flooded.
Roll 143, Ex. 11.



Area to be ponded above Dike #1. Looking southwest.
Roll 114, Ex. 12.



Area to be ponded above Dike #1. Looking southwest.
Roll 114, Ex. 11.



Pond #1 - showing dike built, looking southeast.
Roll 145, Ex. 5



Dike forming pond #1 in the Black Creek Coulee drainage.
Roll 146, Ex. 11



Dike #1 Black Creek Coulee construction to hold back wasted seepage and runoff water. Roll 146, Ex. 8



Dike #1 Black Creek Coulee ponding construction project showing drainage culvert in place. Roll 146, Ex. 3



Black Creek Coulee area where pond #2 will be formed by second dike. Roll 151, Ex. 13



The beginning of Dike #2 accomplished with a dragline.
Looking northwest. Roll 151, Ex. 18



Some nesting islands built prior to flooding.
Roll 146, Ex. 7



The flash board riser water structure to be used in Dike #2,
a S&M project. Roll 151, Ex. 9



Putting the water structure in Dike #2, a S&M project,
Roll 151, Ex. 4



Setting the cannons to fire on the projection trap.
Roll 148, Ex. 1



Setting up the projection cannon trap for mallards
on the beach. Roll 150, Ex. 15



Our first catch of 401 ducks; mallards, pintails, gadwall, and widgeon mostly. Roll 150, Ex. 20



Bait traps worked good, too. Here ducks are baited into traps with wheat and barley. Roll 148 Ex. 3



Banding hand-reared geese prior to release, 1964.
Roll 145, Ex. 6



Releasing hand-reared geese at Bowdoin Lake, 1964.
All were released here. Roll 145, Ex. 10



Looking east at Bowdoin Refuge and surrounding country.
Roll 142, Ex. 2



An aerial view of Malta showing the Milk River with the Malta Irrigation District feeder canal in the background, looking southwest. Roll 142, Ex. 6



An aerial view of Malta, looking north. Highway #2 east and west past elevators in background. Roll 142, Ex. 10

NARRATIVE REPORT

BLACK COULEE NATIONAL WILDLIFE REFUGE

January through December
1964

I GENERAL

A. Weather Conditions.

Please refer to the Bowdoin report as no weather station is maintained on this area. Last year the water level was good as rain and runoff was average but this winter, water was lost from the lake. Light snowfall resulted in little accumulated spring runoff. Winter was mild and conditions open. December, this year, shows things in reverse as snow has accumulated to a depth that will produce good runoff.

B. Habitat Conditions.

Black Coulee Lake basin was about 2 feet below spillway level this spring. To hold water through summer, water should be at spillway level. Rainfall was average but little was stored. This is true of reservoirs which last year were full are either dry or nearly so. This entire part of the state has commonly a lack of reservoir storage.

Bulrush in beds grew in West Bay and aquatics flourished even with the low water stage. Water receded during summer until heads of bays were dry and emergents died. By late fall, only larger parts of the lake held water and levels were about 4 feet low. There is a good chance that this condition will improve next spring.

The grass comer was good and annuals appear to be growing as usual. Ridges did not have the heavy growth of last year but that year was an exception.

II WILDLIFE

A. Migratory birds.

Spring came to Black Coulee Refuge with a migration showing a larger number of birds than was counted last spring. Excellent food was available and water was adequate to hold an average number of waterfowl into the nesting season. Canada geese were seen in lower numbers this spring migrating north but this is no indication that numbers of geese using this flyway are less as many move through without stopping. Coots arrived latest of ducks or geese but arrived in good number for this small refuge.

Nesting was about average this summer and nesting populations were about equal to last year. Effects of low water did not decrease nesting. A total of 63 duck broods were seen with an average of 5.4 per brood. Goose broods seen were small in number. There was no apparent reason for this except perhaps predation.

The fall migration was not unusual but with less numbers of birds. Canada geese numbers were about average for the fall migration. Most significant in late summer and fall waterfowl numbers was the lack of diving ducks stopping at the refuge.

Waterfowl days use for the year was 566,195 for ducks, 11,970 for geese and 75,950 for coots. Duck use during January to April was up about 4 times, May to August figure was about normal, and September to December about one-half of last years totals.

The lake actually froze during the first week of November leaving a small portion of the surface open for waterfowl. The birds kept this open with their activity. This was about three weeks earlier than last year which made less waterfowl use.

B. Other Birds.

One flock of 6 young sage grouse was seen at the northeast shore of Black Coulee Lake this summer. No other game birds were seen. One golden eagle was observed upon two occasions soaring over the refuge.

IV RESOURCE MANAGEMENT

A. Grazing.

Please refer to IV Resource Management, Bowdoin Refuge. This year, 3 permits were issued for grazing Black Coulee Wildlife Refuge. Permit, Bow.#20, was issued to Mr. William Helgesen, Turner, Montana to graze 11 horses for 62.71 A.U.M. at \$23.41. Permit, Bow #16, was issued to Mr. Guy Riggin to graze 320 acres at \$.15 per acre with a total value of \$48.00. This permit was for cattle. After a change of business, this permit was reissued, Bow #26, at no charge to the Riggin Grazing Association for the same area and for cattle. Mr. Riggin is from Harlem, Montana.

3-1250a

Cont. AR-1

(Rev. March 1953)

WATERFOWL
(Continuation Sheet)REFUGE Black Coulee National Wildlife RefugeMONTHS OF January TO April, 1964

(1) Species	(2) Weeks of reporting period								(3) Estimated waterfowl days use	(4) Production Broods: Estimated seen : total
	3/8-14 11	3/15-21 12	3/22-28 13	3/29-4/4 14	4/5-11 15	4/12-18 16	4/19-25 17	4/26-5/2 18		
Swans:										
Whistling										
Trumpeter										
Geese:										
Canada				30	30	30	30	30	1,050	
Cackling										
Brant										
White-fronted										
Snow										
Blue										
Other Total Geese				30	30	30	30	30	1,050	
Ducks:										
Mallard				600	600	600	600	600	21,000	
Black										
Gadwall				90	90	90	90	90	3,150	
Baldpate				600	600	600	600	600	21,000	
Pintail				500	500	500	500	500	17,500	
Green-winged teal				480	480	480	480	480	16,800	
Blue-winged teal							50	150	1,400	
Cinnamon teal										
Shoveler				650	650	650	650	650	22,750	
Wood										
Redhead				75	75	75	75	75	2,625	
Ring-necked										
Canvasback				80	80	80	80	80	2,800	
Scaup				230	230	230	230	230	8,050	
Goldeneye				50	50	50	50	50	1,750	
Bufflehead										
Ruddy							50	50	700	
Other										
Total Ducks				3355	3355	3355	3455	3555	119,525	
Coot:						75	75		1,050	
				(over)						

	(5)	(6)	(7)
	Total Days Use	Peak Number	Total Production
Swans			
Geese	1050	30	
Ducks	119,525	3555	
Coots	1050	75	

SUMMARY

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

Principal nesting areas are Black Coulee lake area and
marsh.

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).

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

W A T E R F O W L

REFUGE Black Coulee National Wildlife Refuge

MONTHS OF May TO August, 1964

(1) Species	(2) Weeks of reporting period									
	5/3-9 1	5/10-16 2	5/17-23 3	5/24-30 4	5/31-6/6 5	6/7-13 6	6/14-20 7	6/21-27 8	6/28-7/4 9	7/5-11 10
Swans:										
Whistling										
Trumpeter										
Geese:										
Canada	30	30	30	20	20	20	20	20	20	50
Cackling										
Brant										
White-fronted										
Snow										
Blue										
Other Total Geese	30	30	30	20	20	20	20	20	20	50
Ducks:										
Mallard	600	600	450	450	450	450	450	450	450	650
Black										
Gadwall	90	90	350	350	350	350	350	350	350	500
Baldpate	600	600	230	230	230	230	230	230	230	425
Pintail	500	500	100	100	100	100	100	100	175	175
Green-winged teal	480	300	200	100	100	100	100	100	150	150
Blue-winged teal	150	200	250	325	325	325	325	325	400	450
Cinnamon teal				2	2	2	2	2	5	5
Shoveler	650	500	500	300	300	300	300	300	400	400
Wood										
Redhead	75	75	75	75	75	75	75	150	150	200
Ring-necked										
Canvasback	80	50	30	20	20	20	20	20	30	35
Scaup	230	200	100	75	75	75	75	75	150	150
Goldeneye	50	20								
Bufflehead										
Ruddy	50	50	100	175	175	175	175	175	250	250
Other										
Total ducks	3,555	3,185	2,385	2,202	2,202	2,202	2,202	2,277	2,740	3,390
Coots	75	100	250	425	425	425	425	550	600	600

3-7750a

Cont. AR-1

(Rev. March 1953)

WATERFOWL
(Continuation Sheet)REFUGE Black Coulee National Wildlife RefugeMONTHS OF May TO August, 19 64

(1) Species	(2) Weeks of reporting period							(3) Estimated waterfowl days use	(4) Production Broods: Estimated seen : total	
	7/12-18	7/19-25	7/26-8/1	8/2-8	8/9-15	8/16-22	8/23-29			
Swans:										
Whistling										
Trumpeter										
Geese:	50	50	50	50	50	50	50	4,270	10	24
Canada										
Cackling										
Brant										
White-fronted										
Snow										
Blue										
Other total geese	50	50	50	50	50	50	50	4,270	10	24
Ducks:										
Mallard	650	650	400	400	400	300	300	56,700	16	225
Black										
Gadwall	500	500	500	350	350	350	350	42,210	9	175
Baldpate	425	425	425	425	425	425	325	42,770	10	200
Pintail	175	175	175	175	175	175	175	22,225	3	100
Green-winged teal	150	150	150	150	150	100	75	16,935	1	50
Blue-winged teal	450	450	300	300	200	200	150	35,675	8	200
Cinnamon teal	5	5	5	5	5	5	5	385	0	3
Shoveler	400	400	300	300	200	200	150	41,300	5	125
Wood										
Redhead	200	200	200	150	150	150	100	15,225	2	100
Ring-necked										
Canvasback	35	35	35	50	50	50	50	4,410	0	30
Scaup	150	150	150	150	100	50	25	13,660	7	100
Goldeneye								400		
Bufflehead										
Ruddy	250	250	200	150	100	100	40	18,655	2	125
Other										
Total ducks	3390	3390	2840	2605	2305	2105	1745	313,440	63	1433
Coot:	600	600	600	500	400	300	300	50,225	12	250
				(over)						

	(5) Total Days Use	(6) Peak Number	(7) Total Production	SUMMARY
Swans	:	:	:	Principal feeding areas <u>Black Coulee Lake area.</u>
Geese	4,270	50	24	
Ducks	313,040	3555	1433	Principal nesting areas <u>Black Coulee Lake and marsh .</u>
Coots	50,225	600	250	
				Reported by <u>Russell R. Hoffman</u> 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).

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

W A T E R F O W L

REFUGE Black Coulee

MONTHS OF September TO December, 1964

(1) Species	(2) Weeks of reporting period									
	8/30-9/5 1	9/6-12 2	9/13-19 3	9/20-26 4	9/27-10/3 5	10/4-10 6	10/11-17 7	10/18-24 8	10/25-31 9	11/1-7 10
Swans:										
Whistling										
Trumpeter										
Geese:										
Canada	50	75	75	75	75	100	100	100	150	150
Cackling										
Brant										
White-fronted										
Snow										
Blue										
XXXXX Total Geese	50	75	75	75	75	100	100	100	150	150
Ducks:										
Mallard	300	450	450	450	450	600	600	300	175	175
Black										
Gadwall	350	400	400	400	400	600	600	200	25	25
Baldpate	325	500	500	500	500	500	500	300	50	50
Pintail	175	300	300	300	300	450	450	350	75	75
Green-winged teal	75	100	100	100	100	100	75	50	20	20
Blue-winged teal	150	250	250	250	250	100	50			
Cinnamon teal										
Shoveler	150	200	200	200	200	200	100	25	5	5
Wood										
Redhead	100	50	50	50	50	25	25	25	15	15
Ring-necked										
Canvasback	50	60	60	60	60	50	50	25	5	5
Scaup	25	125	125	125	125	100	50	25		
Goldeneye										
Bufflehead										
Ruddy	40	50	50	50	50	50	25	10		
Other										
Total ducks	1,740	2,485	2,485	2,485	2,485	2,775	2,525	1,310	370	370
Cor	300	300	500	500	500	500	400	300	200	25

3 - 70a
 Cont. NR-1
 (Rev. March 1953)

WATERFOWL
 (Continuation Sheet)

REFUGE Black Coulee

MONTHS OF September TO December, 19 64

(1) Species	(2) Weeks of reporting period								(3) Estimated waterfowl days use	(4) Production Broods: Estimated seen : total	
	11/8-14 11	11/15-21 12	11/22-28 13	11/29-12/5 14	15	16	17	18			
Swans:											
Whistling											
Trumpeter											
Geese:											
Canada									6,650		
Cackling											
Brant											
White-fronted											
Snow											
Blue											
Other Total Geese									6,650		
Ducks:											
Mallard	15	15							27,860		
Black											
Gadwall									23,800		
Baldpate									26,075		
Pintail	10	10							19,565		
Green-winged teal	5	5							5,250		
Blue-winged teal									9,100		
Cinnamon teal											
Shoveler									8,995		
Wood											
Redhead									2,835		
Ring-necked											
Canvasback									2,975		
Scaup									4,900		
Goldeneye											
Bufflehead											
Ruddy									2,275		
Other											
Total Ducks	30	30							133,630		
Coot:									24,675		
				(over)							

	(5) Total Days Use	(6) Peak Number	(7) Total Production	SUMMARY
Swans	None	None		Principal feeding areas <u>are Black Coulee Lake and marsh,</u>
Geese	6,650	150		<u>and fields surrounding refuge.</u>
Ducks	133,630	2,775		Principal nesting areas _____
Coots	24,675	500		
				Reported by <u>Russell R. Hoffman</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).

(Rev. Jan. 1956)

Fish and Wildlife Service Branch of Wildlife Refuges

CULTIVATED CROPS - HAYING - GRAZING

Refuge Black Coulee

County Blaine

State Montana

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		15¢ per acre	\$48.00	320
				2. Other Horses	11	62.71	23.41	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

January through December
1964

I GENERAL

A. Weather Conditions.

No weather station is maintained on this area. Please refer to the Bowdoin report. This area is much drier than many parts of Montana and is in its fourth year of below average rainfall. No runoff helped store water in any reservoirs this spring and water was badly needed for livestock.

B. Habitat Conditions.

The level of the lake was 4 feet below the automatic weir after ice had disappeared from the lake. Since no water was added, this dropped continually all summer until the lake dried up. Only a narrow channel of water remained in September. Mr. Bert Anderson who works for the Clack Estate and who has lived here for 45 years, reports that this is the second time the lake has dried up in the time he has been there. It is also only the fourth time that he was not able to irrigate out of the reservoir. He referred to the fourth time as the period during the past three years that the water has been very low.

Ice went out of the lake during the third week of March. Food was available in grain fields nearby and aquatics could be obtained in the lake. Brush and heavy grass in the swale below the dam provided ample cover and protection.

II WILDLIFE

A. Migratory Birds.

Waterfowl made good use of the refuge this spring during the migration as Creedman is a favored spot for many different species. A fair number of ducks stayed during the nesting season and broods were common in summer. By the end of August, the lake had dried to the extent that waterfowl use ended. No doubt, some broods were effected by this. Goose nesting has increased here over a period of time and this year, geese were bunched as usual. Goslings were counted in long strings and on one visit, 42 were tallied in one group. This is encouraging as cover is limited around the lake.

The fall migration passed this refuge by as water was lacking. Creedman Lake always held a fair number of western grebes during the spring and fall flights. This year none of these birds were seen on the refuge.

B. Other Birds.

The usual shorebirds were seen here this summer. Killdeer, lesser yellowlegs, willets, avocets and least sandpipers were observed on visits this summer. Pheasants were seen in the thickets below the dam. A great horned owl raised 2 young in a nest perched in a dead tree again this summer. One Swainson's hawk completed a nest this year.

C. Animals.

One doe mule deer raised a fawn in the thickets this year. Antelope were seen many times travelling through the refuge and on one occasion, bedded down along the west side. One coyote was seen travelling through.

III. REFUGE DEVELOPMENT AND MAINTENANCE

A. Physical Development.

For a period of time, the water control valve in the dike has been inoperable and control of water was impossible. Consideration was given to repairs several times but water depth in the lake made this a big and awkward job requiring a considerable sized coffer dam.

This summer with the lake bed dry was the time to repair this structure with the least amount of work and expense. The entire job was completed in a very short time. Two ranchers, Mr. Bert Anderson and his son, Mr. Gilbert Anderson, living on the Clack Estate were willing and eager to make any necessary repairs so they could use water for irrigation from above the automatic weir that was put in place to assure a definite water level in the lake.

The old control valve was pulled, a new one purchased and altered like the first by Blair Iron Works in Havre, Montana, and put in place in the culvert. This entire job was done 20 feet below the surface of the dike and it was necessary to rent a 4 inch "mud hog" pump to keep water clear for working space.

Cost of this work amounted to \$178.87 for parts and labor to alter the valve control and an estimated \$100.00 for refuge personnel time. No labor costs was attributed for rancher's time.

IV. RESOURCE MANAGEMENT

A. Grazing.

Please refer to Bowdoin Refuge report part IV. Resource Management.

One grazing permit was issued this year to the Margaret Turner Clack Trusts, Bow.#15, for 80 acres @ \$.15 per acre amounting to \$12.00. This lease is issued on the fiscal year basis.

3 -J750a

Cont. R-1
(Rev. March 1953)WATERFOWL
(Continuation Sheet)REFUGE Croedman Coulee National Wildlife RefugeMONTHS OF January TO April, 19 64

(1) Species	(2) Weeks of reporting period								(3) Estimated waterfowl days use	(4) Production Broods: Estimated seen : total
	3/6-14 11	3/15-21 12	3/22-28 13	3/29-4/4 14	4/5-11 15	4/12-18 16	4/19-25 17	4/26-5/2 18		
Swans:										
Whistling										
Trumpeter										
Geese:										
Canada		30	50	100	100	50	30	30	2,730	
Cackling										
Brant										
White-fronted										
Snow										
Blue										
Other Total geese		30	50	100	100	50	30	30	2,730	
Ducks:										
Mallard		150	200	350	350	350	350	350	14,700	
Black										
Gadwall				55	55	55	55	55	1,925	
Baldpate		75	100	150	150	150	150	150	6,475	
Pintail		100	125	75	75	75	75	75	4,200	
Green-winged teal			75	150	150	150	150	150	5,775	
Blue-winged teal				125	125	125	125	125	4,375	
Cinnamon teal										
Shoveler			100	150	150	150	150	150	5,950	
Wood										
Redhead			35	150	150	150	150	150	5,495	
Ring-necked										
Canvasback			25	60	60	60	60	60	2,275	
Scaup				400	400	400	400	400	16,000	
Goldeneye				10	10	10	10	10	350	
Bufflehead			10	25	25	25	25	25	945	
Ruddy				200	200	200	200	200	7,000	
Other				10	10	10	10	10	350	
Total Ducks		325	670	1910	1910	1910	1910	1910	73,815	
Coot:				100	100	100	100	100	3,500	
				(over)						

	(5)	(6)	(7)
	Total Days Use	Peak Number	Total Production
Swans	:	:	:
Geese	2730	100	:
Ducks	73,615	1910	:
Coots	3500	100	:

SUMMARY

Principal feeding areas are Creedman Lake.

Principal nesting areas are Creedman Lake area and swale below lake.

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).

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

WATERFOWL

REFUGE Creedman Coulee National Wildlife Refuge

MONTHS OF May TO August, 19 64

(1) Species	(2) Weeks of reporting period									
	5/5-5/9: 1	5/10-16: 2	5/17-23: 3	5/24-30: 4	5/31-6/6: 5	6/7-13: 6	6/14-20: 7	6/21-27: 8	6/28-7/4: 9	7/5-11: 10
Swans:										
Whistling										
Trumpeter										
Geese:										
Canada	30	30	30	30	30	52	52	52	90	90
Cackling										
Brant										
White-fronted										
Snow										
Blue										
Other										
Total Geese	30	30	30	30	30	52	52	52	90	90
Ducks:										
Mallard	350	350	350	350	300	300	300	300	400	400
Black										
Gadwall	50	50	50	50	50	50	50	50	100	100
Baldpate	150	150	150	150	150	150	150	150	250	250
Pintail	75	75	100	100	100	100	100	100	125	125
Green-winged teal	150	150	150	150	150	150	150	150	200	200
Blue-winged teal	125	125	200	200	200	200	200	200	200	200
Cinnamon teal										
Shoveler	150	150	150	150	100	100	100	100	200	200
Wood										
Redhead	150	150	75	50	50	50	50	50	100	100
Ring-necked										
Canvasback	60	60	50	20	20	20	20	20	40	40
Scaup	400	400	250	100	15	15	15	15	50	50
Goldeneye	10	10								
Bufflehead	25	25								
Ruddy	200	200	200	200	200	200	200	200	200	200
Other										
Total ducks	1,895	1,895	1,520	1,335	1,335	1,335	1,335	1,335	1,865	1,865
	100	100	100	100	100	50	50	50	75	75

3-1750a

Cont. AR-1

(Rev. March 1953)

WATERFOWL
(Continuation Sheet)REFUGE Creedman Coulee National Wildlife RefugeMONTHS OF May TO August, 1964

(1) Species	(2) Weeks of reporting period								(3) Estimated waterfowl days use	(4) Production Broods: Estimated seen: total	
	7/12-18	7/19-25	7/26-8/1	8/2-8	8/9-15	8/16-22	8/23-29	18			
Swans:											
Whistling											
Trumpeter											
Geese:											
Canada	90	90	90	90	40	40	40		6,762	13	75
Cackling											
Brant											
White-fronted											
Snow											
Blue											
Other Total Geese	90	90	90	90	40	40	40		6,762	13	75
Ducks:											
Mallard	400	400	300	300	200	25			35,175	10	200
Black											
Gadwall	100	100	75	50	50				6,825	4	65
Baldpate	250	150	100	50	25			1	15,932	3	100
Pintail	125	75	75	20	20				9,205	8	65
Green-winged teal	200	200	100	25					14,875	2	50
Blue-winged teal	200	100	100	100	50	25			16,975	12	125
Cinnamon teal											
Shoveler	200	100	50	50	10	10			12,740	7	125
Wood											
Redhead	100	50	25						7,000	0	10
Ring-necked											
Canvasback	40	25	20	10					3,115	2	15
Scaup	50	50	20	10					10,080	1	20
Goldeneye									140		
Bufflehead									350		
Ruddy	200	200	100	75	25	25			18,375	4	125
Other											
Total ducks	1865	1450	965	690	380	85	1		150,787	53	900
Coot:	75	75	50	50	25	25	5		7,735	3	165
				(over)							

	(5)	(6)	(7)	SUMMARY
	Total Days Use	Peak Number	Total Production	
Swans				Principal feeding areas <u>Creedman Coulee Lake area</u>
Geese	<u>6,762</u>	<u>90</u>	<u>75</u>	
Ducks	<u>150,787</u>	<u>1895</u>	<u>900</u>	Principal nesting areas <u>Creedman Coulee Lake and marsh.</u>
Coots	<u>7,735</u>	<u>100</u>	<u>165</u>	
				Reported by <u>Russell R. Hoffman</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).

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

WATERFOWL

REFUGE Creedman Coulee

MONTHS OF September TO December, 19 64

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3 - '0a
 Cont. NR-1
 (Rev. March 1953)

WATERFOWL
 (Continuation Sheet)

REFUGE Creedman Coulee

MONTHS OF September TO December, 19 64

(1) Species	(2) Weeks of reporting period								(3) Estimated waterfowl days use	(4) Production Broods: Estimated seen : total	
	11	12	13	14	15	16	17	18			
Swans:											
Whistling											
Trumpeter											
Geese:											
Canada									280		
Cackling											
Brant											
White-fronted											
Snow											
Blue											
Other Total Geese									280		
Ducks:											
Mallard											
Black											
Gadwall											
Baldpate											
Pintail											
Green-winged teal											
Blue-winged teal											
Cinnamon teal											
Shoveler											
Wood											
Redhead											
Ring-necked											
Canvasback											
Scaup											
Goldeneye											
Bufflehead											
Ruddy											
Other											
Coot:											
				(over)							

	(5) Total Days Use	(6) Peak Number	(7) Total Production	SUMMARY
Swans	:	:	:	Principal feeding areas are Creedman Lake
Geese	280	40	:	
Ducks	:	:	:	Principal nesting areas are Creedman Lake area and
Coots	:	:	:	swale below lake.
Reported by				<i>Russell R. Hoffman</i> 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).

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

Fish and Wildlife Service Branch of Wildlife Refuges

CULTIVATED CROPS - HAYING - GRAZING

Refuge Creedman Coulee County Hill 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
			Harvested		Unharvested				
	Acres	Bu./Tons	Acres	Bu./Tons	Acres	Bu./Tons			
								Fallow Ag. Land	

No. of Permittees: Agricultural Operations _____ Haying Operations _____ Grazing Operations 2

Hay - Improved (Specify Kind)	Tons Harvested	Acres	Cash Revenue	GRAZING	Number Animals	AUM'S	Cash Revenue	ACREAGE
				1. Cattle		15¢ per acre	\$24.00	80
				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.

NARRATIVE REPORT

HEWITT LAKE NATIONAL WILDLIFE REFUGE

January through December
1964

I GENERAL

A. Weather Conditions.

Please refer to the Bowdoin report as no weather station is maintained on this area. The refuge is located only about 20 miles from Bowdoin and the same weather would apply.

B. Habitat Conditions.

This area like other areas of Montana received very little runoff this spring. Hewitt Lake was only about one-half full to start the season and this slowly evaporated until the lake bed was dry by September 20. A few rain showers helped along the way to keep some water in the lake as this is an excellent watershed for storing water.

This area has not been grazed for two years and the cover around the lake is very good for nesting and for providing food.

II WILDLIFE

A. Migratory Birds.

A total of 363,335 duck days use is recorded this year besides the 4200 goose days use and 6,020 for coots. The early migration was very good and birds moved in and nested in and around the lake. Shoveler ducks were common nesters this summer and many broods were observed. Mallard, gadwall and pintail ducks were also found commonly. As the season progressed, duck numbers fluctuated with the amount of water in the lake and many were seen flying to the Milk River or back. Coot were not nearly as common this summer as in the past.

B. Other Birds.

Long-billed curlews were common nesters this summer and it was good to see this bird here in number. Willets, avocets and killdeer were observed many times.

C. Animals.

Two antelope were seen on the refuge. Deer have never been seen here but probably use the area as it is close to the river.

IV RESOURCE MANAGEMENT

A. Grazing.

No grazing was allowed this year because water conditions did not permit available drinking areas for cattle.

3-1750a

Cont. R-1

(Rev. March 1953)

WATERFOWL
(Continuation Sheet)REFUGE Hewitt Lake National Wildlife RefugeMONTHS OF January TO April, 1964

(1) Species	(2) Weeks of reporting period								(3) Estimated waterfowl days use	(4) Production Broods: Estimated seen : total
	3/8-11 11	3/15-21 12	3/22-28 13	3/29-4/4 14	4/5-11 15	4/12-18 16	4/19-25 17	4/26-5/2 18		
Swans:										
Whistling										
Trumpeter										
Geese:										
Canada					30	30	30	30	840	
Cackling										
Brant										
White-fronted										
Snow										
Blue										
Other Total Geese					30	30	30	30	840	
Ducks:										
Mallard					425	600	600	800	16,975	
Black										
Gadwall					570	500	500	500	11,490	
Baldpate					970	970	970	500	23,870	
Pintail					480	400	400	400	11,760	
Green-winged teal					100	100	100	100	2,800	
Blue-winged teal							100	150	1,750	
Cinnamon teal										
Shoveler					75	150	200	200	4,375	
Wood										
Redhead					100	100	100	100	2,800	
Ring-necked										
Canvasback					100	100	100	100	2,800	
Scaup					50	125	150	150	3,325	
Goldeneye					125	125	50	20	2,200	
Bufflehead						10	20	20	350	
Ruddy							100	100	1,400	
Other										
Total Ducks					2995	3180	3390	3140	88,935	
Coot:					25	25	25	25	700	
					(over)					

	(5)	(6)	(7)
	Total Days Use	Peak Number	Total Production
Swans			
Geese	840	30	
Ducks	88,935	1390	
Coots	700	25	

SUMMARY

Principal feeding areas are Hewitt Lake

Principal nesting areas are Hewitt Lake area.

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).

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

W A T E R F O W L

REFUGE Hewitt Lake National Wildlife Refuge

MONTHS OF May TO August, 1964

(1) Species	(2) Weeks of reporting period									
	5/3-5/9 1	5/10-16 2	5/17-23 3	5/24-30 4	5/31-6/6 5	6/7-13 6	6/14-20 7	6/21-27 8	6/28-7/4 9	7/5-11 10
Swans:										
Whistling										
Trumpeter										
Geese:										
Canada	30	30	30	30	30	30	30	30	40	40
Cackling										
Brant										
White-fronted										
Snow										
Blue										
Other Total geese	30	30	30	30	30	30	30	30	40	40
Ducks:										
Mallard	800	600	600	600	600	600	750	750	1000	1000
Black										
Gadwall	500	500	500	500	250	250	250	500	500	600
Baldpate	500	500	500	500	150	150	150	200	200	200
Pintail	400	400	400	400	200	100	100	100	100	100
Green-winged teal	100	100	100	100	200	200	200	200	300	300
Blue-winged teal	150	150	150	150	250	250	250	250	300	300
Cinnamon teal										
Shoveler	200	200	200	300	500	500	500	500	500	500
Wood										
Redhead	100	100	100	100	50	50	50	50	100	100
Ring-necked										
Canvasback	100	100	75	75	50	50	50	25	25	25
Scaup	150	150	150	150	150	150	100	100	50	50
Goldeneye	20	20								
Bufflehead	20	5								
Ruddy	100	100	100	50	25	20	10	10	10	10
Other										
Total ducks	3140	2925	2875	2925	2425	2320	2410	2685	3085	3185
Gulls	25	25	25	25	50	50	50	50	100	100

3-1750a

Cont. NR-1

(Rev. March 1953)

WATERFOWL
(Continuation Sheet)REFUGE Hewitt Lake National Wildlife RefugeMONTHS OF May TO August, 1964

(1) Species	(2) Weeks of reporting period								(3) Estimated waterfowl days use	(4) Production Broods: Estimated seen : total
	7/12-18 : 11	7/19-25 : 12	7/26-8/1 : 13	8/2-8 : 14	8/9-15 : 15	8/16-22 : 16	8/23-29 : 17	18		
Swans:										
Whistling										
Trumpeter										
Geese:										
Canada	40	40	10	10	10	10	10		3,150 22,050	10 45
Cackling										
Brant										
White-fronted										
Snow										
Blue										
Other Total geese	40	40	10	10	10	10	10		3,150 22,050	10 45
Ducks:										
Mallard	1000	1000	1000	500	500	100	5		79,835	12 200
Black										
Gadwall	600	600	600	350	300	25			47,775	17 275
Baldpate	200	200	200	50	10				25,970	0 50
Pintail	100	100	100	25	25				18,550	19 175
Green-winged teal	300	300	100	25	10	10			17,815	2 50
Blue-winged teal	300	300	150	150	75	25	5		22,435	8 150
Cinnamon teal										
Shoveler	500	500	100	100	25	25	15		36,155	24 210
Wood										
Redhead	100	100	100	25					7,875	25
Ring-necked										
Canvasback	25	25	10	10					4,515	
Scaup	25								8,575	
Goldeneye									200	
Bufflehead									175	
Ruddy	10	10							3,105	
Other										
Total Ducks	3160	3135	2360	1235	915	185	25		273,140	82 1135
Coot:	100	50	50	25	25	10			5,320	4 20
				(over)						

	(5)	(6)	(7)
	Total Days Use	Peak Number	Total Production
Swans	:	:	:
Geese	273,150	3400	3445
Ducks	273,140	3160	1135
Coots	5,320	100	20

SUMMARY

Principal feeding areas Hewitt Lake Area

Principal nesting areas Hewitt Lake and marsh.

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).

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

W A T E R F O W L

REFUGE Hewitt Lake

MONTHS OF September TO December, 19 64

(1) Species	(2) Weeks of reporting period									
	8/30-9/5	9/6-12	9/13-19	9/20-26	9/27-10/3	10/4-10	10/11-17	10/18-24	10/25-31	11/1-7
	1	2	3	4	5	6	7	8	9	10
Swans:										
Whistling										
Trumpeter										
Geese:										
Canada	10	10	10							
Cackling										
Brant										
White-fronted										
Snow										
Blue										
Other Total geese	10	10	10							
Ducks:										
Mallard	5	10	5							
Black										
Gadwall	15	15	15							
Baldpate										
Pintail	10	15	5							
Green-winged teal										
Blue-winged teal	10	10	5							
Cinnamon teal										
Shoveler	25	25	10							
Wood										
Redhead										
Ring-necked										
Canvasback										
Scaup										
Goldeneye										
Bufflehead										
Ruddy										
Other										
Total Ducks	65	75	40							

3-1750a

Cont. AR-1

(Rev. March 1953)

WATERFOWL
(Continuation Sheet)REFUGE Hewitt LakeMONTHS OF September TO December, 19 64

(1) Species	(2) Weeks of reporting period								(3) Estimated waterfowl days use	(4) Production Broods: Estimated seen : total
	11	12	13	14	15	16	17	18		
Swans:										
Whistling										
Trumpeter										
Geese:										
Canada									210	
Cackling										
Brant										
White-fronted										
Snow										
Blue										
other Total geese									210	
Ducks:										
Mallard									140	
Black										
Gadwall									315	
Baldpate										
Pintail									210	
Green-winged teal										
Blue-winged teal									175	
Cinnamon teal										
Shoveler									420	
Wood										
Redhead										
Ring-necked										
Canvasback										
Scaup										
Goldeneye										
Bufflehead										
Ruddy										
Other										
Total ducks									1,260	
Coot:										
				(over)						

	(5) Total Days Use	(6) Peak Number	(7) Total Production	SUMMARY
Swans	:	:	:	Principal feeding areas <u>are Hewitt Lake</u>
Geese	<u>210</u>	<u>10</u>	:	
Ducks	<u>1,260</u>	<u>65</u>	:	Principal nesting areas _____
Coots	:	:	:	

Reported by Russell R. Hoffman
Refuge Manager

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

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

NARRATIVE REPORT

THIBADEAU NATIONAL WILDLIFE REFUGE

January through December
1964

I GENERAL

This refuge was dry all year as runoff was never great enough to accumulate water in any of the basins. There was no use made of this area by waterfowl.

With the snowfall in December and any subsequent precipitation there is a chance that this summer may be the year to see water in Thibadeau for the first time in many years. It is certainly hoped that water could be stored once again in these basins as records show that this is a highly productive area for waterfowl and has a great potential that is being wasted.

This area affords little shelter for upland game or big game. Any game in the area utilize it to some extent but do not stay for long. The several visits this year revealed no sight records of game birds or animals.

3 - 2250a

Cont. R-1

(Rev. March 1953)

WATERFOWL
(Continuation Sheet)REFUGE Thibadesu National Wildlife RefugeMONTHS OF January TO April, 19 64

(1) Species	(2) Weeks of reporting period								(3) Estimated waterfowl days use	(4) Production Broods: Estimated seen : total	
	11	12	13	14	15	16	17	18		seen	total
Swans:											
Whistling											
Trumpeter											
Geese:											
Canada											
Cackling											
Brant											
White-fronted											
Snow											
Blue											
Other											
Ducks:											
Mallard											
Black											
Gadwall											
Baldpate											
Pintail											
Green-winged teal											
Blue-winged teal											
Cinnamon teal											
Shoveler											
Wood											
Redhead											
Ring-necked											
Canvasback											
Scaup											
Goldeneye											
Bufflehead											
Ruddy											
Other											
Coot:											

(over)

	(5) Total Days Use	(6) Peak Number	(7) Total Production	SUMMARY
Swans	:	:	:	Principal feeding areas
Geese	:	:	:	
Ducks	:	:	:	Principal nesting areas
Coots	:	:	:	

Reported by Russell R. Hoffman
Refuge Manager *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).

WATERFOWL

MONTHS OF May TO August, 19 64

[illegible]