ROUTING SLIP — DIVISION OF WILDLIFE REFUGES — DATE: 12-12 1940

✓	MR. SALYER	JS	✓	SECTION OF HABITAT IMPROVEMENT:	
✓	~~MRS. WOODIN~~			Mr. Kubichek	
✓	~~MR. ELMER~~	CCE		~~Mr. Smith~~	
	MRS. GARVIN			~~Mr. Griffith~~	
	~~MR. DUMONT~~	PAD		~~Miss Cook~~	
	SECTION OF OPERATIONS:			SECTION OF ERA:	
	~~Mr. Ball~~			~~Mr. Regan~~	
✓	~~Mr. Krumnes~~	WK	✓	~~Dr. Bourn~~	
	Mrs. Watkins			Mrs. Fishman	
	Mrs. Kricun				
✓	SECTION OF LAND MANAGEMENT:		✓	STENOGRAPHERS:	
	~~Mr. Barnshaw~~			Miss Price	
	~~Mr. Ackerknecht~~	CWA		~~Miss Whorley~~	
✓	SECTION OF STRUCTURES:				
	~~Mr. Taylor~~	JWW			
	~~Mr. Gustafson~~	RL			

REMARKS: Lake Bowdoin Quarterly August - October 1940

Return to: Cook

LAKE BOWDOIN NATIONAL WILDLIFE REFUGE
MALTA, MONTANA
NOVEMBER 7, 1940

BIOLOGICAL NARRATIVE REPORT
PERIOD AUGUST 1 TO OCTOBER 31, 1940

I. General.

A. Weather Conditions:

Rainfall and temperatures have been quite normal throughout this period except that possibly the mild weather during October has been a little above normal for that month. Temperatures and precipitation by months are as follows:

	Snowfall	Rainfall	Max. Temp.	Min. Temp.
August	- - -	.58	103	43
September	- - -	.12	98	37
October	- - -	1.89	81	24
Total	- - -	2.59	103	24

B. Water Conditions:

It has been possible to maintain the main lake area at approximately the 2206 foot contour throughout this period with water obtained from the Reclamation Service. The small lake area south of the Great Northern tracks has also been maintained at about the same level with surplus water available from the Reclamation latteral in that district. The turnout being constructed for us by the Reclamation CCC in the Dodson South Canal north of the Refuge has been sufficiently completed to allow maintenance of the so-called Lakeside Marsh Area at the upper end of our Dry Lake Supply Canal. This area has been kept near capacity and is proving to be a very valuable marsh area. Since sufficient water was not available to maintain or raise the water in the Dry Lake unit it has been permitted to dry up completely which has provided for harvest of an excellent stand of bulrush. This also provides for construction of our dikes along the south side without interference by water or wet conditions.

C. Fires:

The customary seasonal preparations were made prior to the fire hazard season such as checking over all available fire equipment at the Headquarters and in the emergency fire caches located at strategic points throughout the Refuge. I received approval from Washington on my proposed fire plan for the Bowdoin Refuge and this organization was established including the cooperative crew of resident farmers along the south and west sides of the Refuge. Fire guards were maintained where possible and patrol trails where used as fire guards were cleared of weeds that might permit jumping over in case of fire. No fires have occurred during this period.

II. Wildlife.

A. Water Birds.

1. Population and Behavior:

Canvasback, redhead, scaup, ruddies and a few other species have continued to show very favorable increases throughout this period as compared with the period of a year ago, and in fact for several preceeding years. Mallards that were below normal during the nesting season seemed to appear in normal numbers thus far during the migration period or possibly somewhat above that of last year. The first migrants, except for a few shorebirds that arrived earlier, were observed about September 25 at which time a noticeable number of Blue-winged Teal came to the Refuge.

On September 28 the first sandhill cranes were observed--about 100 of these birds were seen passing high over the Refuge and disappeared to the southeast without stopping. A few birds were seen circling the Refuge the following day, however, and are believed to have stopped to feed and rest. On October 5 somewhat over 2,000 of these sandhill cranes circled the Refuge throught the day, most of which lit from time to time to rest and feed. Large numbers of them were observed feeding also in nearby grain fields.

The waterfowl migration which is at its peak at the close of this report as a whole seems to be somewhat greater (approximately 20%) than last year. Of unusual importance is to note that canvasbacks have increased over 100 % and redheads 50% over last years migration. Canada Geese seem to have increased about 20% but no definite figure on this is yet available since this report closes at what is believed to be near the highth of their migration. Because of the fact that the migration flight is somewhat incomplete it will not be possible to show the fall migration population on my migratory waterfowl records which accompany this report.

2. Food and Cover:

An exceptional fine stand of prairie bulrush is prevalent throughout the entire Dry Lake Area, as well as on suitable marshes along the south side of the main lake, as well as an exceptional heavy growth of sago throughout the main lake which together with numerous small patches of smartweed and millet that have been planted on suitable areas bordering the main lake and in the newly established Lakeside Marsh is providing a great amount of feed for birds during the migration period.

This natural food, of course, is supplemented by several small grain patches in the vicinity of the Headquarters and on the south side of the Refuge of which the birds are taking appreciable advantage. These food patches consisting of corn, barley, wheat and cane have been knocked down by harrowing or dragging which is a great advantage to the birds in obtaining this feed. Some small patches have been left standing for the pheasants and partridge throughout the winter, the remains

of which will be knocked down for migratory birds during the spring flight.

3. Disease:

(a) Botulism.

What threatened to be a severe epidemic by starting as early as June 2 when a half dozen affected birds were picked up on the east side of the main lake was not so severe as first anticipated. The peak of the outbreak was from July 14 to August 3. 4,754 birds were picked up and buried by WPA crews which was somewhat less than last year when 14,078 birds were gathered up and disposed of. This year's loss compares similar to that of 1938 when 5,380 dead birds were found.

The method of treatment of birds this year, as described in last period's report, was somewhat similar to that followed last season--the administration of cool, fresh water mixed with the proper portion of potassium permanganate was administered upon entering the hospital and succeeding treatment consisted of washing the throat with 3% salt solution and of course any birds having leeches were given additional treatment as required. Birds were promoted from pen to pen and graded according to their reaction to treatment and all birds showing definite signs of recovery were banded and released on the storage reservoir where the temporary hospital was reestablished this year.

In my own mind I feel pretty thoroughly convinced that the excessive heavy growth of sago pondweed as well as certain other less abundant vegetable matter that is annually washed into isolated areas by wave action is playing a major part in botulism outbreaks here at Bowdoin. In some cases it has been found that this decayed vegetable matter has built up to a depth of from 1½ to 2 feet and has a very gassy, repulsive odor which could not exist under sanitary conditions.

Attached hereto is a tabulation report by species of birds picked up in the field and hospitalized and the results. Also accompanying this is a summary report on botulism on this area covering the past five years.

(Botulism report on next page)

	FOUND DEAD			BROUGHT TO HOSPITAL			DIED IN HOSPITAL			RELEASED			
	AD.	JUV.	TOTAL	AD.	JUV.	TOTAL	AD.	JUV.	TOTAL	AD.	JUV.	TOTAL	
Ducks	3528	235	3763	584	45	629	261	21	282	323	24	347	55% saved
Coots	120	45	165	10	5	15	8	5	13	2	0	2	
Gulls	245	125	370	12	1	13	8	1	9	4	0	4	
Killdeer	6	0	6	1	0	1	1	0	1	0	0	0	
Willett	7	0	7	5	1	6	3	1	4	2	0	2	
Sandpiper	38	0	38	22	0	22	15	0	15	7	0	7	
Terns	38	2	40	1	1	2	1	1	2	0	0	0	
Avocets	42	1	43	4	0	4	4	0	4	0	0	0	
Godwits	6	0	6	5	1	6	4	1	5	1	0	1	
Grebes	10	31	41	0	3	3	0	3	3	0	0	0	
Pelicans	14	19	33	1	0	1	1	0	1	0	0	0	
Herons	2	7	9	1	0	1	0	0	0	1	0	1	
Cormorants	4	1	5	0	0	0	0	0	0	0	0	0	
Phalaropes	1	0	1	1	0	1	1	0	1	0	0	0	
Yellowlegs	18	0	18	9	0	9	3	0	3	6	0	6	
Geese	0	0	0	3	0	3	1	0	1	2	0	2	
Total Other Than Duck	551	231	782	65	12	87	50	12	62	25	0	25	28% saved
TOTAL	4079	466	4545	649	67	716	311	33	344	348	24	372	52% saved

No young saved except ducks, where 24 recovered out of 45 brought in or 53% saved.

Season July 3 to September 6. Peak July 14 to August 3.

BOTULISM REPORT FOR LAKE BOWDOIN REFUGE

YEAR	PERIOD	AREAS AFFECTED	ECOLOGICAL FACTORS	BIRDS LOST	BIRDS TREATED AND RELEASED	REMARKS
1936	JULY	North Shore of Lake	Water low and stagnant.	25	12	A few birds treated at temporary Hdqts. in cabin at Lake shore with 75% survival.
1937		None	Water very low and stag nant. Lake entirely dry in latter part of July.	0	0	No Botulism noted, even though lake dried up completely late in July.
1938	Aug. 1 to Oct. 12. --- Peak Aug. 18 to Sept. 22.	Began on small lake south of railroad track, and gradually extended to all of Lake Bowdoin proper.	Rainfall above normal; extra water from Reclamation raised water level of L. Bowdoin 16 inches.	5380	Treated; 342 Released; 248 72.5% recover	Excellent hospital facilities; 72.5% saved. Situation relieved by water from Reclamation.
1939	July 11 to Sept. 22 --- Peak Jul.15 to Aug. 15	Rush Point, N.E. and West shores of Lake Bowdoin. Dry Lake most toxic.	Dry Lake flooded first time in 8 years.	12465 ducks. --- 1613 other birds.	Treated; 1529 ducks 109 others Released 559 ducks 35 others.	Temporary hospital without aid until WPA resumed (July 25) 41 species handled Dead birds disposed of estimated at 80% of total loss.
1940	July 3 to Sept. 6 --- Peak Jul.14 to Aug. 3	Lakeside marsh. SE. & SW bays of main lake, gradually spreading to most of L. Bowdoin proper. Dry Lake and area soithof railroad much better than 1939.	Lakeside marsh is new area, mostly flooded for first time this yr. Water normal in main lake but with heavy concentrations of algae and waterbloom in areas where outbreak started.	3810 (3945) ducks --- 844 other birds.	Treated; 629 ducks 87 others Released; 347 ducks 25 others. 55% ducks recovered 28% other birds recovered.	No help available till July 12 when WPA work resumed. Conditions generally much better than 1939. Birds disposed of estimated at 85% of total loss.

NOTE: Out of all juvenile birds brought to hospital in 1940 none were saved except ducks, of which 28 recovered out of 45 hospitalized, or a recovery percentage of 53%

(b) Lead Poisoning, Etc.

While a few birds picked up by rescue crews and brought to the hospital are known to have been affected by lead poisoning very few cases were attributed to this cause. A considerable number of birds picked up affected by botulism were found to have large numbers of leeches in their throats and nostrils as well as ocassionally on their legs but it is believed that in most cases at least these birds were attacked by leeches after they had become affected with botulism.

B. Upland Game Birds:

Pheasants, partridge and sage grouse are continuing to increase very satisfactorily throughout the west and south portions of the Refuge and which is especially noticeable in the immediate vicinity of the Headquarters where pheasants and partridge can be observed at almost any time. These birds are responding most favorable to the small patches of grain, consisting of corn, wheat and cane, that have been continuously planted for the past three years at the Headquarters as well as other places throughout the Refuge.

The bird shelters at the Headquarters, in Black Creek and near the larger food patch on the southeast corner of the Refuge are being repaired and put in readiness for the pheasants and partridge throughout the coming winter months.

C. Big-Game Animals:

The antelope are continuing to thrive very satisfactorily on the Refuge and with the present abundance of feed on Big Island and in the Black Creek vicinity where they range throughout the winter assures an abundance of feed for the coming winter season. (Pictures No. 488 and 489)

It has been noted that these animals frequently come and go from the Refuge but it is believed at this time that practically all of the animals that are native here to the Refuge are now within the Refuge boundaries.

They have recently been observed gathering up in larger herds and I have recently observed one herd of eighteen animals on the north side of the main lake area and a herd of similar size is known to be ranging on Big Island. It is expected that as usual all these animals will gather in one large herd to spend the winter on Big Island and in the Black Creek Area.

D. Fur-Bearing Animals:

Muskrats are continuing to multiply very rapidly throughout the Refuge and while it will not be necessary to undertake control of these animals this year it will be necessary to remove a few where they are damaging small dams on Black Creek and on reservoir dikes here at the Headquarters.

At the close of this report it has been noticed that coyotes are migrating to the Refuge during the fall and winter as is customary.

Also numerous signs of skunks and weasels have been observed on the Refuge and concentrated control of these predators will be undertaken during the next few months.

E. Fish:

The number of carp in the lake are noticed to be building up very rapidly and undoutedly are doing considerable damage to aquatic vegetation at the present time.

I recently granted temporary permission to local commercial fishermen to seine the Reclamation spillway canal entering the Refuge north of the Headquarters and have written the Regional Office requesting authority to grant permits providing for seining the main lake area under the ice during the winter which is customary in this locality. As hight as fourteen carload of carp have been removed from the Bowdoin area during one winter in this manner several years ago.

III. Refuge Development and Maintenance.

A. Physical Development:

Following completion of botulism rescue and control activities the quota of seven WPA clients that were temporarily assigned here by special permission of the State WPA office and charged against our STATE ERA 1939 carry-over funds were retained here at the Refuge as authorized by Mr. Rodgers to provide for carrying of sufficient quota to carry one non-relief assignment at Lake Mason providing for his salary.

These six men and one stenographer were retained to assist with dragline operations, stripping and scarifying of ground in preparation of dike construction (Pictures 490 and 491), combining of prairie bulrush seed, maintenance of tree and grain patches

and for various other Refuge maintenance work on the Refuge as well as maintenance of files and records transferred here from Denver in connection with operations of last years project and to continue preparation of reports, processing payrolls, requisitions, etc. in connection with continuance of this project out of the carry-over funds in the operation of the Lake Mason, Pishkun Reservoir and the project here at Bowdoin.

A special allotment of funds was provided by Washington for continuance of dragline operations and since termination of our WPA construction work on July 1 approximately 6,000 feet of dike has been cast by the dragline which is yet to be worked down and sloped with caterpillar and dozer if and when it may be possible to open my new WPA construction project that has been approved for this area.

All efforts to open this project have been futile this far because of quota defficiency for WPA operation in this county. It is hoped and now looks as though it might be possible to at least open the project during the coming winter months at which time it will not be possible to carry on various other small WPA projects now in operation in the county.

Early in August I received approval of my application for six NYA assignments for a three month period to assist with botulism control, tree and food patch maintenance, seed collection, etc. I have also experienced difficulty in obtaining sufficient quota to accomplish much in connection with this project and usually not more than one or two boys have been available for carrying on this work.

B. Plantings:

The comparatively few plantings of smartweed and millet in small bays bordering the newly established Lakeside Marsh Area has produced considerable amount of feed in proportion and many geese and ducks have been observed feeding on this area prior to and during migration period.

The several irrigated food patches that have been established throughout the west and south sides of the Refuge have produced well this season (Picture No. 492) and due to the fact that birds seem to feed more readily on these areas than they did when first established, no grain was harvested this year since I already have a small surplus on hand and it was felt that the existing patches would be cleaned up during the

the fall migration and what might be left by pheasants throughout the winter will undoubtedly be taken advantage of by migratory birds in the spring.

My Quarterly Grain Report has been prepared on form 3-1570 and will accompany this report.

Survival of tree plantings made this spring on cultivated patches has been about 80% but due to mild drowth conditions on upland sod plantings only about 40% of these have survived. This low percentage is partially due to the fact than insufficient help was available after July 1 for cultivating and watering these plantings.

Grass conditions continue to improve throughout the entire area and the upland grass conditions along the north side of the Refuge show a distinct improvement on the enclosed Refuge area in comparison with the open range outside.

C. Collections:

Although NYA assistance has been very lacking I have been able to handpick and clean 100 pounds of hardstem bulrush seed. The NYA boys who did this work were supervised by a WPA foreman. Thirty pounds of sago was also collected by hand with this help.

One hundred and forty bushels of prarie bulrush seed was combined in the lake bed of the Dry Lake area and considerable more could have been obtained had it been desired. (Picture No. 493)

D. Distribution of Seed & Nursery Stock:

The following is a tabulation list of seed and nursery stock on hand and available for transfer:

Item	Qantity on Hand	Surplus to needs of Refuge and available for transfer
Prairie Bulrush	140 bu.	40 bu.
Hardstem Bulrush	200 ~~bu.~~ pounds	0
Wild Millet	100 ~~bu.~~ pounds	0
Pennsylvanie Smartweed	16 bu.	6 bu.
Sago Pondweed	30 ~~bu.~~ pounds	0
Hybrid Poplar Cuttings	20,000	15,000

Seed listed here is stored in steel granary at Refuge Headquarters where adequate storage is available. The average cost of harvesting the 140 bushels of prairie bulrush was approximately 50¢ per bushel.

Twenty Thousand hybrid poplar cuttings are listed above as being available from the experimental nursery here on the Refuge. These trees which have made a very satisfactory growth here at the Bowdoin Refuge would probably be desirable on certain other Refuges and probably considerable more cuttings may be made available than are listed if desired.

IV. Public Relations.

A. Recreational Uses:

The addition to the Public Shooting Grounds this year which takes in somewhat larger portion of South Bay, the biggest portion of Rush Point and the northwest point of Big Island as well as considerable more open water area in the main lake has proven very satisfactory so far as hunting conditions and the attempt to provide suitable hunting to the sportsmen in this area is concerned. The entire water area of the shooting grounds both on the south and the east as well as the land area on the point of Big Island has been marked this year using steel drill shaft that was salvaged from the Fort Peck scrap iron pile which have been driven at intervals along this boundary where they can be readily seen throughout the area. On these shafts have been mounted a sign designating the public shooting area boundary which has been rendered clearly visible for long distances by the addition of a red flag at the top of this shaft marker. (Picture No. 494)

Hunting conditions at the opening of the season on October 1 were quite good. This was followed, however, by considerable nice weather which was not exactly suitable for good hunting but the latter part of October was somewhat better and several hunters have obtained their full bag limits. (Pictures No. 495 and 496) County Attorney Fred C. Gabriel was the first to obtain his bag limit on the opening day and he checked in at 10:00 A.M. after getting his full quota on Rush Point well pleased with his success.

During October 193 hunters obtained a total of 497 birds. A complete report covering all hunting activities on the Public Shooting area will accompany the next Narrative Report following the close of the hunting season.

B. Exhibit:

An exhibit consisting of two each of white pelican, great blue heron and double-crested cormorants was made at the North Montana State Fair at Great Falls August 5 to the 10th by request of sportsmen organization representatives and the Fair Board.

This exhibit was a big success and I have had numerous comments not only from the fair and sportsmen representatives but from the general public on this exhibit and I feel that this should be an annual affair. (Picture No. 497)

Visiting officials and employees to the Refuge during this period are as follows: Mr. Gustafson inspected equipment August 1. Mr. Murray conducted Headquarters appraisal August 13. Paul Kreager checked over WPA records, inspected Bowdoin and easement Refuges and equipment and assisted with plans for WPA development and repair August 20 to 27. Mr. Winsor surveyed and staked Dike "C" for construction on August 30. Robert Smith inspected food and habitat developme nt and improvement as well as other development on September 11. Mr. Hotchkiss inspected botulism conditions on September 26. And Mr. Winsor and Mr. Walker also visited the Refuge on September 26 and 27 to survey and stake additional dike and other proposed development on the Refuge. Mr. Winsor returned to Salt Lake on the 28th and Mr. Walker remained for several days to complete his engineering work.

A talk was made at the Malta Kiawanis Club weekly meeting on October 15 and a brief outline was given of our progress in wildlife conservation here at Bowdoin and a more detailed outline was given of rules and regulations on hunting upon the Public Shooting area as well as a map display of the entire shooting area showing the boundaries including the additional shooting grounds as opened this year.

V. Economic Uses of Refuge.

No hay, grazing or other permit were issued during this period.

VI. Field Investigation or Applied Research.

Bird Banding:

Record sheets of bird banding on the Bowdoin Refuge as well as a summary of returns and recoveries have been prepared and submitted to accompany this report. (Picture No. 498)

(Record sheets of bird banding on next page)

LAKE BOWDOIN BIRD

SPECIE	TOTAL PREVIOUSLY BANDED	JU
Pintail	354	
Shoveler	64	
Baldpate	91	
Teal, Blue-winged	37	
Gadwall	64	
Mallard	133	
Scaup	1	
Redhead	5	
Teal, Green-winged	93	
Black Duck	2	
Canada Goose	3	
Avocet	2	
Coot, American	19	
Curlew, Long-billed	1	
Dowitcher	0	
Godwit, Marbled	2	
Killdeer	1	
Phalarope, Wilson	2	
Phalarope, Northern	1	
Plover, Black Bellied	1	
Sandpiper, Stilt	1	
Willett, Western	2	
Yellowleg, Lesser	1	
Grebe, Western	1	
Gull, Ring-billed	210	2
Gull, Herring	1	
Gull, Franklin	2	
Heron, Great Blue	133	1
Pelican, White	264	
Tern, Common	37	
Cormorant, Double-crested	29	
Blackbird, Redwinged	2	
Pipit, American	2	
Sparrow, Chipping	1	

November 7, 1940

SUMMARY OF RETURNS AND RECOVERIES

STATE	BALD-PATE	BLACK DUCK	COOT	GADWALL	RING-BILLED GULL	HERRING GULL	HERON	MALLARD	PELICAN	PIN-TAIL	RED-HEAD	SHOVELER	GREEN-WING TEAL	TOTAL
Kansas	1			1					1					3
South Dakota	1								1	1	1			4
Montana	3			4	1	1	3	3	6	1				22
Texas	1			2			3		1	7			1	15
New Mexico	1													1
Utah	1								1	1				3
Arkansas	1	1						1	1					4
Missouri	1									1				2
Kentucky			1											1
Idaho				1										1
Colorado				1			1	1		1		1	1	6
Nebraska				1					1					2
Oklahoma							2	1	1				1	5
Mexico							6		4					10
Iowa										3				3
Wisconsin									1					1
Louisiana									2	1				3
North Dakota									1	1				2
Minnesota										1				1
Washington										1				1
California										2				2
Alberta								1						1

VII. Other Items:

A very great amount of my time as well as that of Mr. Ekedahl has been taken up during this period in maintaining records and reports as well as checking of time sheets, payrolls, requisitions and the preparation of numerous reports in connection with the 1939 ERA carry-over funds that was formerly handled in the Denver Regional office prior to the time that office was moved to Portland. While I have been pleased to assist in the maintenance of these records and the continued operation of the project, I feel that this, which has come at a time when it has been necessary to also spend considerable amount of time in the office in connection with the continued efforts towards opening of my Bowdoin Refuge and easement Refuge Projects, has worked an unnecessary hardship and I do not feel that this is the manner in which a Refuge Manager and a Patrolman should spend so much of their time. Although the operations under this project have not been great during this period the amount of office work in handling it has probably been nearly as great as when it was operating in full force and because of this it has been impossible to carry on the regular Refuge administration, maintenance and patrol activities that are ordinarily required for the proper administration of a refuge area.

A selection of photographs taken during this period is attached hereto.

Also attached is a check list of birds for this area which in turn is followed by a narrative summary report covering easement areas under my administration.

REPORT ON EASEMENT REFUGE AREAS
ADMINISTERED FROM AND IN CONNECTION
WITH LAKE BOWDOIN REFUGE

Lake Thibedeau

This area was inspected on August 14 and all was found in good condition except for the persistent water shortage in the main Thibedeau Lake as well as the Grassy Lake Area. The Little Mud Lake unit was holding up fairly well and inhabited by an unusual number of ducks and shorebirds. The Diversion Reservoir was holding up well as usual and a gratifying number of ducks--mostly mallards, redheads, canvasback and scaup--were observed. A thorough check was made for a possible outbreak of botulism on the main Thibedeau Lake unit but no evidence of this disease was found.

This area was again visited on August 22 at which time I was accompanied by Mr. Kreager of the Regional Office and we selected a suitable location for an overnight cabin and made other plans for completion of development work, as well as certain repair work on this area.

Various trips have been made to Thibedeau during the fall season but no apparent violations of the closed area have been found on either the Mud Lake or the Diversion Reservoir where a large number of birds are concentrated in proportion to the water available.

Greedman Reservoir

This area was also inspected on August 14 and although a thorough investigation was made to determine if any botulism was prevalent no symptoms were found.

A trip to this area just prior to the opening of the hunting season revealed a very heavy concentration of birds on this fine area taking advantage of the plentiful water supply and relatively abundant food and cover. (Picture No. 499)

Because of the fact that it has thus far been impossible to obtain an executive order establishing Greedmans as a Refuge it was not posted prior to the opening of the hunting season this year. Some trouble and misunderstanding was the result of failure to post this area last season and I was confident that the same conditions would exist again this year. In compliance with Mr. Salyer's letter of October 11 to the Regional Office which was relayed to me with Mr. Kreager's letter of October 17 with the request that I act in accordance with Mr. Salyer's instructions relative to hunting on this area on which various sportsmen representatives and others consisting of the Havre Chamber of Commerce, President of the Havre

Rod and Gun Club and the Hill County Board of Commissioners had sent petitions of protest direct to the Washington Office as well as to Montana congressmen asking that the area be left open to hunting. I contacted the individuals and representatives of organizations mentioned above and found that the probable source of agitation in this matter was the fact that Mr. Weaver Clack had posted the Refuge with private signs restricting hunting but that he himself was hunting the area and issuing written permits to certain of his friends to do so also. Mr. Clack's friends were petitioning to keep the area open because of the fact that they did not wish to loose out on the fine hunting they were experiencing. Others were requesting that the area be opened so that the entire public could hunt this area instead of a favored few. In compliance with Mr. Salyer's instructions I have temporarily posted this Refuge and although some unfavorable reaction might occur no serious resistance is anticipated.

BLACK COULEE

An inspection of this area on August 14 revealed that the fine congregation of birds inhabiting this area were living in perfect peace and solitude in their seclusion.

This area was again visited on October 9 and an unusual heavy concentration of birds were found, a portion of which were undoubtedly taking refuge from hunter's guns where they had been driven from smaller lakes and potholes in that vicinity. A thorough inspection of the area revealed no evidence of hunting and I was particularly impressed with the unusual concentration of baldpates that inhabited this relatively small area. I was also pleased to find approximately 100 bufflehead ducks feeding near the center of the lake and the glitter of their white feathers were very noticeable in the sunlight. A total of 5,500 birds were estimated to be inhabiting the area on this ocassion. (See Pictures No. 500 and 501)

Plantings of wild millett at the upper end of the two wings of this lake are doing exceptionally well and producing fine growth of cover as well as a plentiful supply of much needed feed here. (Picture No. 502) An excellent growth of small spikerush was noted at the upper end of the southeast arm of the lake. (Pictures No. 503 and 504)

While in this vicinity I contacted Mr. B. W. Johnson in Turner who is a loyal supporter of our program and discussed wildlife and refuges in general and find that he is still enthusiastic over the fine results of our Black Coulee Refuge as well as the possibilities of the development of the proposed Woody Island project near Hogeland.

In company with Game Agent Roahen I again visited Black Coulee on October 18 and still no evidence of hunting was found on this isolated area.

BIOLOGICAL NARRATIVE REPORT (EASEMENT AREAS)-13

Hewett Lake

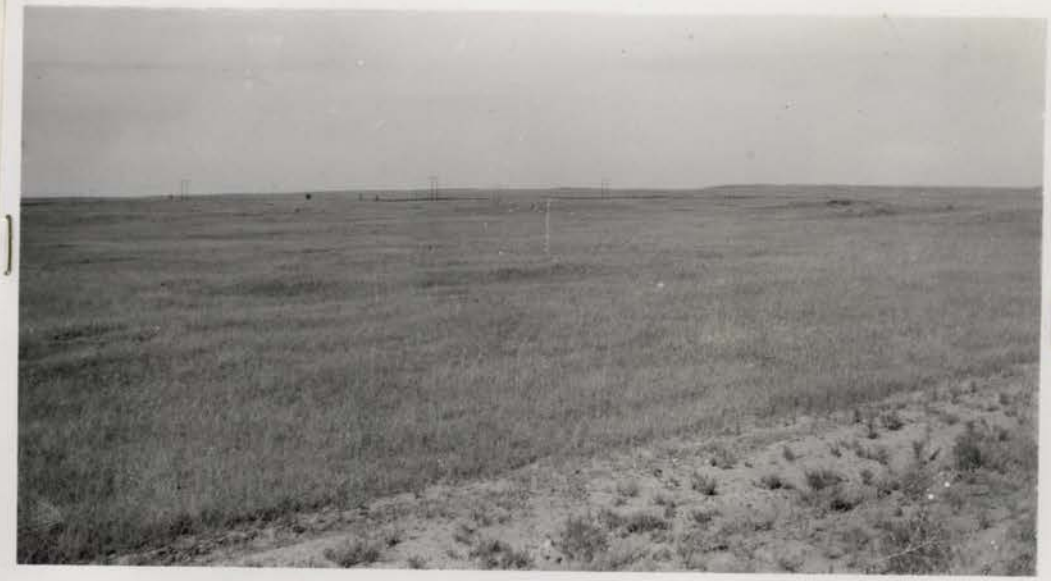
This area was visited on October 2 following opening day of the hunting season and upon patroling it found no signs of hunting in this vicinity. Engineer Walker who is Mr. Winsor's assistant accompanied me to Hewett Lake and we staked out location of the proposed rock crossing to eliminate the driveway across this natural spillway at the north end of the dam. A considerable number of geese were observed on this ocassion which is not unusual for this area.

At the time this area was visited on August 27 special observation was made as to food and cover conditions. As has been customary since this area was established a large band of sheep and numerous horses and cattle have been grazing here and practically no natural food or cover was found to exist. Plantings of hard-stem and prairie bulrush made in the spring of 1938 have been completely eaten off as shown in pictures No. 505 and 506. As stated before this easement area will fail to function to any noticeable degree until such time as at least a portion of it has been fenced and grazing restricted therefrom.

B. M. Hazeltine

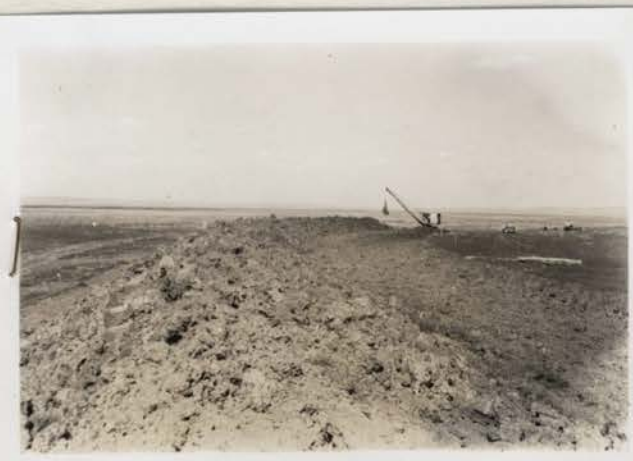
B. M. Hazeltine
Junior Refuge Manager

November 7, 1940

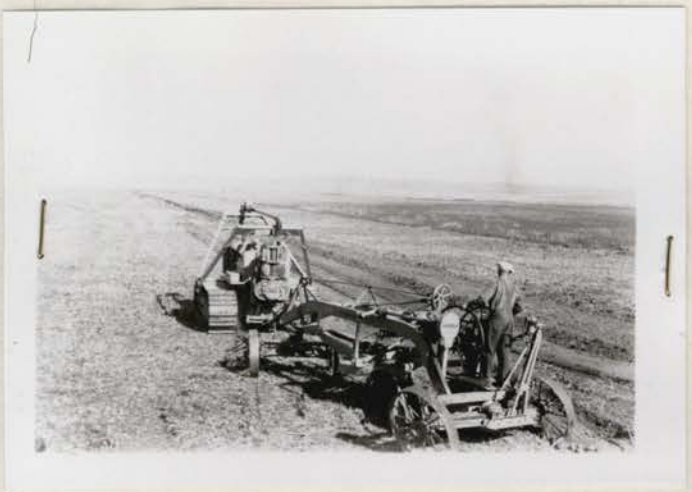


Picture No. 488. One of the small herds of antelope grazing on northwest side of Refuge near highway. September 1940.

Picture No. 489. Four Antelope on their summer range on north side of Refuge. August 1940.

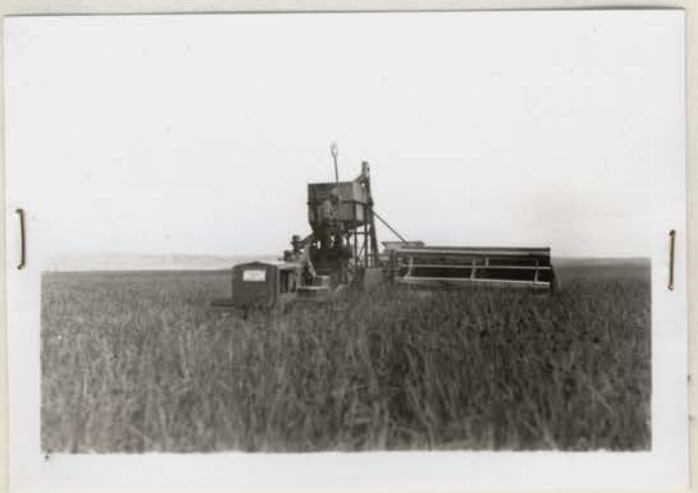


Picture No. 490. Dragline in operation casting dirt for Dike on curve around north side of Great Northern Reservoir near section line between Sec. 31 and 32. August 1940.

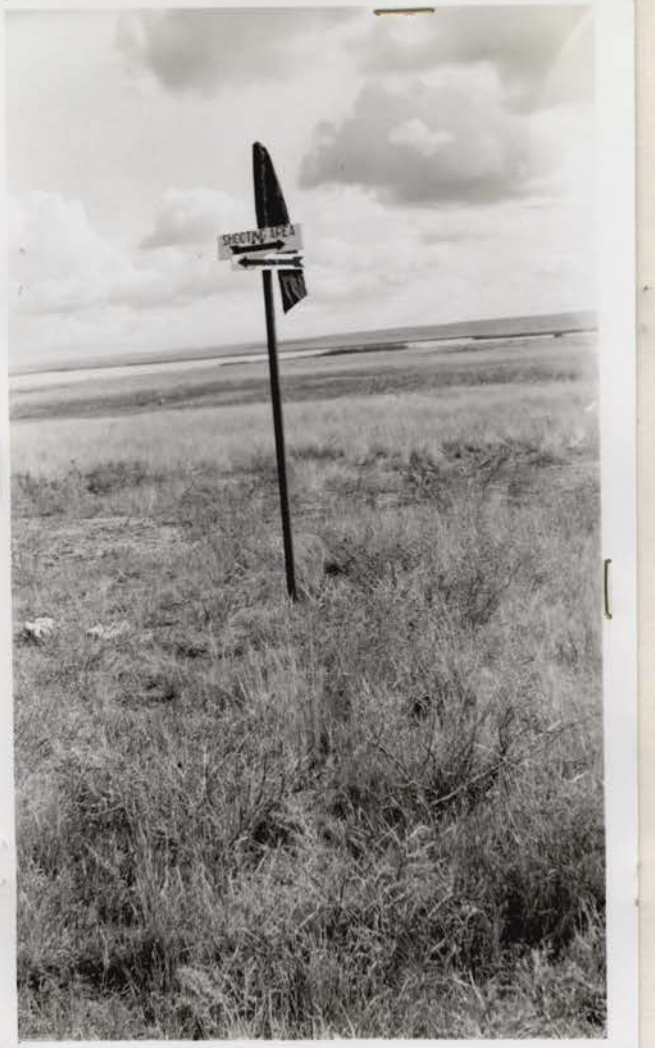


Picture No. 491. Stripping and scarifying ground in preparation for base of dike. August 1940.

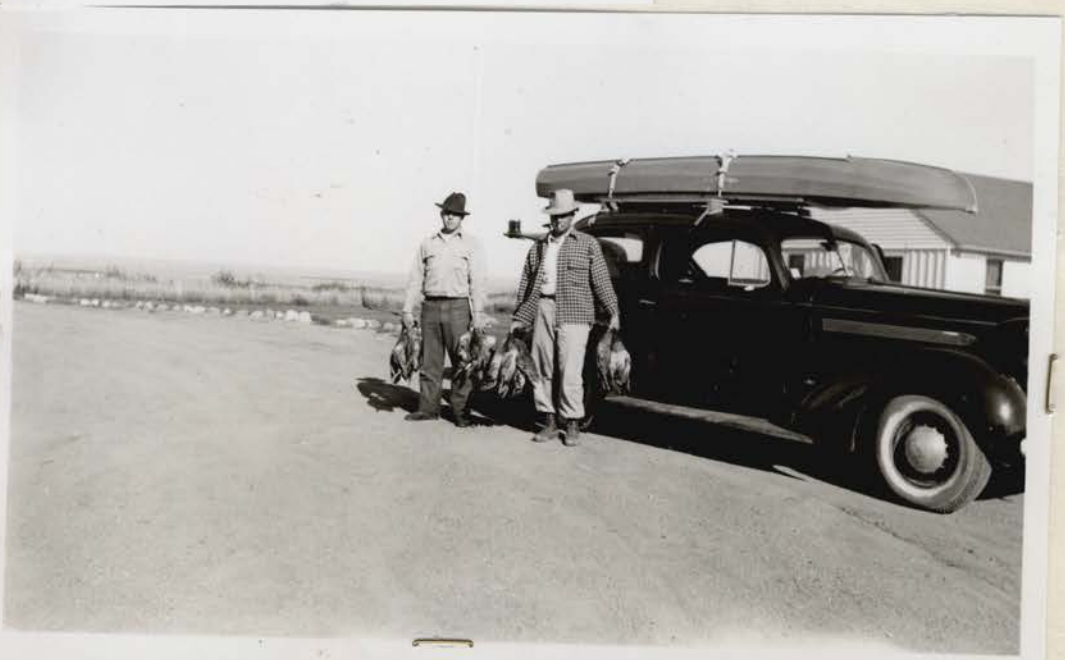
Picture No. 492. One of the food patches of corn near Headquarters. 13 year old boy standing in foreground gives comparison of heigth and quality. August 1940.



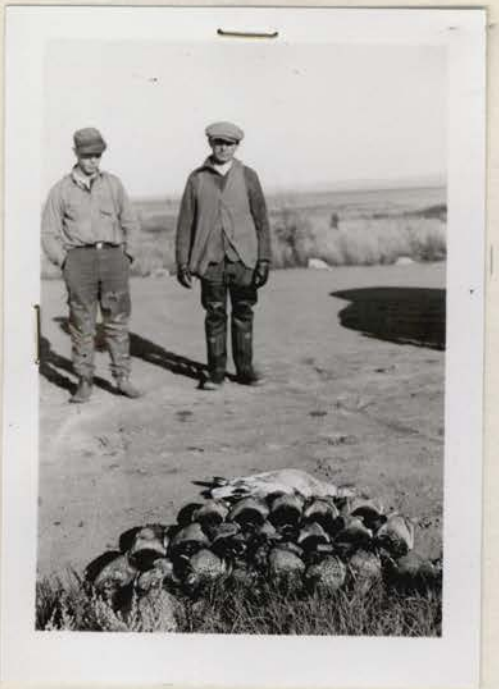
Picture No. 493. Harvesting prairie bulrush in Dry Lake. Sept. 17, 1940.



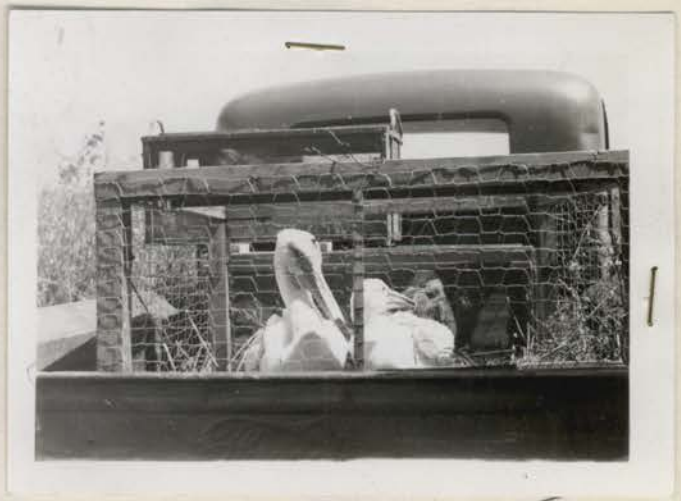
Picture No. 494. Salvage drill shaft used to mark Public Shooting Ground boundary. September 1940.



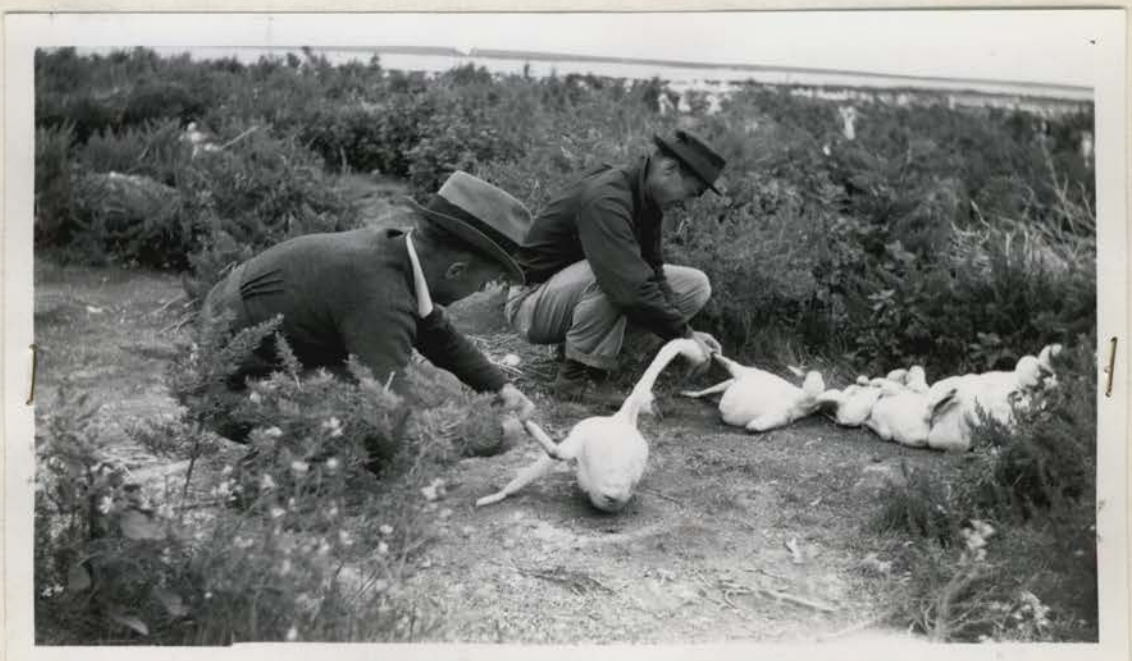
Picture No. 495. These Glasgow, Mont. hunters got their limit by noon on October 6. Each had 3 fine canvasbacks. Oct. 6, 1940.



Picture No. 496. These local hunters bagged these 17 mallards, 1 canvasback, 1 gadwall, 1 shoveler and 1 snow goose on P. S. G. at Rush Point, on Oct. 14. They said hunting was excellent.



Picture No. 497. These two pelican, two cormorant and 2 blue heron are crated and ready to leave Bowdoin Refuge for display at North Montana State Fair at Great Falls. August 1940.



Picture No. 498. Banding pelicans on Woody Island in June 1940.

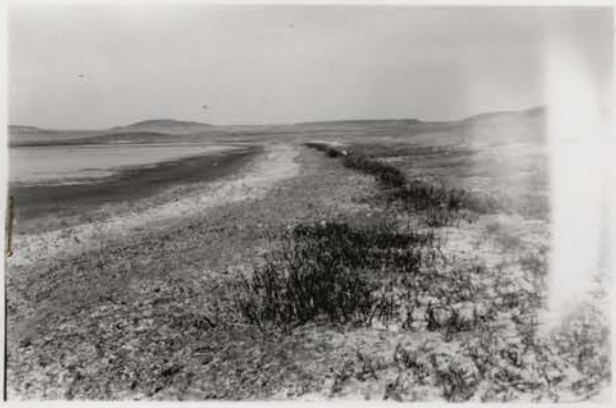
Picture No. 499. A small portion of the duck concentration on one of the Havre Refuges. Fall 1940.

Picture No. 500. Looking south on upper end of Black Coulee Reservoir, on close observation one can see the heavy concentration of ducks on lake. October 9, 1940.

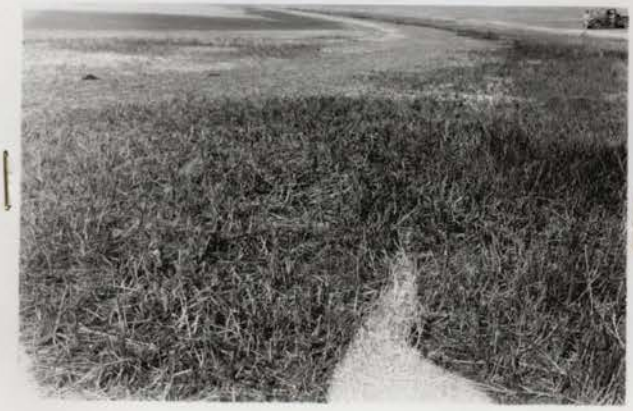
Picture No. 501. Some of the duck concentration on Black Coulee Refuge can be seen in background. Several thousand birds had already left before this picure was taken. The fringe of wild millet was planted 2 years ago. Oct. 9, 1940

Picture No. 502. This wild millet planted on Black Coulee easement Refuge has responded beautifully. Oct. 9, 1940

Pictures No. 503 and 504. This fine green growth of spikerush and other feed and cover is attracting many birds to the Black Coulee Refuge. Oct. 9, 1940.



Picture No. 505. Hardstem rush transplanted from Bowdoin Refuge to Hewett Lake Refuge in spring of 1938 eaten off by livestock. August 1940.



Picture No. 506. This prairie bulrush seeded in spring of 1938 on Hewett Lake Refuge has been completely eaten off by livestock.

LAKE BOWDOIN REFUGE MIGRATORY WATERFOWL RECORD

1940

DUCKS

SPECIES	FALL MIGRATION 1939	SPRING MIGRATION	SUMMER RESIDENT	DATE FIRST SEEN IN SPRING	LATEST DATE OBSERVED IN FALL
1. Pintail	5,000	4,000	2,500	3-10-40	
2. Shoveler	3,000	3,000	2,000		
3. Baldpate	5,000	4,000	1,500		
4. Teal, Blue-winged	3,000	3,000	2,000		10-20-40
5. Gadwall	2,000	1,000	1,000		
6. Mallard	6,000	3,000	1,000	3-10-40	
7. Scaup	1,500	2,000	500		
8. Redhead	1,000	1,000	500		
9. Ruddy	500	500	500		11-7-40
10. Canvasback	500	800	300		
11. Teal, Green-winged	1,000	1,000	50		
12. Teal, Cinnamon	200	200	50		
13. Bufflehead	500	500	30 ??		11-3-40
14. Goldeneye	300	500	30	3-6-40	
15. Merganser, American	300	300			10-27-40
TOTAL	29,800	24,800	11,700		

GEESE

1. Goose, Canada	1,000	800	275	3-5-40
2. Goose, Lesser Snow	1,000	1,500	0	3-29-40
3. Brant, Black ?	300	0	0	
TOTAL	2,300	2,300	275	

SWAN

1. Swa n, Whistling	100	100	0

LAKE BOWDOIN REFUGE MIGRATORY WATERFOWL AND GAME BIRD RECORD

1940

CRANES, RAILS, SHOREBIRDS, AND OTHER GAME BIRDS

SPECIE	FALL MIGRATION 1939	SPRING MIGRATION	SUMMER RESIDENT	DATE FIRST SEEN IN SPRING	LATEST DATE OBSERVED IN FALL
1. Avocet	300	500	300	4-14-40	
2. Coot, American	2,500	2,500	2,000		
3. Cranes, Sandhill	1,000	500	0	4-16-40	11-3-40 ✓
4. Curlew, Long-billed	300	300	200	4-25-40	10-4-40 ✓
5. Godwit, Marbled	400	300	250	4-25-40	10-13-40 ✓
6. Killdeer	1,000	1,000	800	4-25-40	11-6-40 ✓
7. Mourning Dove	300	200	200		
8. Phalarope, Wilson's	800	1,000	800		
9. Plover, Black-bellied	500	400	100		
10. Sandpiper, Spotted	200	200	100		
11. Sandpiper, Stilt	100	100	50		
12. Snipe, Wilson	200	200	100		
13. Willett, Western	300	300	200		10-13-40 ✓
14. Yellowleg, Lesser	100	200	100		
15. Yellowleg, Greater	200	200	200		

migrants only

LAKE BOWDOIN REFUGE NON-GAME BIRD RECORD

1940

SPECIE	FALL MIGRATION 1939	SPRING MIGRATION	SUMMER RESIDENT	DATE FIRST SEEN IN SPRING	LATEST DATE OBSERVED IN FALL
1. Bittern, American	30	25	25		10-22-40
2. Grebe, Eared	2,500	3,000	2,500		
3. Grebe, Western	200	200	100		10-20-40
4. Gull, Ring-billed	2,500	2,500	2,500	3-23-40	
5. Gull, California	2,500	2,500	2,500		
6. Gull, Herring	500	500	500		
7. Gull, Franklin	400	500	400		
8. Heron, Great Blue	500	400	250	3-29-40	10-25-40
9. Loon, Common	10	5	0		
10. Pelican, White	1,500	1,500	1,500	4-14-40	11-3-40
11. Tern, Common	2,000	2,000	2,000		
12. Tern, Black	200	300	150		

LAKE BOWDOIN REFUGE INSECTIVOROUS BIRD RECORD

1940

SPECIE	EXTENT OF INHABITATION RARE	MODERATE	COMMON	DATES OBSERVED OR REMARKS
1. Bunting, Snow			X	
2. Bull-Bat			X	
3. Blackbird, Red-winged			X	
4. Blackbird, Yellow-headed			X	
5. Blackbird, Brewer's		X		
6. Crow		X		
7. Gracklo		X		
8. Horned Lark, Prairie			X	
9. Junco			X	
10. Kingbird			X	
11. Lark Bunting			X	
12. Longspur, McCown's			X	
13. Longspur, Chestnut-collared			X	
14. Meadowlark, Western			X	
15. Pipit, American		X		
16. Pheebe			X	
17. Robin	X			Observed 5-5-40.
18. Swallow, Barn			X	
19. Sparrow, English			X	
20. Sparrow, Gambel's	X			Observed 5-6-40.
21. Warbler, Northern Yellow-throat			X	

LAKE BOWDOIN REFUGE MISCELLANEOUS BIRD AND MAMMAL RECORD

1940

OWLS

	SPECIE	EXTENT OF INHABITATION RARE	MODERATE	COMMON	DATES OBSERVED OR REMARKS
1.	Owl, Burrowing			X	
2.	Owl, Short-eared			X	
3.	Owl, Snowy	X			
4.	Owl, Richardson's		X		

HAWKS

1.	Hawk, Marsh			X	
2.	Hawk, Cooper's		X		
3.	Hawk, Western Red-tailed		X		
4.	Hawk, Swainson's		X		
5.	Hawk, American Rough-legged		X		
6.	Hawk, Duck			X	
7.	Hawk, Prairie Falcon		X		
8.	Hawk, Sparrow			X	

EAGLES

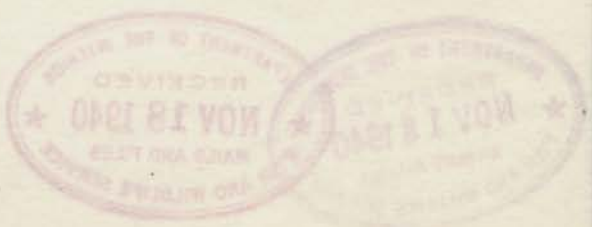
1.	Eagle, Golden		X		

UPLAND GAME BIRDS

	SPECIE	WINTER POPULATION	NESTING POPULATION	REMARKS
1.	Pheasant, Ring-necked	50	30	
2.	Partridge, Hungarian	40	30	
3.	Sage, Grouse		25	

MAMMALS

	SPECIE	1939-40 WINTER Population	SUMMER POPULATION NOT INCLUDING YOUNG	REMARKS
1.	Antelope	25	25	2 killed fall 1939.
2.	Coyote	20	8	12 removed winter 1939 & '40.
3.	Badger	12	12	
4.	Muskrat	800	800	
5.	Mink	10	10	1 shipped to Washington.
6.	Weasels, Common	40	36	4 removed winter 1939 & '40.
7.	Weasels, Least	20	19	
8.	Skunks	25	21	4 removed winter 1939 & '40.



LAKE MONDOTA REFUGE MISCELLANEOUS BIRD AND MAMMAL RECORD

1940

OWLS

SPECIES	EXTENT OF INHABITATION RARE	MODERATE	COMMON	DATES OBSERVED OR REMARKS
1. Owl, Burrowing			X	
2. Owl, Short-eared			X	
3. Owl, Snowy		X		
4. Owl, Richardson's		X		

HAWKS

1. Hawk, Marsh			X	
2. Hawk, Cooper's		X		
3. Hawk, Western Red-tailed		X		
4. Hawk, Swainson's		X		
5. Hawk, American Rough-legged		X		
6. Hawk, Duck			X	
7. Hawk, Prairie Falcon		X		
8. Hawk, Sparrow			X	

EAGLES

1. Eagle, Golden		X		

UPLAND GAME BIRDS

SPECIES	WINTER POPULATION	NESTING POPULATION	REMARKS
1. Pheasant, Ring-necked	80	30	
2. Partridge, Hungarian	40	30	
3. Sage, Grouse		25	

MAMMALS

SPECIES	1939-40 WINTER Population	SUMMER POPULATION NOT INCLUDING YOUNG	REMARKS
1. Muskrats	25	25	3 killed fall 1939.
2. Coyote	20	8	12 removed winter 1939 & '40.
3. Badger	12	12	
4. Minnows	800	800	
5. Mink	10	10	1 shipped to Washington.
6. Weasels, Common	40	26	4 removed winter 1939 & '40.
7. Weasels, Least	20	19	
8. Skunks	25	21	4 removed winter 1939 & '40.