

BRANCH OF WILDLIFE REFUGES

Narrative Report Routing Slip

Date Oct. 1, 1953

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Mr. DuMont PDAD

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Stenographers

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Refuge BOWDOIN, CREEDMAN COULEE, BLACK COULEE, LAKE THIBADEAU, HEWITT LAKE

Period May-August 1953

NARRATIVE REPORT

BOWDOIN NATIONAL WILDLIFE REFUGE

&

CREEDMAN COULEE

LAKE THIBADEAU

BLACK COULEE

HEWITT LAKE

May 1 to August 31, 1953

Personnel -----Regular

Leon C. Snyder

Refuge Manager

Norman S. Haugness

Maintenance Man Gen.

Billy Welch

Clerk Typist

Personnel -----Temporary

Orvil E. Dyrdaahl

Dragline Operator

Charles C. Henry

Truck Driver & Constr.

Inspector

John B. Klotz

Truck Driver (Term. 7/31/53)

Alfred Higdem

Truck Driver (term 6/30/53)

Hubert L. Link

Truck Driver (term 6/30/53)

Lawrence E. Voorheis

Truck Driver (term 6/15/53)

Swen A. Carlberg

Operator Gen (term 6/30/53)

Arthur Schlieve

Laborer (term 6/30/53)

Donald L. Henry

Laborer (term. 6/30/53)

Fred L. Kemp

Laborer (term. 6/30/53)

Henry B. Weeres

Laborer (term. 6/30/53)

Edgar E. Potter

Laborer (term. 6/30/53)

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## NARRATIVE REPORT

## BOWDOIN NATIONAL WILDLIFE REFUGE

May 1 to August 31, 1953

## I GENERAL

A. Weather Conditions:

All temperature data contained herein was obtained through cooperation of the Reclamation Office in Malta. Precipitation during the period was recorded at the refuge headquarters.

The period as a whole went to extremes in every respect. During May temperatures were below normal and precipitation was exceedingly above average. Severe frosts and snow storms were frequent. June was possibly the only month of the period with near normal weather conditions, however normal rainfall on top of the 5.23 inches of May kept ground conditions saturated and made working conditions very rough. July and August up to August 27 was just the opposite of May and June. Only 1.14 inches rain was recorded for July while the past 5 year average was 1.72 inches. Only .05 inches fell during August up to the evening of the 27th. .90 inches fell in a three fourths hour period during the late evening hours, and brought the total for the month up to the average of the past 5 years. Showers were well scattered during the last week of August and some areas received much more rain than did the refuge. Very severe lightning accompanied all these showers and numerous fires were set but because of the accompanying rain damage was not too severe. Temperatures climbed above 100 degrees several times during July. High winds were much less frequent than usual and during the latter half of the period especially, winds were predominantly out of the east, northeast or southeast.

Planting of agricultural crops was considerably delayed because the extremely wet spring and everyone feared a late harvest season. However, the hot dry weather of July and August ripened all grains much faster than usual, thus if anything harvesting is now ahead of schedule and will be completed within a very few days. Although trees and shrubs were late in leafing out foliage later became very heavy.

The following table gives comparative weather for this period back through 1948.

Table 1. Weather Data

1953

Month	Precip.	Maximum	Minimum	Mean Monthly	Normal
May	5.23	85	21	51.7	55.8
June	3.53	87	41	65.6	63.7
July	1.14	101	44	70.5	71.2
Aug.	<u>1.15</u>	92	46	68.7	68.2
Total	11.05				

1952

May	1.79	78	32	56.4	As above
June	1.97	90	39	63.3	
July	2.19	95	43	67.0	
Aug.	<u>1.15</u>	96	38	68.2	
Total	7.10				

1951

May	0.78	93	34	57.3	As above
June	3.11	85	31	56.8	
July	0.78	99	41	70.1	
Aug.	<u>1.48</u>	97	41	65.4	
Total	7.15				

1950

May	0.49	85	24	53.1	As above
June	2.99	85	32	61.2	
July	2.45	95	46	67.5	
Aug.	<u>0.83</u>	88	32	65.4	
Total	6.76				

1949

May	2.03	87	32	59.4	As above
June	1.04	95	37	64.1	
July	1.03	99	42	70.1	
Aug.	<u>0.85</u>	100	37	71.9	
Total	4.95				

1948

May	0.77	87	32	67.3	As above
June	3.45	95	36	63.1	
July	2.14	99	44	68.8	
Aug.	<u>0.58</u>	103	47	70.0	
Total	6.94				



## B. Water Conditions:

At the begining of the period all refuge water units were slightly below normal and considerably lower than on May 1 of the 3 preceding years when flood waters overflowed the dikes and filled all units to overflow elevations. Very little early spring runoff was received this year. The incessent rains of May and early June created quite a lot of sporadic runoff raising Bowdoin and Dry Lake units 6 inches between May 1 and June 5. Rains during the remainder of June just about maintained the 2205.3 guage reading of June 5 for Lake Bowdoin and the 2206.6 guage reading on Dry Lake. Evaporation during July and August was extremely high. Water levels of these two units would have dropped to a dangerously low elevation had it not been possible to draw from Reclamation sources during the latter half of the period. It was not possible to draw from Reclamation sources during May and June due to the fact work in connection with the construction of 8 concrete bridges and the sloping of last years dragline fill on dike C could not be carried on with heavy flows going through the bridge sites or with optimum water elevations.

The Lakeside Marsh and extension units were maintained at the desired elevation of 2223 throughout the period by cracking the flashboard structure in the Reclamation canal that diverts water into these units. On July 15 the flow to Lakeside was increased to about 25 S.F. and about the same size flow was diverted through Lakeside structure #5 to Dry Lake. The flow through this unit to Dry Lake was maintained throughout the latter half of July and reduced to about 15 S.F. for all of August. On August 1 the flow into Lakeside was increased to about 40 S.F. and about 20 S.F. was diverted through structure #6 to Lake Bowdoin. This flow also was maintained throughout August. About 25 S.F. was also turned into Lake Bowdoin on August 15 through the large Reclamation waste-way structure in the headquarters area.

The following is a tabulation of maintenance water received from the Reclamation Service during July and August:

Area	Period	Est. S.F.	Est. acre ft. per 24 hr.	Est. total acre ft.
Dry Lake	7/15-7/31	25	50	800
Dry Lake	8/1-8/31	15	30	930
Bowdoin	8/1-8/31	20	40	1240
Bowdoin	8/15-8/31	25	50	800
Lakeside Marsh	8/1-8/31	5	10	310
Total				4080

All the above figures are estimates as there are no guages or other means of measuring the exact amount flow. The Reclamation Superintendent, Mr. Bruce Garlinghouse gave the Refuge Manager authorization to manipulate the outlets on the Nelson Reservoir feeder canal as he saw fit. This cooperation from the Reclamation Service is deeply appreciated.



Evaporation loss on Lake Bowdoin from July 1 to August 15 was from 2205.2 to 2204.5. This low elevation dried up the major portions of all alkali bulrush marsh areas and created large dried up mud flat areas. This heavy evaporation occurred in spite of the fact that we were taking in supplemental water from the Reclamation canal plus quite substantial irrigation return flows coming in through bridge sites 12, 13, 14 and 15. No gain over evaporation was noted until after August 15 when the intake flow was increased by 25 S.F. Guage reading on Bowdoin August 31 was 2204.7 a gain of .20 feet in 15 days.

The Manager is still somewhat puzzled as to just what guage reading constitutes the desired water elevation for Lake Bowdoin. The approved management plan is for a guage reading of 2206. A guage reading of 2206 creates an actual sea elevation of about 2207.6 which is too high for our dikes as well as for optimum marsh growth. 2206 sea elevation is hardly high enough to flood marshes for optimum growth and will not maintain a long enough flooded period to mature the marshes. Winter ice on Bowdoin annually keeps pushing the guage post up, but I am wondering if the original setting of the Bowdoin guage was set so that a water elevation of 2206 on the guage would be the same as 2206 sea elevation. If it was, then 2206 is not high enough to adequately flood our marsh areas. At the close of this period the elevation of Dry Lake is approximately 2206.5 feet sea elevation as taken from flow lines of structures 2 and 3. Lake Bowdoin is only about 3 inches lower than Dry Lake, yet the vast paludosus marsh area adjacent to structures 2 and 3 is still bone dry. A raise of about 10 inches is needed to flood this marsh 6 inches deep. That would mean that about a 2207 sea elevation level on Bowdoin, the same as approved for Dry Lake would appear much more desirable. The corresponding guage reading would then be about 2205.4.

The Drumbo Lake unit of this refuge was maintained at overflow level throughout the period by May and June rains and July and August irrigation return flows. The overflow goes into Lake Bowdoin.

Water agitation by wind this period was much less than normal. Prevailing winds were from the northeast, east and south-east, thus the shallow marsh fringed shorelines of the south bay area of Lake Bowdoin became very stagnant during August.

The following table gives comparative water elevations data back through 1946, 48 and 49 for our three main water units.

Table 2. Water Elevations

Bowdoin

	<u>1953</u>		<u>1952</u>		<u>1951</u>		<u>1950</u>		<u>1949</u>	
<u>End of</u>	<u>Gauge</u> <u>Reading</u>	<u>Sea</u> <u>Level</u>	<u>Gauge</u> <u>Reading</u>	<u>Sea</u> <u>Level</u>	<u>Gauge</u> <u>Reading</u>	<u>Sea</u> <u>Level</u>	<u>Gauge</u> <u>Reading</u>	<u>Sea</u> <u>Level</u>	<u>Gauge</u> <u>Reading</u>	<u>Sea</u> <u>Level</u>
May	2205.2	2206.79	2205.7	2207.0	2206.4	2207.7	2205.4	2206.7	2205.6	2206.9
June	2205.2	2206.79	2205.3	2206.6	2206.4	2207.7	2205.9	2207.2	2205.4	2206.7
July	2204.6	2206.19	2205.3	2206.6	2206.0	2207.3	2205.5	2206.8	2204.7	2206.0
Aug.	2204.7	2206.29	2204.7	2206.0	2205.7	2207.0	2205.2	2206.5	2204.2	2205.5

Dry Lake

<u>End of</u>	<u>1953</u>	<u>1952</u>	<u>1951</u>	<u>1950</u>	<u>1949</u>	<u>1948</u>	<u>1947</u>	<u>1946</u>
May	2206.3	2206.7	2206.0	2206.2	Dry	Dry	2206.6	Dry
June	2206.5	2206.0	2205.9	2206.2	Dry	Dry	2206.5	Dry
July	2206.1	2205.7	2205.6	2205.9	Dry	Dry	2206.1	Dry
Aug.	2206.5	2205.7	2206.0	2205.2	Dry	Dry	2205.6	Dry

Lakeside Marsh

<u>End of</u>	<u>1953</u>	<u>1952</u>	<u>1951</u>	<u>1950</u>	<u>1949</u>	<u>1948</u>
May	2223.0	2223.0	2222.8	2223.5	2221.5	2223.0
June	2223.0	2222.7	2222.8	2223.5	2222.7	2222.8
July	2223.0	2222.3	2223.0	2222.6	2222.7	2222.6
Aug.	2223.0	2222.7	2223.0	2223.5	2222.5	2223.0



### C. Fires:

Vegetation of all kinds grew very rank and lush during May and June. During this period it would have been impossible to burn anything. During July, grasses and weeds of all kinds matured and dried up, however it was not until August that conditions really become critical. During August ranges presented the worst fire hazard in a great many years.

There was only one fire on refuge lands, that being on July 16 started through negligence of our bridge contractor in the burning of empty cement sacks. This fire was detected by refuge personnel very soon after it spread to upland grass areas. Because of there still being quite a lot of green grass and as it was a calm day only about 3 acres was burned over before it was controled.

During the fore part of August refuge personnel put out two very small spot fires along U.S. Highway No. 2 before they even got off the road shoulders. These were started by careless motorists possibly flipping cigarettes. The last week of August kept everyone on the alert at all times. Severe lightning storms prevailed almost daily and fires outside the refuge were numerous. In the near vicinity of the refuge three hay stacks, one straw and one granary with 3000 bushels of grain were struck by lightning and destroyed by fire. Several grass fires were set but put out by rain following the lightning. One large grass and timber fire occurred in the Fort Peck Game Range area south of Bowdoin. We were indeed fortunate in not getting any strikes on the refuge because no rain accompanied the storms over the refuge until the evening of August 27, and our grasses were really at the explosive stage. .90 inches was received in one three fourths hour downpour August 27.

Refuge fire guards were maintained the fore part of August and are in excellent condition at this writing. The Jeep fire truck was maintained for instant use and our Farmall Tractor with weed spray equipment was maintained for standby suppression use. The refuge fire Jeep was called to outside fires once and alerted on two other occasions.

## II Wildlife

### A. Migratory Birds:

#### 1. Populations and Behavior:

##### a. Waterfowl:

At the beginning of the period refuge nesting population was about on par with that of the past several years but the final analysis of nesting success showed about a 40% decrease from last year. The heavy rains and frequent snows of May are blamed for this decreased waterfowl production.



Other than Canada geese only one waterfowl brood was observed during May and only a very few during June. Last year the peak of the Mallard and Pintail hatch was during late May and early June. Brood counts of Bowdoin this year were very limited because of the extremely heavy work load carried by the Manager in connection with the completion of the 1953 fiscal year flood damage program. However these limited counts during the fore part of August disclosed only a very few class three broods. At this time class two broods were predominant followed closely by class one broods.

Brooding areas were considerably changed this year from the pattern of the past several years. The dry paludosus marshes did not present the ideal open water areas within the marsh common during periods of higher water elevations. After the runoff waters from May and June rains receded, the Dike C drain canal dried up thus eliminating about  $4\frac{1}{2}$  miles of the most desirable type of brooding area. This canal dried up mainly because of the coffer dam we had to install upstream from structure #2 which stopped the leaks through flashboards and also because no May, June or early July irrigation of lands above the canal was necessary. These early irrigations usually maintain a substantial return flow into the Dike C drain canal.

Some of the areas on which brood counts have been made for the past several years showed an increase in broods over last year. The Lakeside Marsh and Lakeside Extension units, practically all of the Dry Lake unit except the Dike C drain canal and the Drumbo unit were the areas showing increased production this year. The increase on these units however, was not sufficient to take care of the decrease on the Lake Bowdoin unit. Water in these three units was held at or near desired elevations, and aquatic foods prospered much better than in the Bowdoin unit.

Nesting Canada Geese started work about two weeks earlier than last year. Nests were under incubation by April 12 and first broods were observed on the water May 13. The nesting population compared favorably with the past two years. Some increase was observed in non-breeding birds during May. Most of the goose hatching was during the roughest weather period of May and many nests were damaged by weather factors. Rapidly rising water levels at Nelson Reservoir destroyed approximately 60% of the goose nests in that area. The heavy construction program at Bowdoin also caused some abandonment of nests along patrol trails and dikes. In spite of these adverse conditions the broods that did come during May, constituting about 60% of the refuge hatch, were large and vigorous and the loss after hatching was small. 176 broods counted the last of May averaged 5 plus per brood. Renesting was evident as downy goslings were still observed the fore part of July. The Manager estimates a total of 250 broods at Bowdoin this year. This is a drop of about  $37\frac{1}{2}$  percent in number of broods.



A Canada goose banding program was again carried out at Bowdoin this year. 345 of which about half were juveniles were banded on July 6.

Refuge goose populations held fairly static until cereal crops throughout the surrounding area started ripening and harvesting started. After this our geese dispersed considerably and we likely will not see some of them again until the opening of the hunting season. During the last week of August we noted several hundred geese feeding in refuge food plots mowed down for that purpose. Large flocks of geese are also noted feeding in our food patch area in unit 6-G where we mowed and raked up a volunteer barley crop followed by an irrigation which produced new lush green grazing areas. No depredation complaints were received this year and none should be forthcoming because all cereal crops in this general area are now harvested.

Nesting ducks and broods in order of predominance found at Bowdoin this year are pintail, mallard, blue-wing teal, shoveller, gadwall, ruddy duck, baldpate, canvas-back, redhead, lesser scaup, green-wing teal and cinnamon teal. Non-breeding canvas-backs was the predominant specie during June and July, however pintails followed by mallards and blue-wings greatly outnumbered all other species throughout August. Approximately 30 to 35 thousand ducks, predominantly pintails utilized the small Drumbo lake unit during the major part of August. Our heaviest concentrations were found on the Drumbo unit this year, this being very uncommon.

#### Coots and Soras:

No Soras have been observed this season. It is possible that they are present the same as usual but if so they are remaining farther out in the marshes due to lower water elevations. American Coot population during the nesting season compares favorably with last year and nesting success is normal.

#### b. Marsh and other water birds:

White Pelicans, Double Crested Cormorants and Great Blue Herons continue to show a year to year increase. Nesting islands are very congested and points on Big Island are being utilized for nesting by White Pelicans. Nesting success was very good and nest grounds were much cleaner than usual. Very few dead birds were observed this year. By far the greater majority of these three species had migrated out of the refuge at the close of this period. American Bittern observations were less frequent than past years, however several young birds were noted during the latter part of August.



### c. Shorebirds, Gulls and Terns:

All common nesters were present in numbers comparable to or possibly in slightly greater numbers than past years. Shallow water elevations created extensive mud flats and shallow shore lines upon which thousands of shorebirds were observed daily. Killdeer, Wilson's phalarope, avocet, western willet, marbled godwits, long billed Curlew and several species of sandpipers were the nesting species observed. Lesser yellow-legs started showing in small numbers the fore part of August. At the end of August both lesser and greater yellow-legs were very numerous. One red phalarope was observed during mid July.

California and ring-billed gulls like our other colonial nesting birds also continue to increase in number. This year quite a large colony of Franklin's gulls nested in the Dry Lake unit. It is difficult for one to realize the amount of food necessary to feed the extremely large number of colonial nesting birds we have at Bowdoin, especially the gulls. However when one observes the large flights in and out of the refuge both morning and evening, and sees the hundreds upon hundreds of birds following the plows, cultivators, grain drills and also hay mowers for miles around the refuge it is apparent where a large part of this food supply is coming from. We give due credit to our gulls for helping to keep highways, garbage cans, city dumps, and agricultural fields clean, but we also have a feeling that many a young duck and pheasant follow the path of the field mouse, grasshoppers etc. during haying operations and other agricultural activities. We have definite sight observations on predation of young pheasants during alfalfa hay mowing operations, and feel that under the same circumstances young ducks would not be frowned upon.

### 2. Food and Cover:

Generally, food and cover conditions are excellent, however, the lower water elevations on the Bowdoin Lake unit created conditions unsuitable for the usual dense coverage of sago pond weed and full maturity of the higher prairie bulrush marshes. The sago coverage on Bowdoin this year was only about 30% of that of the past two years. A heavy green algae covered shallow water areas and shorelines and even formed over some of the sago beds in the deeper water areas. No doubt this algae coverage was the contributing factor in holding down the sago growth, but the low water elevations was mostly responsible for the heavy algae coverage. *Ruppia* shows a considerable expansion in Lake Bowdoin over last year. Lakeside Marsh, Dry Lake and Drumbo units were utilized much more by feeding waterfowl than during past years. The Drumbo unit was especially clogged with sago and both duck and Canada geese utilization was extremely heavy. Even though <sup>Bowdoin</sup> will not furnish as much sago food as we had last year for our fall migrant birds, the overall supply will be as good or probably better, due to the fact that this fall we will be able to reflood marsh areas that dried up during July and August. We were not able to do this last year thus the vast amount of food in the marshes last year was not readily available for fall feeding.



Cereal foods are again abundant throughout the entire area surrounding the refuge. Harvesting was completed ahead of schedule and no depredations complaints have been received. Refuge cereal food plot areas were knocked down during mid August and are now being utilized extensively by Canada geese. Ducks are not doing much field feeding up to this date.

Cover for waterfowl and migratory birds is tops this year. A glance at the photos included with this report will tell the story of the upland vegetation common throughout the refuge and shoreline fringes. Conditions outside the refuge do not look like ours but they are much better than is normally found in a heavily stocked cattle area.

### 3. Disease:

A very light outbreak of botulism was again detected along the west shore of big island. This same area has had these mild outbreaks every year that the writer has been in charge. Water levels do not appear to have any significant effect in preventing or abating the disease. The area effected is shallow and heavily sheltered by large round stem bulrush on three sides, with an open sandy beach on the fourth side. Winds do not get a chance to stir up or agitate the water from any direction. Large concentrations of ducks always use the sandy beach for loafing. Affected ducks have no chance for recovery unless picked up because they become stranded in the matted bulrushes or heavy algae that usually covers the water. There is a possibility that this may be algae poisoning rather than botulism, but since no samples have ever been taken or birds examined we cannot verify this statement. However, 95% of the sick birds given botulism anti-toxin recovered fully in a day or two. A total of 77 dead ducks consisting of 24 mallards, 21 pintails, 17 green-wing teal, 8 baldpate, 6 shoveller and 3 blue-wing teal were picked up and buried. It is entirely possible that some dead birds were missed in the rushes but we are certain that the most of them were found as we covered the area thoroughly on three occasions. Thirty three sick ducks were brought to headquarters for treatment with 31 recovering. Sixteen of these were taken to the Richland and Valley County fairs at Sidney and Glasgow, Montana.

### B. Upland Birds:

#### 1. Population and Behavior:

Chinese Pheasants. Refuge population at the begining of the period was normal or above. The heavy rains and snows of May delayed nesting and caused considerable reneasting. No young birds were observed until after August 1, however the tall dense vegetative cover made it possible for birds to remain unseen. During August numerous broods started showing up and the number of broods observed increased as the month advanced. Although late, many broods were large and broods from 7 to 13 were not at all uncommon.



Nesting and brood distribution was over a much larger area of the refuge this year. Broods were observed along the west shore of Bowdoin as far north as Long Island and also in the west and north western portion of the Dry Lake unit. We believe that the heavier vegetative cover rather than an increased number of birds was responsible for this wider distribution.

Sage Grouse. The population trend in the refuge is definitely still upward. Completion of the new road in the southern portion of the refuge opened up for motor vehicle travel our best sage grouse habitat area. The writer often seen from 150 to 200 of these grand birds during early morning or evening drives over this  $4\frac{1}{2}$  mile section of road. On one such trip over this route and dike C, 13 broods totaling 109 young and 37 adult birds were counted. The State Fish and Game Department has again declared a three day open hunting season in Phillips County exclusive of refuge areas.

Hungarian Partridge and Sharp-tail Grouse were very conspicuous by their almost complete absence on the refuge this period. There will be no hunting season on sharp-tails in Phillips county again this year.

## 2. Food and Cover:

Both these items are no doubt the best seen in many years, however some fruit bearing shrubs such as choke cherry, wild plums, and June berries suffered severe damage from the late May frosts. Russian olive, caragana, thorn apples, and rosebuds apparently were not effected by the frost as fruiting was excellent. There is hardly no limit to the amount of grass and weed seeds available and cereal food is also in great abundance. Pheasants have already started to utilize refuge cereal food plots mowed down for wildlife use.

## 3. Disease:

None noted. Number of pheasants killed by motor vehicles along the highway bordering the refuge continues to run high.

## C. Big Game Animals:

### 1. Population and Behavior:

The refuge antelope herd continues to furnish the main refuge attraction for the thousands of tourist traveling both east and west on U.S. Highway #2. Utilization of the area between the highway and Lake Bowdoin by antelope continues to be high, especially in the lower ground bordering the lake where much of the vegetation consists of sow thistle.



Fawns were dropped somewhat later than usual this year. The percentage of twins was very high. On One observation of 15 does with fawns, 12 had twins. A complete fawn count has not been possible thus far but we are sure we have at least 50. This should bring our winter population up to the 150 mark again, if the open antelope season in surrounding areas drives in some outsiders we may be well above this figure. It is apparent that some control measure is going to become necessary to hold this herd down to prevent starvation through malnutrition or some other disaster such as the train slaughters of 1949 and 1950. Something is definitely lacking in the way of food here as antelope were very thin this spring even though we had a mild winter, and it is taking much too long for them to put on the fat that they should have at this time of year. We are wondering if removal of the lower wires on our five wire boundary fence would encourage more dispersal to outside areas. Frequent observations have shown that our antelope do not like to crawl under our present five wire fence. This is understandable with the bottom wire being only 8 to 10 inches off the ground. We have often noted that when some do get out along the highway, cars run them first one way and then the other and they seem to be afraid to try to crawl the fence.

## 2. Food and Cover:

Although it appears that there should be no limit to the amount of food that is available, at least this year, there must be a shortage of some food plants that are important in an antelopes diet. Summer and fall forage conditions in the way of grasses, weeds and short sages no doubt are ample to sustain and slowly gain back the fat and flesh lost during the winter and spring months, but our summer and fall seasons are very short compared with winter and spring. Does carrying fawns throughout the winter and spring, and then suckling a pair of twins during summer and fall do not have much of a chance to fatten up before the deep snows come. If we have a mild winter with light snow cover we should have sufficient browse foods such as greese wood and sages to amply take care of our present herd, but should the winter be severe with a deep snow cover, or should we take in a lot of outside antelope there would be considerable danger of malnutrition.

A few limited range surveys this summer disclosed that we have a beetle (identification unknown) that is working on and completely defoliating a very large percent of our Silver sage. At least 50% of this type of browse on the Big Island area is effected and scattered showings was found in other areas of the refuge. About a dozen specimens of this beetle were collected and preserved in alcohol but thus far have not been sent out for identification.



### 3. Disease:

Three doe antelope were found dead in the near vicinity of the headquarters area during the period and one doe was killed by a car on U.S. Highway #2. One of the three mentioned above was "Lulu Bell" the tame doe brought into headquarters last fall. She was only a two year old doe carrying her first fawns and died only about three weeks before the fawns would have been dropped. The other three does all were suckling a month to six weeks old twins at the time of death. The three does that died all appeared to have lost the greater portion of their hair before death as various places where they were down was covered with large mats of hair. This however may not mean much due to the fact that this loss of hair was during the normal shedding period. With the exception of the tame doe an autopsy was not possible because of the elapsed time between death and time found. In the case of the tame doe we could find nothing unless it was an old injury received during the rut season last fall and aggravated by the carrying of twins.

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

Muskrats. Very little activity has been observed this period. The usual large numbers of muskrats have not been observed along dikes and borrow canals and lake shores, however a small number have been observed working in the deeper marsh areas. The low summer water elevations no doubt are responsible for the present low population. Trapping activities this fall will likely be limited to only a few designated units.

Mink. Sight observations were scarce but signs of mink work and depredations on ducks was evident in several locations on Bowdoin. Seven mink killed ducks were picked up along with botulism birds on loafing spots along the west shore of Big Island.

Beaver. No sign or sight observations noted this period.

Skunk. The trend on skunk during the period showed an upward trend. Refuge personnel destroyed 17 animals during the nesting period, however sight observations continue to be frequent on early morning and evening drives over refuge roads.

Weasel. There is a possibility that this animal may eventually come back in numbers comparable to past years. While sight observations were not frequent we have observed three individuals this period where as for several years past the sight of a weasel has been very unusual.

Badger and Coyotes continue to be very conspicuous by their complete absense on the refuge and Ground Squirrels are very scarce. Cotton tail and White-tailed Jack Rabbits are still present in number comparable to the previous periods and the upward trend appears to be holding steady.

E. Predaceous Birds:

The usual number of Marsh, Rough-legged, Red-tailed and Duck Hawks have been observed. Observation of Golden eagles were few. Predations on ducks was observed on several occasions. Crow nesting in the western portion of the refuge increased slightly over past years. Five nests and 3 adult crows were destroyed. It was apparent that considerable depredations on duck and pheasant nests was occurring as evidenced by the number of egg shells found around nest sites. Continual distruction of nesting sites seemed to have eventually discouraged the crows as observations were very scarce towards the close of the period. A few magpies again nested in the area but no increase over past years was noted.

F. Fish:

There is a possibility that the carp in refuge waters are finally begining to stage a come back, although we do not believe the population is alarming yet. Schools of carp minnows were much more numerous in water courses between the various units and more large carp were observed in these streams. Colonial nesting birds also appeared to do more feeding in refuge waters this year.

G. Mourning Doves:

Our summer and nesting population of these birds continues to run high. Towards the close of the period it was not at all uncommon to see up to 200 feeding in mowed down refuge cereal food plots or perched on fences or telephone wires. Utilization of refuge tree and shelterbelt plots was very high.

### III REFUGE DEVELOPMENT AND MAINTENANCE

A. Physical Development:

Working conditions during May and June were extremely rough. Roads were continuously in quagmire condition from the incessent rains and heavy loads we had to take over them. Considerable time was consumed in patching and hauling in gravel fills to enable our bridge contractor to get his men, equipment and material into the job sites. Roads to our force account projects in most



instances were in much worse condition than contract projects due to their being more remote. Practically all of the structural material used in reconverting the 100 foot rubble flashboard structure number 2 into a bridge had to be hauled about one mile on the dozer blade of our TD-40 crawler tractor. Water in bridge excavation sites was a continual problem and after one exceeding heavy downpour it took us almost a week of steady pumping to remove the water that flowed into structure number 2 work site. Work on contract bridges was also continuously hampered during May and June because of excessive water in excavation sites and also during July because of heavy irrigation return flows. July and August working conditions were very much improved.

Employment problems on force account were not at all difficult. We were again fortunate in obtaining men who had worked here on previous occasions and who were well acquainted with conditions on the refuge. This helped considerably in decreasing the amount of time lost due to miring down of equipment in traveling to work sites. Employees moral remained strong inspite of adverse working conditions during the fore half of the period and force account projects were completed on schedule where their completion was not dependent on completion of contract projects. The Manager wishes to take this opportunity to complement and thank the entire staff for this splended cooperation throughout the period. Had it not been for this cooperation and team work both quanity and quality of work would have suffered.

The following work projects were completed or still underway at the close of the period.

1. Project 322 TA 1-72. Reconstruction due to Storm and Flood Damage:

Force Account

- a. Fifty foot Flash board and Bridge structure #1. 100% complete. Hauled timber structure to bridge site, installed pier caps, stringers, decking and guide rails, built approaches and carried dike C to conjunction with bridge.
- b. One hundred food Flash board and bridge structure #2. Completed 100% this period. Rubble abutments knocked down for replacement with concrete. Rubble base desilted and washed, old catwalk frame work removed, flashboard structural steel cut down and reinforced with pier ties, pier and abutment forms set and tied in place, concrete piers and abutments poured, and timber bridge structure installed.
- c. Culverts. Installed five 18 and 24 inch galvanized culverts in new road grades and rebuilt one heavy plank culvert at headquarters site.



- d. Cattle Guards. Constructed two complete sets of forms, dug excavations for and poured concrete for installation of six 8' X 10' Lincoln steel cattle guards. These were also installed and tied into fence lines. See photos on construction details.
- e. New Road Construction. The two missing links of road needed to make it possible to make a complete inside circuit of the refuge were completed this period. 10750 cu. yds. of fill material was loaded into trucks by dragline and backed in to extend these new road sections through extremely boggy semi-marsh areas. In addition approximately 3500 cu. yds. of road fill was placed by dozer and grader units and approximately 1000 cu. yds. trucked in to repair and reinforce existing grades. Total yardage for the entire job including that placed during the preceding period is 22300. Engineers estimate for this job was 17520 cu. yds. The working conditions encountered due to weather factors and soft ground conditions was instrumental in increasing the yardage necessary to complete the job. Also considerable yardage was hauled to make access roads to get into the construction area. In connection with this new road construction project the Great Northern Railway Co. installed a new crossing over their main line tracks, thus connecting this road with dike A.
- f. Dikes. Leveling and sloping of last summer and fall dragline fills on dikes A and C was completed and these dikes shaped up for rip raping and gravel surfacing.
- g. Preparation of roads for gravel surfacing. Approximately 12 miles of roads was trenched 6 inches deep and 8 feet wide for surfacing with gravel.
- h. Rip rap. Approximately 100 cu. yds. of rock were hauled and placed against slopes of Lakeside structure, new road fills bordering lakes and ends of culverts.
- i. Many man hours were used in draining water from the deep ruts in refuge roads during the rainy period. We also had to cut our new road grade once with the dozer to allow a one foot deep 40 acre lake to drain off. This condition was created by a coffer dam necessitated for the construction of our bridge #14. Removal of the coffer dam after completion of the bridge eliminated this situation.

#### Contract Projects

- a. Bridges. Contract 14-19-008-2060 for the construction of six reinforced concrete bridges was completed this period. Bad weather considerably delayed this job and consequently the work was not completed within the contract limitation period, however an extension was granted without penalty to the contractor.



Progress was very slow on this job during May and June but was speeded up considerably during July and an excellent construction job was obtained. (See photos of bridges 10 and 11 following narrative report.)

- b. Road Graveling and Dike Riprap. This project under contract 14-19-008-2086 did not get under way until August 20. Rain in cloud burst proportions the evening of August 27 caused a work stoppage for two days. 4190 cu. yds. of road gravel and 490 cu. yds. of riprap was laid in place during this period. The contractor is using 10 cu. yds. belly dump trailer unit trucks for this job and is loading with a three-fourths yard shovel. Trucks are having some difficulty getting out of the pits at present because of water and it is believed that a switch to dragline loading will have to be made as water conditions will become worse later on. The Manager is also anticipating considerable difficulty with these heavy trucks on hauling over our soft dike C area, and a change to smaller trucks may become necessary to keep from cutting up the dike and punching the gravel below the surface.
- c. Miscellaneous. The major portion of engineering services and inspections in connection with contract bridge construction and gravel surfacing projects was performed by the refuge Manager. The bridge contractor did not have any type of instrument for determining depth of excavations, setting of forms, etc. The Manager put in many hours on this survey and inspection work.

## 2. Project 712-R. Rehabilitation - Force Account

\$500.00 was allotted for island construction in the Dry Lake unit during fiscal year 1954. Work got under way during the latter part of August and at the close of the month 1800 cu. yds. of channel has been excavated. About 1200 cu. yds. remains to be done to complete this job and when completed we will have an additional nesting island in the Dry Lake unit containing approximately 7 or 8 acres. This is a mat job and work was discontinued August 25 as mats used was loaned to Medicine Lake Refuge along with our General Excavator Dragline for completing a project on that area. Our new three-fourths yard Lima dragline was put to work on our island construction project. This new piece of equipment is really an improvement over the old General Excavator.

## 3. Project 131. Maintenance.

- a. Made two complete trips over all refuge fire guards.
- b. Shaped and graded headquarters entrance road. Two operations.
- c. Mowed grass and weeds off all refuge patrol roads, headquarters grounds, and along irrigation ditches.
- d. Maintained and adjusted flashboard turn-out structures at Lakeside Marsh and Reclamation main canal to control flows to



fluctuations of water level in the main Reclamation canal. This was sometimes a daily chore during periods of constantly changing water elevations.

- e. Plowed, prepared seed bed, sowed, and harvested approximately 20 acres of wildlife cereal food plots. Harvesting consisted merely of mowing the crop down to make it more readily available for waterfowl use.
- f. Irrigated wildlife food plots once and all shelter belt and tree groves twice during July and August.
- g. Completely pumped out Quarters #1 and 2 septic tank.
- h. Mowed, watered and maintained headquarters lawns at least weekly during entire period. Watering of course was only necessary during July and August.
- i. Made weekly waterfowl inventories mostly on Sundays.
- j. Made three Sunday pickups of botulism birds during the latter half of August.
- k. Performed routine office, shop and other building cleanups.
- l. Maintained and made 5000 mile and safety inspections of motor vehicle and tractor equipment as required. One major overhaul job consisted of installing new track roller pins and bushings complete, and new master clutch in our TD-40 tractor.
- m. The Manager made one truck trip to the Medicine Lake Refuge for a truck load of feed barley for wintering waterfowl. Dragline operator Dyrdaahl also made a trip to this refuge for purpose of piloting and flagging the truck-trailer unit in moving of the General Excavator dragline from Bowdoin to Medicine Lake and for purpose of unloading the dragline on arrival. He also looked over the job at Medicine Lake as he will soon be detailed there to operate the dragline. The usual run of other miscellaneous refuge chores and odd jobs were also attended to as they cropped up.

#### B. Plantings:

1. Aquatics and Marsh plants - None
2. Trees and Shrubs - None
3. Upland Herbaceous Plants.

On May 27 and 28 Refuge Management Biologist Watson E. Beed and refuge personnel planted two miles of the newly constructed slopes of dike C to a mixture of smooth broom grass and crested wheatgrass. The acreage was sixteen. The seed mixture was 200 pounds of smooth broom and 280 pounds of crested



wheatgrass. Seed was sowed at the rate of 8 pounds per acre broadcast by hand. One and one-half miles of the new slopes on dike A, for a total of 12 acres was also seeded with this mixture. Ten acres of disturbed soil near the Lakeside Marsh structures and one and three-eighths miles of newly constructed road shoulders and borrow pits in Section B and borrow areas in Section A were also planted. A total of  $61\frac{1}{2}$  acres were seeded with the 480 pounds of seeds.

With the exception of dike C which was too wet, seeded areas were harrowed with a spike tooth harrow. Sprouting of seed and plant growth was good on all areas except the dike slopes where slopes were constructed of the heavy lake bottom gumbo soil. The new seedlings in the grazing units were the first plants to be baken by cattle and it remains to be seen if these plantings were damaged by this grazing.

#### 4. Cultivated Crops.

Approximately 20 acres was sowed to wheat and barley by refuge personnel. Because of the immense amount of rain during May sowing was much later than normal. Had we been able to get these plantings in ahead of the May rains bumper stands would have been assured, however as it turned out our estimated yield was only about 20 bushels per acre. Refuge antelope grazed in the planted areas to some considerable extent which also helped to cut down the stand. Crops were harvested during August by merely mowing down and leaving on the ground. Antelope, mourning doves, pheasants, Canada geese and ducks were feeding extensively on these food plot areas at the close of the period.

C. Collections: - None

D. Receipts of Seed and Nursery Stock: - None

### IV ECONOMIC USE

#### A. Grazing:

Five permits for the grazing of 603 A.U.M.'s of cattle were issued this period. Period of use is from July 15 to November 15 and a fee of \$1.00 per A.U.M. is being charged. Another permit for 120 A.U.M.'s will be issued later effective September 15. All refuge grazing units have a very tall, dense and well matured grass cover this year. We anticipate that utilization of avaiable grasses will not be more than 50%. Distribution of grazing over the various units is very even due to their being plenty of water flowing through or into each unit. Demand for grazing during late spring months was heavy and many applicants were disappointed. However when the time come to turn cattle in we had to look around to get enough cattle. One of our oldest

and the largest user of refuge grazing privileges, abandoned his rights this year just one day previous to entry date without any previous notification. In fact only a month previously he had made a verbal request to retain his right and we were holding our largest grazing unit for him.

B. Haying:

One permit for the harvesting of 40 tons of hay in the headquarters vicinity was issued. The hay harvest was completed the fore half of August and will be measured after 60 days settlement in stack. There was also a sharp demand for hay during the early part of the period and we were planing on issuing one more permit but could get no one to take it up when harvesting time drew near. One party wanted it but didn't show up to take the permit. We later learned that he had sufficient hay from other sources to take care of his needs. Hay on designated refuge units is a much poorer quality than that in surrounding areas as it comes from more or less semi-marsh areas or non-irrigable upland areas.

C. Fur Harvest: - None

## V FIELD INVESTIGATIONS AND APPLIED RESEARCH

A. Bird Banding:

Flyway Biologist Hortin Jensen and Federal Game Agents Baer of Colorado, Kelly of California and Birtch of Montana, together with two State Fish and Game Employees and three refuge employees banded 345 Canada geese at Bowdoin on July 6. Approximately one-half were juvenile birds.

Botulism birds banded and released consisted of eight mallards, six pintails, three baldpates and two green-wing teal. Two mourning doves were also banded.

B. Range Investigation:

The following is taken from reports submitted by Refuge Management Biologist Watson E. Beed:

May 27-28. "The winter antelope range is again in critical condition following the very open winter just past. Silver Sage, which is the main winter browse plant for antelope at Bowdoin Refuge, has been heavily used. The recovery of this plant, following the reduced antelope population of 1950, has been all lost. The greesewood flats also show heavy use. Even with normal accumulation of snow next winter, we may expect some starvation and should the snow become abnormally deep, most of the Bowdoin herd would starve. Artificial feeding will be absolutely necessary.



Weedy hay, rather than alfalfa is suggested."

June 22-29. "The Silver sagebrush was mentioned in a previous report to be heavily browsed but had made a good normal growth to date. Some of the plants looked unthrifty and examination revealed a heavy infestation of what I believe to be Chrysomelid beetle larvae. Only the larvae were present so no exact identification could be made. Perhaps Mr. Snyder will be able to collect some of the adult beetles later. This infestation covers the whole of Big Island and the highland back from Dry Lake. On Big Island, the infestation is very heavy with fully one-third of the plants apparently dead or dying and all plants have some larvae. It seems evident that the Silver sagebrush, which is the staple food for antelope at Bowdoin, is doomed unless some control is inaugurated. Because of the large area involved and the tremendous costs involved in spraying, I hesitate to make recommendations. However, I do believe the antelope herd at Bowdoin will follow the silver sagebrush."

As stated previously, a sample of the adult beetles was collected by the refuge Manager and preserved in Alcohol. These will be submitted for identification and will be reported on again at a later date.

## VI PUBLIC RELATIONS

### A. Public uses:

There were no hunting or fishing uses the period. Miscellaneous uses such as sightseers, picnicking, bird watching, photography, headquarters visitors, visitors to the Manager residence, tower climbers, official visitors in connection with contract construction jobs etc. was very high. During July and August, which was the height of the tourist season, the number of tourist who stopped along the west and north refuge boundary to take pictures of or view the antelope was terrifically high. Tourist guides and AAA pamphlets now all carry an item relative to the fact that antelope and waterfowl of various species can be viewed from the highway and many tourist stop in at headquarters to see if they cannot get a closer look. Near traffic jams were observed on numerous occasions when antelope were found grazing or bedded down close to the highway.

### B. Offical Visitors:

See following page.

Date	Name	Agency	Purpose of visit
May 1	Robert Gensch	F.W.S. River Basin Studies	Courtesy visit
21-28	Harold Endicott	F.W.S. Engineering Branch	Inspect contract bridges construction
23-29	Watson E. Beed	F.W.S. Refuge Management Biol.	Assist with seed planting and range study
30	Harold Preston	F.W.S. Administrative Div.	Administrative Inspection
June 9	Monis Lund	Corp of Army Engr. Fort Peck	List equipment for flood control
11	Messrs. Donahoe & Bowersox	General Service Administration	Gen. purchase & B/L's
12	Harold West	F.W.S. Engineering Branch	Contract bridge inspection
16	Messrs. Ellig & Kenzezlra	State Fish & Game Department	Leave boat for Canadian use
16	Watson E. Beed	F.W.S. Refuge Management Biol.	Discuss brood counting
20	H. C. Friede	State Fish & Game Department	Discuss proposed waterfowl season
21	Messrs. Salines & Schroeder	State Fish & Game Department	Discuss P.R. projects
22-29	Watson E. Beed	F.W.S. Refuge Management Biol.	Assist with biological work
23	Messrs. Ellig & Kenzezlra	State Fish & Game Department	Pick up boat
25	Harold West	F.W.S. Engineering Branch	Contract bridge inspection
27	Kenneth F. Roahen	F.W.S. Game Agent	Law enforcement matters
30	Kenard Baer	F.W.S. Game Agent	Plan goose banding project
30	James Kelly	F.W.S. Game Agent	Plan goose banding project
30	Messrs. Witt & Trueblood	State Fish & Game Department	Plan goose banding project



July 4-7	Kenard Baer	F.W.S. Game Agent	Band Canada geese
4-7	James Kelly	F.W.S. Game Agent	Band Canada geese
4-7	James Birtch	F.W.S. Game Agent	Band Canada geese
4-7	Hortin Jensen	F.W.S. Flyway Biol.	Band Canada geese
7	Harold West	F.W.S. Engineering Branch	Inspect contract bridge construction
8	Mr. Rodman	Maintenance May Camas Refuge	Take delivery of dump truck
12	Mr. Jack Van Covering	Wildlife Ed. Detroit Free Press	Photography on Woody Island
13	Mr. & Mrs. Reginald Denham	Writers and Bird Lovers	View refuge bird life
13	Harold West	F.W.S. Engineering Branch	Inspect contract bridge construction
24	Gustav A. Swanson	Cornell University	Courtesy visit
27	Mr. & Mrs. C.J. Henry	Refuge Manager Senney Refuge	Courtesy visit
Aug. 8	Messrs. Huey & West	F.W.S. Engineering Branch	Final contract bridge inspection
16	Mr. & Mrs. Elmo Adams	Refuge Manager Medicine Lake Ref.	Courtesy visit
31	Norman Stringer	Maint. Man Medicine Lake Refuge	Deliver load wheat & pick up dragline mats.

In addition to the above, bridge Contractor John Siert and road Contractor O'Neil made numerous visits to the refuge office.

C. Refuge Participation:

May 11. Manager, Maintenance man and most force account employees attended meeting of Phillips County Wildlife association in evening.

May 16. Manager and Maintenance man assisted with Army Day Parade in Malta by carrying of National and State colors.

May 18. Manager conducted a short foot tour along the north Bowdoin shore area and gave a conservation talk to 42 students of the Malta 8th grade class.

May 22. Manager conducted 35 students of Malta Junior high science class on a tour of refuge and lectured on wildlife conservation and refuge activities.

May 30. Maintenance man Haugness participated in Memorial day celebrations in Malta <sup>by</sup> carrying of National colors.

June 24-27. Manager took annual leave and attended the Montana Department American Legion Convention held in Great Falls, as a delegate from the Malta Post.

July 11. The Manager attended the afternoon session of a teachers conservation seminare at the North Montana Teachers College in Havre, Montana, under the direction of Dr. Swanson of Cornell University, (formerly of the F.W.S. Research Div.). A three-fourths hour talk on conservation and refuge management was given by the Manager followed by a three-fourths hour question and answer period. After this the manager conducted the class of 25 teachers and Dr. Swanson on a tour of the Thibadeau refuge to view a demonstration of refuge water management practices and the results obtained from such practices.

July 12. Manager conducted Mr. Jack Van Covering, Wildlife Editor of the Detroit Free Press, on a picture taking tour of the colonial bird nesting Islands at Bowdoin.

July 13. Manager conducted Mr. Reginald Denham, a New York City writer, Movie producer and director and an active bird club member on a tour of refuge to view long-billed curlews and sage grouse.

July 23. Manager attended a county wide fire suppression meeting in Malta called by the county sheriff who is county fire warden. Plans were made for the organization of community fire suppression groups.

July 27. The entire staff of regular refuge personnel attended a community fire suppression <sup>meeting</sup> called by the manager. Refuge fire fighting equipment was demonstrated. 25 neighboring farmers and stockmen attended this meeting. Suppression and pre-suppression plans were outlined and the Manager was appointed community fire boss.



- D. Hunting: - None
- E. Fishing: - None
- F. Violations: - None

## VII OTHER ITEMS

### A. Items of Interest:

The State Fish and Game Commission are continuing the use of the headquarters irrigation pond as a rearing pond for walleyed pike. A very large plant of newly hatched fish was made during May and all indications point to a good survival and vigorous growth this summer. The pond will be drained and fish removed during late September or early October. These fish will then be used for restocking other State waters.

Refuge Clerk Richard Hertz turned in his resignation effective May 6. On June 19 Mr. Billy Welch, a boy from way down in Mississippi was appointed to fill the vacancy created by the above resignation. Billy is single and a veteran of 3½ years service during the Korean war. He appears to be enjoying batching in the one room apartment designated as quarters No. 2.

The refuge headquarters vicinity took on the appearance of a construction camp site, and later a tourist trailer camp site during this period. During the bridge construction period the contractor put up a two room bunk and cook house a tent or two and a covered wagon for housing and feeding the 6 to 14 workers employed. Just after Mid August the road graveling contractor moved in with four house trailer units, one of them a double unit. The giggles, yelling and squalling of 7 extra youngsters in play and other activities now disrupts the calm of a usually quiet headquarters area.

### B. Photographs:

Numerous photos were taken during the period of construction and various other activities. A good portion are submitted herewith. Pictures were taken with government owned equipment and supplies. Negatives are the property of the government and are being submitted according to prescribed rules.

Sept 8, 1953

Date Completed

Leon C. Snyder

Leon C. Snyder  
Refuge Manager

[Signature]  
Regional Office

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

WATERFOWL

REFUGE Bowdoin

MONTHS OF May 1 TO Aug. 31, 19 53

(1) Species	(2) Weeks of reporting period									
	1	2	3	4	5	6	7	8	9	10
<u>Swans:</u>										
Whistling										
Trumpeter										
<u>Geese:</u>										
Canada	1000	1000	1400	2500	2800	3000	3000	3000	3000	3000
Cackling										
Brant										
White-fronted										
Snow										
Blue										
Other										
<u>Ducks:</u>										
Mallard	3000	1500	1500	1500	1800	1800	2100	2500	2500	3000
Black										
Gadwall	2500	800	800	800	800	900	1100	1200	1200	1500
Baldpate	9000	2000	1200	1200	1200	1200	1200	1200	1500	1500
Pintail	6000	2000	2000	2000	2500	2500	2500	2800	3000	4000
Green-winged teal	1000	200								
Blue-winged teal	1200	5000	8000	3000	3000	3000	3000	3000	4000	4500
Cinnamon teal			10							
Shoveler	3500	2500	2000	1500	1500	1500	1500	1700	2000	2200
Wood										
Redhead	3000	500	300	300	300	300	300	300	300	350
Ring-necked										
Canvasback	10000	2000	500	400	800	1500	1500	2000	3000	5000
Scaup	5000	3000	1000	500	500	500	500	500	500	500
Goldeneye	50									
Bufflehead	50	30								
Ruddy	1500	800	600	600	600	600	600	600	600	700
Other										
<u>Coot:</u>	1800	1200	1000	1000	1000	1000	1000	1000	1100	1200



3-7150a  
Cont. NR-1  
(Rev. March 1953)

WATERFOWL  
(Continuation Sheet)

REFUGE <u>Bowdoin</u>		MONTHS OF <u>May 1</u> TO <u>Aug. 31</u> , 19 <u>53</u>									
		(2) Weeks of reporting period								(3) Estimated waterfowl days use	(4) Production Broods: Estimated seen: total
(1) Species	11	12	13	14	15	16	17	18			
<b>Swans:</b>											
Whistling											
Trumpeter											
<b>Geese:</b>											
Canada	3000	2600	2500	2800	3200	3100	2000	2400	317,100	176	1275
Cackling											
Brant											
White-fronted											
Snow											
Blue											
Other											
<b>Ducks:</b>											
Mallard	4000	6000	6500	10000	12000	15000	15000	20000	767,900	32	1946
Black											
Gadwall	1800	1800	2000	2000	2500	2500	3500	3500	218,400	24	1459
Baldpate	1600	1600	1800	1800	2000	2500	7500	9000	343,000	21	1277
Pintail	4200	6000	10000	15000	18000	30000	38000	35000	1,298,500	47	2858
Green-winged teal						2000	4000	5000	85,400		
Blue-winged teal	4600	5000	6000	6200	7000	8000	9000	9000	647,500	36	2189
Cinnamon teal									70		
Shoveler	2500	2500	3000	3600	4000	6000	8000	8500	406,000	26	1581
Wood											
Redhead	500	900	1200	1200	1500	1500	1500	1500	110,250	11	669
Ring-necked											
Canvasback	5000	5000	5000	6000	6000	5000	7500	10000	520,800	13	790
Scaup	500	600	750	750	750	700	700	700	125,500	3	182
Goldeneye											
Bufflehead											
Ruddy	750	800	1400	1600	2300	2500	3200	3000	159,200	21	1277
Other											
<b>Coot:</b>	1500	2000	2000	2500	3000	3000	3000	6000	240,100	19	1330

(over)



(5) (6) (7)  
Total Days Use : Peak Number : Total Production

SUMMARY

Swans	:	:	:	Principal feeding areas	<u>Drumbo Lake, Lakeside Marsh</u>
Geese	317,100	3200	1275		<u>Lake Bowdoin and Dry Lake units.</u>
Ducks	4,682,520	104,700	14228	Principal nesting areas	<u>Lakeside Marsh, Drumbo area, West</u>
Coots	240,100	6000	1330		<u>Central Dry Lake area, South Bay Lake Bowdoin &amp; all shore-</u>
					<u>lines.</u>
				Reported by	<u>Leon C. Snyder</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).



3-1751

Form NR-1A  
(Nov. 1945)MIGRATORY BIRDS  
(other than waterfowl)Refuge BowdoinMonths of May 1 to August 1945

(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. Water and Marsh Birds:											
Western Grebe		17	5/12	75	6/1				2	50	125
Eared Grebe		125	5/3	3500	6/12			6	650	2500	6000
Pied-billed Grebe		9	5/18	27	8/30						50
White Pelican				7800	7/1			4	2000	3800	7800
Double Crested Cormorant				1000	7/1			3	150	650	1000
Great Blue Heron				250	7/1			3	45	150	250
American Bittern				6	7/20					6	15
II. Shorebirds, Gulls and Terns:											
Pectoral Sandpiper		7	5/24	35	7/1					unknown	150
Killdeer				500	7/1				7	500	800
Wilson's Snipe		12	5/16	50	5/25	15	5/31				50
Avocet				2500	7/1				35	2000	2000
Western Willet				3000	7/1				25	2600	3500
Marbled Godwit		11	5/3	150	7/1						150
Long-billed Curlew				400	7/20	3	7/25		3	100	700
Wilson's Phalarope		175	5/12	3500	7/1					3500	7000
Red Phalarope		1	7/13	1	7/13	1	7/13				1
Lesser Yellow legs		21	7/13	350	8/15						400
Greater Yellow legs		10	8/10	125	8/15						175
Calif. & Ring-billed Gulls				13500	7/1			5	2500	9000	13500
Franklins Gulls				500	7/1			1	100	300	500
Common Tern		30	5/15	400	7/1				15	300	500
Black Tern		25	5/28	400	7/1				21	300	600

(over)



(1)	(2)	(3)	(4)	(5)	(6)
III. <u>Doves and Pigeons:</u>					
Mourning dove	15	5/13	450	8/20	7 300 450
White-winged dove					
IV. <u>Predaceous Birds:</u>					
Golden eagle					2
Duck hawk			3	8/10	5
Horned owl			6	8/20	6
Magpie			25	5/15	40
Raven					
Crow			18	5/20	25
Reported by.....					

#### INSTRUCTIONS

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



3-1752  
Form NR-2  
(April 1946)

# UPLAND GAME BIRDS

1613

Refuge Bowdoin

Months of May 1 to August, 1945

(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 specificioally requested. List introductions here.
Chinese Pheasants	900 acres	45	1800	unknown	-	-	2,300
Sage Grouse	2,400	15	150	unknown	-	-	300
Hungarian Partridge	600	-	-	-	-	-	5
Sharp tail Grouse	600	-	-	-	-	-	

# 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.



## REFUGE GRAIN REPORT

Refuge BowdoinMonths of May 1 through August 31, 1953

(1) VARIETY*	(2) ON HAND BEGINNING OF PERIOD	(3) RECEIVED DURING PERIOD	(4) TOTAL	(5) GRAIN DISPOSED OF				(6) ON HAND END OF PERIOD	(7) PROPOSED OR SUITABLE USE*		
				Transferred	Seeded	Fed	Total		Seed	Feed	Surplus
Wheat	45	180	225	—	20	25		180	20	160	None
Barley	150	175	325	—	15	20	35	295	20	275	None

(8) Indicate shipping or collection points Malta, Montana(9) Grain is stored at Headquarters Granary

(10) Remarks 168 bu. wheat & 175 by. barley hauled in from Medicine Lake Refuge. 12 by. wheat purchased from local elevator for seed purposes. Approx. 6 by. of barley cleaned up from bottom of bin was partially spoiled and disposed of for feed.

\*See instructions on back.

NR-8a

# REFUGE GRAIN REPORT

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

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

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

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

VARIETY	GR. RECEIVED OR PLANT	GR. RECEIVED OR PLANT	TOTAL	Disposed	Feed	For	Total	GR. RECEIVED OR PLANT	Feed	For	Subtotal	
				GRAIN DISPOSED OF					DISPOSED OR SUBTOTAL FOR			
(1)	(2)	(3)	(4)	(5)				(6)	(7)			

REFUGE GRAIN REPORT



## NARRATIVE REPORT

## Easement Refuges

Creedman Coulee Refuge  
May 1 to August 31, 1953

## I GENERAL

A. Weather Conditions:

From all general appearances this refuge area did not receive the exceedingly high amounts of precipitation during May and June as was recorded in the Bowdoin area. However, as no detailed data is available on either precipitation or temperature recordings we must assume that the general weather character was somewhat similar to Bowdoin and are requesting that the reader refer to the Bowdoin report for further information.

B. Water Conditions:

Runoff from May and June rains was not sufficient to maintain the summer evaporation loss, thus a gradual recession has been taking place. The extremely heavy work load at Bowdoin did not permit visiting this refuge area after July 12, thus no definite statement can be made as to the lake elevation at the close of the period, however, it is quite certain that the elevation is still above the irrigation control structure.

C. Fires: - None reported.

## II WILDLIFE

Only one visit to the refuge was made thus it is difficult to give authentic data relative to wildlife use during the period. The one visit was on July 11. Quite a large concentration of birds was observed. Eared Grebe made up about 40% of the total, but all species of ducks common to the area were present. Eleven broods were observed, these being Mallards, pintails and shovellers. Young eared grebe were very numerous. Later visits to this refuge were planned for brood count work but on each occasion something always came up that required the Managers presence at Bowdoin and the only other qualified observer on our staff could not get away because of other important work.

The July 11 visit revealed that water levels were just about at the optimum elevation for good aquatic food growth. The usual common spike rush areas in the upper end of the lake have been taken over by an excellent stand of smartweed, Polygonum coccineum. Possibly one-third of the water area showed a good growth of this food plant. Shore line vegetation as well as up-land grass cover was much improved over last year.

III MAINTENANCE

Nothing to report this period

IV ECONOMIC USE

A. Grazing:

One permit for the grazing of 12½ A.U.M.'s was issued to the H. Earl Clack Co. for grazing cattle on the 80 acre tract of F.W.S. lands in this refuge area.

Sept 8, 1953

Date Completed

Leon C. Snyder

Leon C. Snyder  
Refuge Manager

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Regional Director



WATERFOWL  
(Continuation Sheet)

REFUGE Creedman Coulee MONTHS OF May TO August, 19 53

(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		
<b>Swans:</b>										
Whistling										
Trumpeter										
<b>Geese:</b>										
Canada	7								850	
Cackling										
Brant										
White-fronted										
Snow										
Blue										
Other										
<b>Ducks:</b>										
Mallard	500								60,000	5
Black										
Gadwall	50								6,000	
Baldpate	200								24,000	
Pintail	350								45,000	3
Green-winged teal	100								12,000	
Blue-winged teal	250								30,000	3
Cinnamon teal										
Shoveler	350								45,000	
Wood										
Redhead	50								6,000	
Ring-necked										
Canvasback	75								9,000	
Scaup	50								6,000	
Goldeneye										
Bufflehead										
Ruddy	75								9,000	
Other										
<b>Coot:</b>	100								12,000	

(over)



	(5)	(6)	(7)
Total Days Use	Peak Number	Total Production	
Swans	:	:	:
Geese 850	Unknown	Unknown	
Ducks 245,000	"	"	
Coots 12,000	"	"	

# SUMMARY

Principal feeding areas Creedman Coulee Reservoir

Principal nesting areas Upland areas adjacent to Lake  
and creedman coulee above and below lake.

Reported by Leon C. Snyder

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

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

Interior Duplicating Section, Washington, D. C. 37944

1953



## NARRATIVE REPORT

Lake Thibadeau  
May 1 to August 31, 1953

## I GENERAL

A. Weather Conditions:

Please refer to report of Creedman Coulee.

B. Water Conditions:

With the exceptions of possibly the diversion unit, no runoff was received. During mid July Diversion unit was about the same elevation as at the close of the preceding period. Mud Lake unit remained dry all summer. Evaporation and transpiration dropped the level of the grassy lake unit drastically. Had it not been for the 14 inch elevation raise put on this unit from Lake Thibadeau during April the unit would have been dried up by end of July. By July eleven about 50 percent of the April gain had been used up. Although we did not make any visits here after July 11 the writer is confident that this unit will be dry or nearly so by freeze-up time. Lake Thibadeau still contains quite a large area of water and will no doubt last another summer season without being replenished but the elevation is not sufficient to draw from for maintaining the Grassy Lake unit.

C. Fires: - None reported.

## II WILDLIFE

The only visits to the refuge, July 10-11, revealed quite heavy usage by ducks, and grebes. Shore birds were also numerous as well as were Franklins gulls and common terns. Only 13 duck broods were actually observed, these being mostly on Lake Thibadeau. It was evident that the grassy lake unit contained many broods but they could not be seen because of the dense vegetative cover over approximately 90% of the lake area. Young of both western and eared grebes were observed. Mallards, pintails and blue-wing teal were the predominating duck species but all others common to the north-ern Montana were present. Total duck population July 11 was estimated at between 6 and 7 thousand. The Grassy lake unit was receiving by far the heaviest utilization. About the usual number of nesting American Coots were observed.

Food and cover conditions were very good. However, there appears to be a transition taking place in the Grassy lake unit from last years extremely heavy smartweed stand back to the common spike rush. Smartweed is still quite abundant however. There is again an extreme abundance of cereal foods in the near vicinity of the refuge.

III MAINTENANCE

IV ECONOMIC USES

V INVESTIGATIONS

VI PUBLIC RELATIONS

Nothing to report this period

Sept 8, 1953

Date Completed

Leon C. Snyder

Leon C. Snyder  
Refuge Manager

\_\_\_\_\_  
Regional Office



3-7150a  
Cont. NR-1  
(Rev. March 1953)

WATERFOWL  
(Continuation Sheet)

REFUGE Thibadeau MONTHS OF May TO August, 19 53

(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										
Cackling										
Brant										
White-fronted										
Snow										
Blue										
Other										
Ducks:										
Mallard	600								72,000	4
Black										
Gadwall	75								9,000	
Baldpate	350								45,000	1
Pintail	750								90,000	5
Green-winged teal	30								3,600	
Blue-winged teal	500								60,000	2
Cinnamon teal										
Shoveler	125								15,000	1
Wood										
Redhead	25								3,000	
Ring-necked										
Canvasback	50								6,000	
Scaup	20								2,400	
Goldeneye										
Bufflehead										
Ruddy	100								12,000	
Other										
Coot:	150								18,000	

(over)



	(5)	(6)	(7)
	Total Days Use	Peak Number	Total Production
Swans			
Geese			
Ducks	318,000	Unknown	Unknown
Coots	18,000	"	"

# SUMMARY

Principal feeding areas Grassy Lake

Principal nesting areas Upland areas around shorelines  
and Grassy Lake Unit

Reported by Leon C. Snyder

## 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

Black Coulee  
May 1 to August 31, 1953

## I GENERAL

A. Weather:

Please refer to report for Bowdoin. It appears that there may have been slightly more rainfall in this refuge area than in the Creedman and Thibadeau areas.

B. Water Conditions:

A visit to the refuge August 12 revealed that this area did receive a substantial runoff from the May and June rain as water levels were still only about two feet below spill elevations which was about the same as at the beginning of the period. A Normal 1954 spring runoff should again insure sufficient water for the 1954 nesting and brooding season.

## II WILDLIFE

Only about 900 ducks, predominantly pintails were observed on August 12. Seventeen broods composed of mallards, pintails, baldpates, blue-winged teal and shovellers were counted. A few ruddies, gadwall and redheads were also noted but no broods of these species were seen. Avocets, wilson's phalarope, willets and killdeer were also common.

Food and cover both aquatic and upland was considered above normal. A considerable acreage of cereal crops now border the fenced area of this refuge.

## III MAINTENANCE

Nothing to report

## IV ECONOMIC USES

A grazing permit for the grazing of 50 A.U.M.'s during the period July 15 to November 15 was issued to Mr. Guy Riffin for grazing cattle on 320 acres of F.W.S. lands outside the fenced portion of the refuge. This 320 acres is located within a large tract containing some 12000 acres of other lands controlled by Mr. Riffin thus control of grazing is difficult. The F.W.S. owned 320 acres however is submarginal and not of much value to wildlife or for grazing purposes either.

V INVESTIGATIONS

VI PUBLIC RELATIONS

Nothing to report

Sept 8, 1953

Date Completed

Leon C. Snyder

Leon C. Snyder  
Refuge Manager

\_\_\_\_\_  
Regional Office



3-7150a  
Cont. NR-1  
(Rev. March 1953)

**WATERFOWL**  
(Continuation Sheet)

REFUGE Black Coulee

MONTHS OF May TO August, 1953

(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		
<b>Swans:</b>										
Whistling										
Trumpeter										
<b>Geese:</b>										
Canada										
Cackling										
Brant										
White-fronted										
Snow										
Blue										
Other										
<b>Ducks:</b>										
Mallard						200			24000	3 55
Black										
Gadwall										
Baldpate						50			6000	2 33
Pintail						400			48000	8 146
Green-winged teal										
Blue-winged teal						100			12000	3 55
Cinnamon teal										
Shoveler						150			18000	1 19
Wood										
Redhead										
Ring-necked										
Canvasback										
Scaup										
Goldeneye										
Bufflehead										
Ruddy										
Other										
<b>Coot:</b>						50			6000	

(over)



	(5)	(6)	(7)
	Total Days Use	Peak Number	Total Production
Swans			
Geese			
Ducks	108,000	Unknown	301
Coots	6,000	"	Unknown

# SUMMARY

Principal feeding areas Black Coulee Reservoir

Principal nesting areas Fenced unit around reservoir

Reported by Leon C. Snyder

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

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



## NARRATIVE REPORT

Hewitt Lake  
May 1 to August 31, 1953

## I GENERAL

A. Weather Conditions:

Please refer to Bowdoin Report.

B. Water Conditions:

May and June runoff on this refuge unit was much heavier than on other easement refuge units under Bowdoin administration. Hewitt Lake water elevations came up to spillway elevation but did not over flow. Elevation at the close of the period was only about 10 inches below the spillway.

## II WILDLIFE

The refuge was visited several times during this period. Canada geese appeared to utilize this area considerably more than during past years. A total of 16 broods were observed compared with 7 last year. Our visits also revealed that up to 300 geese used the area for feeding and resting. Duck populations were about the same as last year. Broods observed consisted of Mallards, Pintails, shovellers, blue-wing teal, and a few gadwall and baldpate. One brood of scaups and one of ruddies was also observed. Blue-wing teal and pintails were the predominant brood species.

The 320 acre unit of F.W.S. lands that were fenced last fall and early spring along with about the same acreage of county lands under easement were not grazed by livestock during the period. Upland grass cover is making an excellent recovery from the over-grazed condition of past years. The alkali bulrush marsh in our fenced unit has again made an excellent growth and has brought forth a heavy seed crop. With most of this area still flooded there should be an abundance of readily available food for fall duck flights.

## III MAINTENANCE

Constructed a gate in fence across roadway over dam and put three wires on 200 yards of fence that was not completed during previous period.

## IV ECONOMIC USE

A permit was in the process of being issued to Mr. Louis Bingham for grazing cattle on the 320 acres of F.W.S. owned lands recently fenced. However, due to some misunderstanding relative to other grazing leases claimed by the applicant, collection of grazing fees or utilization of grazing has not yet taken place.

We hope to have this matter settled within the very near future.

V INVESTIGATIONS

VI PUBLIC RELATIONS

Nothing to report

Sept 8, 1953

Date Completed

Leon C. Snyder

Leon C. Snyder  
Refuge Manager



3-7150a  
Cont. NR-1  
(Rev. March 1953)

**WATERFOWL**  
(Continuation Sheet)

REFUGE Hewitt Lake MONTHS OF May TO August, 19 53

(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			
<b>Swans:</b>											
Whistling											
Trumpeter											
<b>Geese:</b>											
Canada								300	24000	16	90
Cackling											
Brant											
White-fronted											
Snow											
Blue											
Other											
<b>Ducks:</b>											
Mallard								100	12000	4	73
Black											
Gadwall								25	1500	2	36
Baldpate								150	3000	2	36
Pintail								150	18000	5	91
Green-winged teal								450	54000	6	109
Blue-winged teal											
Cinnamon teal											
Shoveler								100	12000	3	55
Wood											
Redhead											
Ring-necked											
Canvasback											
Scaup								10	1200	1	18
Goldeneye											
Bufflehead											
Ruddy								20	2400	1	18
Other											
<b>Coot:</b>								25	3000		

(over)



	(5)	(6)	(7)
	Total Days Use	Peak Number	Total Production
Swans			
Geese	24,000	Unknown	90
Ducks	107,000	"	436
Coots	3,000	"	Unknown

# SUMMARY

Principal feeding areas Western Marsh areas of Hewitt Lake

Principal nesting areas Upland grass areas in fenced portion of refuge

Reported by Leon C. Snyder

## 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).





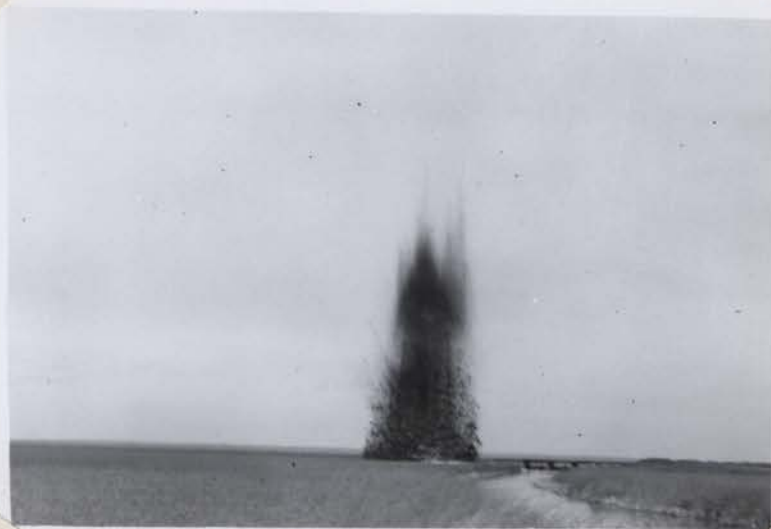
R-79, E-6 (5/11/53) Snow at Bowdoin during mid May was almost as deep as during the winter months. Note Canada geese going out to feed in background.



R-83, E-1 (7/11/53) Baled hay on the H. Earl Clack Co. Ranch. Creedman Coulee Easement Refuge area.



R-79, E-1 (4/21/53) Strip mowed through dense area of prairie bullrush marsh in south east bay of Bowdoin for purpose of partial clearing for expirementing with opening of marsh by blasting. Mowing was during winter while marsh was frozen.



R-79, E-2 (4/22/53) A short expiremental line blast. Charge set off by electric detonator.





R-79, E-3 (4/22/53) Result of the short experimental line blast shown in E-2.



R-79, E-4 (4/22/53) This opening exclusive of the first charge shown above was all obtained by one blast. 400 lbs. of 40% ditching powder was used for the entire job.



R-80, E-4 & 6 (5/31/53) Two views of young Pelicans obtained on Woody island of Bowdoin Refuge. Note vast difference in size. Only about 40 or 50 of the larger size were seen, while several thousand of the smaller together with unhatched and picked eggs were observed.







R-80, E-5 (5/31/53) Four large colonies of Pelicans again nested on islands of Bowdoin. These colonies together with Blue Herons, double-crested Cormorants and gulls continue to get larger each year.



R-82, E-2 (7/6/53) A group of some 350 Canada geese being herded into banding trap at Bowdoin. Approx. 50% were juveniles showing a vast difference in size, some being downy young while others were almost ready to fly.



R-82, E-3 (7/6/53) Bands were placed on 345 geese of this group. Considerable valuable information should be forth coming from this undertaking.



R-82, E-6 (7/6/53) Canada goose banders, fore left to right FWS Game Agents Kenard Baer, Denver and James Birtch, Montana and Curly Emery S.F. & G.; back left to right, Clerk Welch, H. Jensen Flyway Biol., FWS Game Agent James Kelly, Calif. and Dick Trueblood State P.R. Div. Photo by Refuge Manager.





R-83, E-5 (7/12/53) Spear grass is very dense and tall throughout the Bowdoin Refuge area. The above picture was taken on top a hill in grazing unit #2. Thousands of acres of this constitute a very high fire hazard.



R-83, E-6 (7/12/53) In lower areas vegetation of a variable type and mixture is considerably denser than on the hills. This photo taken 200 yards off shore from Lakeside marsh unit.



R-83, E-7 (7/12/53) Close up along shorelines of the Lakeside Marsh unit vegetative cover, all upland type, is really dense. The 12 plus inches of rain during April, May and June is responsible for this type of growth.



R-84, E-4 (8/4/53) A doe antelope with her twin fawns on office lawn.





R-79, E-5 (5/4/53) Completing concrete pour in converting old rubble flashboard structure #1 into a combination bridge and flashboard structure.



R-79, E-8 (5/14/53) Installation of pier caps, stringers and decking for bridge and flashboard structure #1.



R-79, E-7 (5/12/53) Cleaning rubble base and cutting down flashboard steel structure in reversion of flashboard structure #2 to contain a bridge structure also.



R-81, E-1 (6/5/53) May and June rains considerably hampered bridge construction work. Here about  $3\frac{1}{2}$  feet of water over a sizeable area had to be pumped out with a 2 inch pump before construction could be continued.





R-81, E-5 (6/20/53) One of 7 completed concrete piers of reconverted combination bridge and flashboard control structure #2.



R-81, E-6 (6/20/53) Completed concrete work and start on installation of pier caps, stringers and decking of reconverted structure #2.



R-83, E-3 (7/12/53) Reconverted bridge and flashboard control structure #2 100% complete and ready for use. This along with structure #1 on east end of dike C insure year around access to dike C with any type of equipment.



R-83, E-8 (7/13/53) Tourist travel into refuge headquarters is much heavier this season than usual. Many such groups as this stop to eat their noon day or evening lunch under trees on hdq. lawn.





R-84, E-5 (8/10/53) Completed bridge #10 except for rip rap of wings and apron. Approx. 25 S.F. flow going through bridge to Lake Bowdoin.



R-84, E-6 (8/10/53) Structure #6 in operation. Approx. 25 S.F. water headed for Lake Bowdoin.



R-81, E-2 (6/5/53) Excavation and forms in place for installation of Lincoln steel gattle gates.



R-81, E-3 (6/18/53) Concrete has been poured and forms freshly stripped for installation of cattle gate.





R83

E4

R-83, E-4 (7/12/53) Lincoln cattle gate in place.



R84

E2

R-84, E-<sup>2</sup> (8/10/53) Complete installation showing tie in with fence lines. Six such cattle gates were installed at Bowdoin this period.



R-81, E-4 (6/20/53) Contract bridge crew pouring cutoff walls and floor slab for reinforced concrete bridge #10 at Bowdoin.



R-83, E-2 (7/12/53) Completed reinforced concrete bridge #10. Five of this type bridge were constructed by contract during this period.





R-84, E-1 (7/21/53) Placing pier and abutment steel on contract bridge #11. Slab poured 7/20/53.



R-84, E-8 (8/10/53) Contract bridge #11 completed except for rip rap of wings and aprons.