

## ROUTING SLIP

DIVISION OF WILDLIFE REFUGES

DATE: 9-20 1943

*This report  
is better than  
any other  
"progress report"*

✓ MR. SALYER

MRS. WOODIN

✓ MR. ELMER

MRS. GARVIN

MR. DUMONT

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11-3

## SECTION OF HABITAT IMPROVEMENT:

Mr. Kubichek

Mr. Smith

~~Mr. Griffith~~ *PEGH*Miss Cook *mc 12-31*

## SECTION OF OPERATIONS:

✓ ~~Mr. Krummes~~ *W*

Mr. Gustafson

Miss Baum

Mrs. Kricun

## SECTION OF ERA:

Mr. Regan *JAC 11/2*~~Dr. Bourn~~ *WBB 9/21*

Mrs. Fishman

## SECTION OF LAND MANAGEMENT:

~~Mr. Thompson~~ *11-26*~~Mr. Ackerman~~ *200*

## STENOGRAPHERS:

Miss Whorley

## SECTION OF STRUCTURES:

~~Mr. Foster~~ *WV 10/28*

REMARKS: BOWDOIN NATIONAL WILDLIFE REFUGE NARRATIVE REPORT

MAY - AUGUST 1943

Return to: Miss Cook



BOWDOIN NATIONAL WILDLIFE REFUGE

NARRATIVE REPORT

MAY 1 to AUGUST 31, 1943

1. GENERAL

A. Weather Conditions.

Late spring frosts of extreme severity, unseasonably cool weather all summer and near frost the latter part of August have made this one of the most unseasonable summers ever experienced in Montana. Official temperature recordings have not recorded a single 100 mark on the thermometer. More than the average amount of rainfall was received in June, but the balance of the season was dry. None of the local rains were of sufficient force to produce runoffs but the drainage area several miles to the south did produce considerable runoff into Beaver Creek, which in turn raised our water levels in Dry Lake though the main lake was not affected.

Following is a record of the temperatures and precipitation as received from the official weather station operated by the Reclamation service at Malta, 8 miles west of the refuge;

	Precipitation	Max. Temp.	Min. Temp.
May	1.51	84	24
June	6.03	81	40
July	0.35	94	43
August	0.65	94	43
Totals	8.54	94	24

B. Water Conditions.

The main lake has held up steadily all summer without the addition of water from the Reclamation. Starting at 2206.64 at the first of May it rose to 2206.90 about June 15 and since has gradually receded to its present level of 2205.62. Some water will be received from the Reclamation canal in September to put the lake at 2206.00 which is considered the best level for holding the water to produce the maximum of food crops. The gradual decline the past six weeks has partially drained some feather edged marshes that were considered potential Botulism sources and we have been almost 100% free from the disease in the main lake this period.

Dry Lake was filled from Beaver Creek twice during the month of June to a level of about 2207.50 which was too high for this area, particularly since dike C had broken in the spring flood and we were compelled to let out about 18 inches of this water to prevent flooding of neighboring hay meadows on private land. At the present time the level stands at 2205.00

Lakeside Marsh has been in excellent condition all season and with the influx of some water during August it now stands at near the full mark. The area on the south side also has held up well after being well filled by spring floods.





## C. Fires.

No fires have occurred on the refuge this period. A heavy stand of native grass has brought on an acute fire hazard but we have been very fortunate to date in that no fires have been started within the area. Guards have been plowed on the north and east sides to prevent fires from entering the refuge that might originate along the public highways and part of the railroad lines have been also paralleled by guards. More guards will be plowed at the railroad as soon as ground conditions in the marshes will permit.

## II. WILDLIFE

### A. Migratory Birds.

#### 1. Population and Behavior

Duck and goose populations in general are well above that of last year. In some cases the numbers have doubled or even trebled last year's totals, particularly among mallards, pintails and Canada geese. I have had the opportunity to watch the duck populations at Bowdoin for the past 30 years, and I feel certain that we have a better resident population than at any time since 1925. Old time hunters who have called here the past few weeks have borne me out in this and have often marvelled at the number of birds in evidence this fall.

Canvasbacks and redheads do not hold up to the general run of ducks, but scaup appear more numerous. Teal are also showing up well, but baldpates and gadwalls appear about the same.

Shorebirds, particularly sandpipers have shown a marked increase, and the colony nesting birds, particularly the ring-billed gulls and white pelicans are increasing by leaps and bounds. The pelicans have completely taken over Pelican Island and most of Woody Island, nesting there to such an extent that they are driving the Canada geese from these areas and I feel that some control measures will be necessary unless we intend to let these birds monopolize all the nesting islands on the lake. Proposal of such a control program will be gone into in detail by letter later, as well as justifications for the same.

#### 2. Food and Cover.

Both aquatic and upland vegetation have made good growth this season and provided ample food and cover for waterfowl. Of great interest is the return of the Sago Pondweed in the main lake which was so noticeably absent last year and has come back to such an extent that we now have one of the best stands ever seen. Travel with outboard motor is out of the question through the dense beds of this fine waterfowl food plant and the birds are making full use of the feed the latter part of August as the seed is ripening and the clusters of seed lie so thick upon the water that it appears as if it had been broadcast there by hand. Upland grasses have provided abundant cover for nesting and there is a great surplus of grass that is now being removed in part by grazing of livestock. Grazing was started July 15 but there is still insufficient stock on the area to remove any appreciable portion of the grass crop.



No fires have occurred on the refuge this period. A heavy stand of native grass has brought on an acute fire hazard but we have been very fortunate to date in that no fires have been started within the area. Guards have been placed on the north and east sides to prevent fires from entering the refuge that might originate along the public highways and part of the railroad lines have been also paralleled by guards. More guards will be placed at the railroad as soon as ground conditions in the marshes will permit.

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Shorebirds, particularly sandpipers show a marked increase, and the colony nesting birds, particularly the ring-billed gulls

The "field" duck hospital described here has proven equally successful at Deer Flat, Wambug. It has the advantage of being mobile in so far as a suitable water supply is available, is cheaply and easily constructed, operating expenses are lower and maintenance is practically nil.

REE.

Open pens shaded with  
canvas were used at Medicine  
Lake in 1936 and our survival  
was 65% which compares  
favorably with survival at  
Bear River where hospital  
is available. Our survival  
figure was based on the pickups  
of every bird that ~~could~~  
showed life regardless of condition.  
I understand that at Bear River  
those in worst condition are  
not taken to hospital.

W.



### 3. Botulism.

A rather sharp outbreak of Botulism has occurred in Dry Lake, starting about August 10 and still continuing at the close of the period. A total of approximately 2,000 birds have been picked up dead and sick and a careful check of the area gives an estimated 2,000 additional birds lost that time and manpower does not permit us to gather to date.

Dry Lake was flooded this spring for the first time in two years and the water has receded to a point where about 500 acres are flooded to a depth of from 2 to 12 inches, providing an excellent opportunity for the disease, and it is believed that the loss would have been much greater had the summer been as hot as usual or had the outbreak occurred about July 1st as they usually do. To date only a very few birds (less than 100) have been found in the southeast bay of the main lake and none have been found in the usually bad southwest bay area where all previous outbreaks have originated.

Burning of old vegetation in Dry Lake was carried on both last fall and this spring but with little success because of the sparse stand of grass and the nature of the weeds which predominated and which would not carry a fire. Consequently considerable old vegetation was left to be inundated and rot in the shallow water, making an ideal setup for Botulism. Since the lake could neither be drained nor filled to a higher level with our present facilities it was simply a case of hope for the best. In view of the many thousands of birds inhabiting the area the loss has not been relatively great and it is thought that outbreak will soon subside with the present cool weather.

Our recovery of sick birds that have been brought to the duck hospital for treatment has been 75%. In view of the little time that could be spent in care of them I feel that this has been very satisfactory. I have been experimenting with a new method of treatment or rather handling of the birds and have not been putting them in the building, but rather have released them in large, shady pens, adjoining the fresh water and find that they appear much more contented there and have reacted very favorably. In this way the birds seem to feel more free and unrestrained and when we are not in sight to frighten them they are much more at ease and I feel sure that these environments are more conducive to their recovery than confinement in pens or buildings. I am certain that there is something more than imagination to my theory and hope to carry out further experiment in this line in the future. If facilities permitted it would be very interesting to try out both the open pen and the closed or confined pen or building at the same time with identical lots of birds. The findings might be worthwhile in planning for future hospital construction.

### 4. Lead Poisoning.

No birds were found that appeared to be suffering from lead poisoning.



## B. Upland Game Birds.

### 1. Populations and Behavior.

Chinese Pheasants do not appear to have fared too well as far as the hatch of young birds are concerned. The previous winter was also hard on the pheasants and some losses occurred though not as many as was first believed, but the late spring and cold rains were very detrimental to the hatching activities and we do not appear to have as many birds at this time as during the comparative period of last year. It is difficult to accurately estimate pheasant populations at this time of year as many of the young have not appeared regularly in the open and the natural cover is very dense before frosts cut it down.

Hungarian Partridges, Sage Hens and Sharp-tailed Grouse appear to be about as numerous as last year. Poor hatching weather also took its toll of these birds though not as severely as among the ring-necks.

The pheasants and partridges are utilizing the grain fields on the refuge. Last year the pheasants were very hard on my spring planted corn, taking the kernels from the ground even before it had sprouted. This year I cross-harrowed the field after planting, destroying the planter marks and found that it helped considerably. Several methods of treating the seed with repellent were tried, but all of them affected the germination and were not used in the field plantings. *Summary note*

### 2. Food and Cover.

Both exist in plentiful amounts. The tree plantings, sweet clover and heavy stand of native grasses provide excellent cover and grain fields planted and left for the birds to harvest are well worked, particularly by the pheasants.

### 3. Disease.

Nothing to report. The lack of young birds appears to have been the result of unseasonable weather rather than any disease.

## C. Big Game Animals.

### 1. Population and Behavior.

Antelope still constitute all the big game at Bowdoin. I have counted about 15 fawns to date of the 1943 crop but this may not be all of them as it is difficult to get an accurate count of the animals during the summer months when they are scattered on the mainland and the big island area. Two adults are known to have died, one being found dead in a clump of trees and the other was found trying to swim the lake and was picked up out in the middle as it was almost dead from exhaustion and from taking in more water than it could hold. It was taken to shore but died shortly afterwards. The herd appear to be in excellent flesh and are a great drawing card for visitors, particularly the part of the herd that regularly range along the highway on the north side of the refuge. It is estimated that the herd totals 70 at this writing.



## 2. Food and Cover.

There is an abundance of cover<sup>and food</sup> for the antelope and any grazing that may be carried out will not affect their winter range as I do not permit grazing on big island or the southwest marsh where they usually winter.

## 3. Disease.

No known diseases to report. The one found dead ~~had~~ been dead for some time and it could not be determined what had caused his demise. All the individuals that have been seen at close range appear in fine condition, and the fawns have made an unusually fine growth this summer.

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

Five coyote<sup>pups</sup> and one adult were killed on the refuge this summer as well as eight skunks and two weasels. Predators are on the increase here as well as all other parts of the state and county, probably due to the ammunition shortage and the lack of hunters. Numerous complaints are received from stockmen because of coyote predations and a concerted effort will be made this winter to remove as many as possible from the vicinity. It is observed that there is a great activity of both skunks and coyotes along the lake shores where the sick ducks are found that are affected with Botulism, and they undoubtedly take a number of these helpless birds.

It is difficult to determine the status of the muskrat<sup>✓</sup> population at this time but it appears as though there will be need for the removal of some, especially along the dikes and water control structures. I am attempting to get an open season approved by the State game officials to permit fall trapping of rats on the refuge, since we have lost a number of rats here by winter freezing and they also have too much opportunity to work in the dikes when left all winter. It is planned to formulate a trapping program as soon as I have some advice from the state on the season and when I can better determine what the rat population is, which should be some time in September or early October. Mink are also in evidence, and their depredations on muskrats make it appear advisable to remove a few of them as well. This was attempted last year but our trapper evidently lacked the skill necessary to catch these animals.

## E. Predaceous Birds, including Crows, Ravens and Magpies.

Very few crows and magpies<sup>✓</sup> inhabit the area and no ravens have been seen. No damage of consequence can be attributed to these birds.

## F. Fish.

Carp appear to be very plentiful, even though 90,000 pounds were taken from the lake last winter. It is hoped that we can induce commercial fishermen to seine the lake again this winter to remove as many as possible. A great demand is coming up for permission to seine on a small scale, or more as a sporting proposition, in the canal leading from the Reclamation ditch to the lake, just north of the Headquarters, where the carp gather in almost unbelievably great numbers during the summer months.



I have contacted the State Fish and Game Commission in regards to the issuance of a blanket permit for this area to permit the use of seines and their favorable reaction is expected in the very near future. It will then be proposed to open a portion of the refuge for this type of fishing, at such times as will not interfere with waterfowl nesting or concentrations. It is felt that this will be a good public relations measure, and should be done to encourage the utilization of these non-game fish during the present meat shortage.

We are cooperating with the State and with local SCS officials in fish propagation by planting mature bass and bream in the storage reservoir at the Headquarters, in hopes of raising fingerlings for transplanting to suitable SCS and other reservoirs in Phillips, Valley and Blaine Counties. These fish were obtained in nearby reservoirs during last June and in September we will drain the storage reservoir, remove the young fish, if any, and refill the reservoir for winter holdover of the adult stock. This is more or less an experiment on our part, but has cost us nothing but our time and trouble and will be well worth while if we are successful in propagating a fair amount of young fish for stocking warm water ponds in the area. Sportsmen are following this work with keen interest and have been very helpful and cooperative in the furnishing of any needed manpower, transportation etc., which is really something these days.

### III. REFUGE DEVELOPMENT AND MAINTENANCE

#### A. Physical Development.

Refuge farming, repair and maintenance of trails, oiling of bridges and weed control has occupied most of our time this summer. Considerable fence repairing and resetting was done in boggy marshes where the posts have a habit of pulling up. In one section a full half mile had to be reset as it had pulled out and fallen over during the spring floods. Equipment has been maintained but no major overhaul jobs have been made or have been necessary. Several washouts occurred in the refuge patrol trails as a result of the spring floodstand these were repaired by hauling dirt and gravel loaded with Cat and tractor and gravel trap. The refuge office floor was cleaned and varnished and minor repairs were made to buildings in general.

#### B. Plantings.

##### 1. Aquatics and Marsh Plants.

No planting in this line were made at Bowdoin, but some smartweed was planted at Thibedeau where a slightly higher level of water than in previous years appeared to justify the planting of a limited amount of this type of food and cover. Aquatics at Bowdoin have done well, particularly the Sago which has made a remarkable showing after being almost totally absent last summer.

##### 2. Trees and shrubs.

A few plum trees (wild) were set out to fill in occasional blanks in existing plantings this spring. All trees under irrigation have made an excellent growth but the dryland plantings are just about a thing of the past.



### 3. Upland Herbaceous Plants.

Range grasses have produced a good crop this season, due to the heavy June rains. All signs of past overgrazing have definitely disappeared and we have a great surplus of native grass and hay that should be grazed or cut for the good of the range, but there seems to be little demand for either of these products, due to the abundance of feed on outside ranges.

### 4. Cultivated crops.

Approximately 40 acres of wheat, barley and corn have made a fine yield on the refuge this period. Some of it will be harvested for winter feeding of ducks and upland game birds. One field on the east side of the refuge has been partly mowed and the Canada geese are making good use of it at present. As many as 350 birds have been observed at one time on this field.

Blackbirds have all but ruined a small field of corn near the Headquarters, by taking the grain just at the roasting ear stage. It is estimated that at least  $2/3$  of the crop has been eaten and they are still working it regularly, and will continue to do so until the corn ripens. Local farmers complain bitterly about balckbird depredations in the vicinity of the refuge, and most of them have discontinued planting corn entirely because of their activities.

### C. Collections.

#### 1. Seeds or other Propagules.

No collections this period.

#### 2. Specimens.

Nothing in this line to report.

### D. Receipts of Seed and Nursery Stock. None.

## IV. ECONOMIC USE OF REFUGE

Twenty animal use months of grazing have been accomplished on the east grazing area, beginning July 15. It is expected that additional stock will be brought to the refuge for grazing during September and October. Grass is abundant and several hundred a.u.m.'s could be accommodated. No haying or trapping has been carried on this period.

## V. FIELD INVESTIGATION

Nothing in this line to report

## VI. PUBLIC RELATIONS

### A. Recreational uses.

No recreational use is made of the area except for the public



shooting grounds during the hunting season.

B. Refuge Visitors.

Mr. R. O. Gustafson of the central office called on equipment inspection and Neil Hotchkiss of the research staff spent a few days here on Botulism work. Messrs. Kneager and Willis of the regional office were here during the period. W. F. Kubichek spent three days here in June on photography work.

State officials have included Dr. J. S. McFarland, Elmer Phillips Robert Cooney and members of the Commission. Dr. H. B. Mills of the State College and Dr. Waters of the State University also have called at the refuge this season. Other visitors have been scarce because of travel restrictions.

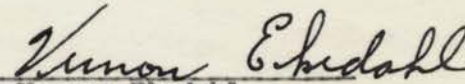
C. Refuge Participation.


Nothing in this line to report. No fairs have been scheduled in the county or state because of the war and we have consequently made no exhibits as we formerly did, of wildlife etc.

D. E. and F.

No hunting or violations have been noted to report on this period.

September 7, 1943

  
Vernon Ekedahl  
Junior Refuge Manager

  
\_\_\_\_\_  
Regional Director



SUPPLEMENTARY REPORT ON LAKE THIBEDEAU, CREEDMAN COULEE,  
BLACK COULEE AND HEWITT LAKE EASEMENT REFUGES

Water levels on all but Thibedean were up to the top of the spillways at the beginning of the period and have held up very well throughout. At Thibedean the diversion reservoir unit still carries about two thirds of it's capacity, the main lake is dry and grassy and mud lakes still have a little water, mostly in the borrow pits of the nesting islands that were constructed at the time of the refuge development.

Cover is excellent at Black Coulee and quite good at Thibedean also, but Hewitt Lake and Creedman's Coulee are heavily grazed by sheep and have little to offer in the way of food or cover for waterfowl. The trees at Black Coulee have made a fine growth and this area is beginning to show up very nicely.

Prior to the time that Black Coulee was taken over by Bowdoin administration some planting of bullheads had been done by sportsmen of the area and they have now grown to a point where they offer excellent fishing. Petitions have been made to have the area open to fishing and my recommendations to the regional office were submitted a short time ago. This is the only area for 50 miles or more that offer fishing possibilities and I feel that the public should be given an opportunity to utilize these fish. It is also proposed to plant other species of fish in the area this fall.

A proposal has been made as a result of Mr. Willis's visit to the area this summer to raise the spillway of the diversion unit at Lake Thibedean to force more water through the diversion canal during runoffs and prevent it's escape over the spillway. It is proposed to erect a flashboard structure in the spillway that can be opened or closed at will to divert as much as possible of the excess water that annually goes to waste. Under the present setup, it will be impossible to fill the main lake from the spring runoffs as most of the water goes out the spillway, which is placed only two feet higher than the bottom of the canal gate. This could and should be at least four or four and a half feet higher and still would not endanger the dam itself.

Repair and maintenance work was carried on to the structures at Black Coulee and Lake Thibedean and to the Black Coulee fence by Patrolman Dyrdaal and myself. At the present time all structures are in good condition and should carry the next spring's flood without further attention.



## MIGRATORY BIRDS

Refuge BowdoinMonths of May 1 to August 31, 1943

1612

(1) Species	(2) First Observed		(3) Became Common	(4) Peak Concentration		(5) Last Observed		(6) Young Produced			(7) Total
Common Name	Number	Date	Date	Number	Date	Number	Date	No. Broods Obsvd.	Avg. Size	Esti- mated Total	Number Using Refuge
Common Loon	1	5-4	5-10	15	6/1						15
Eared Grebe				400	6/20			8	3	300	500
Western Grebe				500	6/20			6	3	250	600
Pied-billed Grebe	3	7-14		100				0		50	200
White Pelican				5000	7/1			1200	2	2000	6000
Double-crested Cormorant				700	7/1			120	3	350	900
Great Blue Heron				350	7/7			30	4	150	400
Common Canada Goose				700	7/20			28	4	300	800
Common Mallard				6000	8/1			10	26	800	8000
Gadwall				3000	8/1			7	6	450	4000
Baldpate				2000	8/1			16	5	400	3500
American Pintail				7000	8/15			12	7	700	10000
Green-winged Teal				2500	8/30			6	5	300	3000
Blue-winged Teal				1500	8/30			4	5	200	2000
Cinnamon Teal				50	8/15					20	100
Shoveller				1500	8/15			12	6	250	4500
Redhead				350	8/1			2	7	100	1500
Canvasback				300	8/1			3	6	75	2000
Lesser Scaup Duck				100	8/1						3500
Ruddy Duck				150	8/1			4	4	60	350
American Merganser				150	8/1			1	3	40	200
Cooper's Hawk				10	8/1						20
3695											

REMARKS: (Pertinent information not specifically requested)

NOTE: Column 7, "Number using Refuge" is estimated as the total using the area at present plus early spring migration. The average number using the refuge at present, or during this period, would be about the same as "Peak Concentration", column 4.

3695 ducks - goes  
600 coots

4295

42,650



# INSTRUCTIONS

Form NR-1 - MIGRATORY BIRDS (Include species in families Gaviidae through Strigidae; also doves and woodcocks)\*

In case a resident form occurs, such as mottled duck on the Gulf Coast, use only the columns that apply.

- (1) SPECIES: Use correct common names as found in the A.O.U. Check List, 1931 Edition, and list in A.O.U. order. General terms are to be avoided, such as "scaup", "teal", etc.; use "green-winged teal" or "lesser scaup".
- (2) FIRST OBSERVED: The first refuge record for the species during spring migration, fall migration, wintering, or summering, and the number observed. In the case of resident species this column may be disregarded.
- (3) BECAME COMMON: The date the species became common on the refuge.
- (4) PEAK CONCENTRATION: The greatest number of the species present on any one date or limited interval of time.
- (5) LAST OBSERVED: The last refuge record for the species during the spring or fall migration, wintering, or summering, and the numbers observed exclusive of obvious cripples or non-migrants.
- (6) YOUNG PRODUCED: Estimated number of young produced based upon 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 are to be omitted.
- (7) TOTAL: Estimated total number of the species using the refuge during the period. This figure may or may not be more than that used for peak concentrations, depending upon the manner in which birds come through; i.e., in waves or all at once. On refuges representing the terminus of the flight lane, the figures would probably be the same in many cases.

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



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(1) Species	(2) First Observed		(3) Became Common	(4) Peak Concentration		(5) Last Observed		(6) Young Produced			(7) Total
Common Name	Number	Date	Date	Number	Date	Number	Date	No. Broods Obsvd.	Avg. Size	Esti- mated Total	Number Using Refuge
Western Redtail Hawk	1	5/6	6/1	15	6/1					10	30
Swainson's Hawk	1	5/6		6							6
American Rough-leg	1	6/10	7/1	20	7/1					10	30
Marsh Hawk				100	8/1			1	4	40	150
Duck Hawk	1	6/1	7/1	6	6/1						6
Littel Sparrow Hawk	1	5/25	7/1	20	7/1						25
American Coot				1500	8/1			8	3	600	3000
Killdeer				2000	8/1			8	2	500	2500
Sora	2	8/10		100							100
Black-bellied Plover	1	8/10									
Wilson's Snipe				250	8/1						250
Long-billed Curlew				350	6/10			3	3	50	400
Western Willett	2	5/5	6/15	800	7/1			1	2	100	1000
Greater Yellow-legs	1	5/5	6/15	350	6/15						400
Lesser Yellow-legs	1	5/10	6/15	600	6/15			4	3	100	700
Pectoral Sandpiper	2	6/1	6/20	1300	7/1						1400
Least Sandpiper	<del>1</del>	<del>6/1</del>	<del>6/20</del>	1300	7/1						1400
Long-billed Dowitcher	2	5/15	6/15	2000	7/1						3000
Baird's Sandpiper	1	6/3	6/15	300	7/1						500
Stilt Sandpiper	3	6/3	6/15	500	7/1						800
Semipalmated Sandpiper	1	6/10	6/15	800	7/1						1000
Marbled Godwit	2	5/5	6/15	700	7/1						700

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- (5) LAST OBSERVED: The last refuge record for the species during the spring or fall migration, wintering, or summering, and the numbers observed exclusive of obvious cripples or non-migrants.
- (6) YOUNG PRODUCED: Estimated number of young produced based upon 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 are to be omitted.
- (7) TOTAL: Estimated total number of the species using the refuge during the period. This figure may or may not be more than that used for peak concentrations, depending upon the manner in which birds come through; i.e., in waves or all at once. On refuges representing the terminus of the flight lane, the figures would probably be the same in many cases.

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



## MIGRATORY BIRDS

Refuge Bowdoin

Months of \_\_\_\_\_ to \_\_\_\_\_, 194

1612

(1) Species	(2) First Observed		(3) Became Common	(4) Peak Concentration		(5) Last Observed		(6) Young Produced			(7) Total
Common Name	Number	Date	Date	Number	Date	Number	Date	No. Broods Obsvd.	Avg. Size	Esti- mated Total	Number Using Refuge
Avocet				1200	8/1			3	3	300	1500
Wilson's Phalarope	2	5/5	6/15	200	7/1						200
Northern Phalarope				300	6/15						300
Herring Gull				150							200
California Gull	2	6/3	6/15	4000	6/15			800	2	2000	8000
Ring-billed Gull				300	6/25						400
Franklin's Gull	1	6/3	6/15	500	7/1			24	2	250	700
Common Tern				500	7/1						600
Black Tern	6	6/5	6/25	40	7/1						50
Western Mourning Dove	2	6/1	6/20								
Montana Horned Owl	1	8/23									
Western Burrowing Owl	1	5/15	5/15								50
Short-eared Owl	1	5/15	6/1							50	150

REMARKS: (Pertinent information not specifically requested)



# INSTRUCTIONS

Form NR-1 - MIGRATORY BIRDS (Include species in families Gaviidae through Strigidae; also doves and woodcocks)\*

In case a resident form occurs, such as mottled duck on the Gulf Coast, use only the columns that apply.

- (1) SPECIES: Use correct common names as found in the A.O.U. Check List, 1931 Edition, and list in A.O.U. order. General terms are to be avoided, such as "scaup", "teal", etc.; use "green-winged teal" or "lesser scaup".
- (2) FIRST OBSERVED: The first refuge record for the species during spring migration, fall migration, wintering, or summering, and the number observed. In the case of resident species this column may be disregarded.
- (3) BECAME COMMON: The date the species became common on the refuge.
- (4) PEAK CONCENTRATION: The greatest number of the species present on any one date or limited interval of time.
- (5) LAST OBSERVED: The last refuge record for the species during the spring or fall migration, wintering, or summering, and the numbers observed exclusive of obvious cripples or non-migrants.
- (6) YOUNG PRODUCED: Estimated number of young produced based upon 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 are to be omitted.
- (7) TOTAL: Estimated total number of the species using the refuge during the period. This figure may or may not be more than that used for peak concentrations, depending upon the manner in which birds come through; i.e., in waves or all at once. On refuges representing the terminus of the flight lane, the figures would probably be the same in many cases.

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



Refuge BOWDOINMonths of May 1 to August 31, 1943

(1) Species  Common Name	(2) Density  Cover types, total acreage of habitat		(3) Young Produced  Number broods obs'd. Estimated Total		(4) Sex Ratio  Percentage	(5) Removals  Hunting For Re- stocking For Research			(6) Total  Estimated number using Refuge	(7) Remarks
	Acres per Bird									Pertinent information not specifically requested. List introductions here.
Prairie Sharp-tailed Grouse	Trees & Shrubs 12	22								Saw no young
	Upland grass 1200	200	0						12	
Sage Hen	Upland grass and sage brush 1500	75	1	10					20	Decrease from last year
Hungarian Partridge	Trees & shrubs 12	.03	2	100					300	
	Grass, clover & grain fields 1200	10								Acreages of habitat listed is only area which birds fre- quent. Large parts of refuge do not support any upland birds except transients becaus of lack of cover. Practically all birds confined to west and southwest portion of refuge.
Ring-necked Pheasant	Trees & shrubs 12	.03	6	300	60% hens 40% cocks				1,200	
	Grass, clover and grain fields 1200	3								



## 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.



## MIGRATORY BIRDS

Refuge Hewitt Lake (Easement) Months of May 1 to August 31, 1948

1612

(1) Species  Common Name	(2) First Observed		(3) Became Common	(4) Peak Concentration		(5) Last Observed		(6) Young Produced			(7) Total
	Number	Date	Date	Number	Date	Number	Date	No. Broods Obsvd.	Avg. Size	Esti- mated Total	Number Using Refuge
Eared Grebe				30	6/15						30
Western Grebe				20	6/15						25
Great Blue Heron				15	7/1						15
American Bittern				5	7/1						5
Common Canada Goose				40	7/1			3	4	20	70
Common Mallard				150	7/1					30	150
Gadwall				100	7/15					20	150
Baldpate				100	7/15			1	6	20	100
American Pintail				300	7/15			4	5	80	400
Green-winged Teal				40	8/1						50
Blue-winged Teal				40	8/1			1	5	20	80
Shoveller				100	8/1						150
Ruddy Duck				20	7/15						20
American Rough-leg				4							4
Marsh Hawk				15	7/15						20
American Coot				80	7/15						100
Killdeer				70	7/1			1	2	20	100
Long-billed Curlew				40	7/1						50
Western Willet				30	7/1						40
Greater Yellowlegs				20	7/1						30
Lesser Yellowlegs				40	7/1						50
Least Sandpiper				80	7/1						100

REMARKS: (Pertinent information not specifically requested)



# INSTRUCTIONS

Form NR-1 - MIGRATORY BIRDS (Include species in families Gaviidae through Strigidae; also doves and woodcocks)\*

In case a resident form occurs, such as mottled duck on the Gulf Coast, use only the columns that apply.

- (1) SPECIES: Use correct common names as found in the A.O.U. Check List, 1931 Edition, and list in A.O.U. order. General terms are to be avoided, such as "scaup", "teal", etc.; use "green-winged teal" or "lesser scaup".
- (2) FIRST OBSERVED: The first refuge record for the species during spring migration, fall migration, wintering, or summering, and the number observed. In the case of resident species this column may be disregarded.
- (3) BECAME COMMON: The date the species became common on the refuge.
- (4) PEAK CONCENTRATION: The greatest number of the species present on any one date or limited interval of time.
- (5) LAST OBSERVED: The last refuge record for the species during the spring or fall migration, wintering, or summering, and the numbers observed exclusive of obvious cripples or non-migrants.
- (6) YOUNG PRODUCED: Estimated number of young produced based upon 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 are to be omitted.
- (7) TOTAL: Estimated total number of the species using the refuge during the period. This figure may or may not be more than that used for peak concentrations, depending upon the manner in which birds come through; i.e., in waves or all at once. On refuges representing the terminus of the flight lane, the figures would probably be the same in many cases.

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



## MIGRATORY BIRDS

Refuge Howitt Lake (Easement)Months of May 1 to August 31, 1943

1612

(1) Species	(2) First Observed		(3) Became Common	(4) Peak Concentration		(5) Last Observed		(6) Young Produced			(7) Total
Common Name	Number	Date	Date	Number	Date	Number	Date	No. Broods Obsvd.	Avg. Size	Esti- mated Total	Number Using Refuge
Marbled Godwit				30	7/1			1	2	10	40
Avocet				50	7/1						70
Ring-billed Gull				100	7/1						120
Common Tern				40	7/15						50
Western Burrowing Owl				20							30

REMARKS: (Pertinent information not specifically requested)



# INSTRUCTIONS

Form NR-1 - MIGRATORY BIRDS (Include species in families  
Gaviidae through Strigidae; also doves and  
woodcocks)\*

In case a resident form occurs, such as mottled duck  
on the Gulf Coast, use only the columns that apply.

- (1) SPECIES: Use correct common names as found in the  
A.O.U. Check List, 1931 Edition, and list  
in A.O.U. order. General terms are to be  
avoided, such as "scaup", "teal", etc.;  
use "green-winged teal" or "lesser scaup".
- (2) FIRST OBSERVED: The first refuge record for the species  
during spring migration, fall migration,  
wintering, or summering, and the number  
observed. In the case of resident species  
this column may be disregarded.
- (3) BECAME COMMON: The date the species became common on the  
refuge.
- (4) PEAK CONCENTRATION: The greatest number of the species present  
on any one date or limited interval of time.
- (5) LAST OBSERVED: The last refuge record for the species  
during the spring or fall migration,  
wintering, or summering, and the numbers  
observed exclusive of obvious cripples  
or non-migrants.
- (6) YOUNG PRODUCED: Estimated number of young produced based  
upon 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 are to  
be omitted.
- (7) TOTAL: Estimated total number of the species using  
the refuge during the period. This figure may  
or may not be more than that used for peak  
concentrations, depending upon the manner in  
which birds come through; i.e., in waves or  
all at once. On refuges representing the  
terminus of the flight lane, the figures  
would probably be the same in many cases.

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



Refuge Hewitt Lake (Easement)Months of May 1 to August 31, 1943

(1) Species	(2) Density	(3) Young Produced	(4) Sex Ratio	(5) Removals	(6) Total	(7) Remarks
Common Name	Cover types, total acreage of habitat	Acres per Bird	Number broods obs'd. Estimated Total	Percentage	Hunting For Re- stocking For Research	Estimated number using Refuge  Pertinent information not specifically requested. List introductions here.
Sage Hen	Upland grass and small sage brush 1200 acres	40			30	No young seen  No other upland game birds seen on Hewitt Lake this season though it is known that Hungarian Partridge and Ring-necked Pheasant occasionally utilize the area, drifting up from the nearby Milk River bottoms. No good nesting cover for these birds on the area.

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



## 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.



## MIGRATORY BIRDS

 Refuge Black Coulee (Easement) Months of May 1 to August 31, 1943

1612

(1) Species	(2) First Observed		(3) Became Common	(4) Peak Concentration		(5) Last Observed		(6) Young Produced			(7) Total
Common Name	Number	Date	Date	Number	Date	Number	Date	No. Broods Obsvd.	Avg. Size	Esti- mated Total	Number Using Refuge
Eared Grebe				25	6/15					15	50
Western Grebe				10	6/15						20
Great Blue Heron				10	6/15						15
American Bittern				5							5
Common Canada Goose				15	5/1						
Common Mallard				150	7/1			2	6	30	200
Gadwall				80	7/1			1	7	20	100
Baldpate				80	7/1			1	5	20	100
American Pintail				200	7/1			3	5	50	300
Green-winged Teal				80	7/15					20	100
Blue-winged Teal				40	7/15					20	80
Shoveller				100	7/15			1	6	30	150
Redhead				60	5/1						80
Canvasback				60	5/1						80
Ruddy Duck				50	7/15			1	4	15	70
Marsh Hawk				20	7/1						30
Duck Hawk				5	7/1						10
American Coot				100	7/1			2	2	30	150
Killdeer				50	7/15			1	2	20	80
Long-billed Curlew				30	7/1						50
Western Willet				30	7/1						50
Lesser Yellowlegs				40	7/15						60

REMARKS: (Pertinent information not specifically requested)



# INSTRUCTIONS

Form NR-1 - MIGRATORY BIRDS (Include species in families Gaviidae through Strigidae; also doves and woodcocks)\*

In case a resident form occurs, such as mottled duck on the Gulf Coast, use only the columns that apply.

- (1) SPECIES: Use correct common names as found in the A.O.U. Check List, 1931 Edition, and list in A.O.U. order. General terms are to be avoided, such as "scaup", "teal", etc.; use "green-winged teal" or "lesser scaup".
- (2) FIRST OBSERVED: The first refuge record for the species during spring migration, fall migration, wintering, or summering, and the number observed. In the case of resident species this column may be disregarded.
- (3) BECAME COMMON: The date the species became common on the refuge.
- (4) PEAK CONCENTRATION: The greatest number of the species present on any one date or limited interval of time.
- (5) LAST OBSERVED: The last refuge record for the species during the spring or fall migration, wintering, or summering, and the numbers observed exclusive of obvious cripples or non-migrants.
- (6) YOUNG PRODUCED: Estimated number of young produced based upon 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 are to be omitted.
- (7) TOTAL: Estimated total number of the species using the refuge during the period. This figure may or may not be more than that used for peak concentrations, depending upon the manner in which birds come through; i.e., in waves or all at once. On refuges representing the terminus of the flight lane, the figures would probably be the same in many cases.

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



## MIGRATORY BIRDS

Refuge Black Coulee (Easement)Months of May 1 to August 31, 1943

1612

(1) Species	(2) First Observed		(3) Became Common	(4) Peak Concentration		(5) Last Observed		(6) Young Produced			(7) Total
Common Name	Number	Date	Date	Number	Date	Number	Date	No. Broods Obsvd.	Avg. Size	Esti- mated Total	Number Using Refuge
Least Sandpiper Avocet Ring-billed Gull Common Tern				100	7/15					30	120
				30	7/1					10	40
				60	7/1						100
				50	7/1						70

REMARKS: (Pertinent information not specifically requested)



# INSTRUCTIONS

Form NR-1 - MIGRATORY BIRDS (Include species in families Gaviidae through Strigidae; also doves and woodcocks)\*

In case a resident form occurs, such as mottled duck on the Gulf Coast, use only the columns that apply.

- (1) SPECIES: Use correct common names as found in the A.O.U. Check List, 1931 Edition, and list in A.O.U. order. General terms are to be avoided, such as "scaup", "teal", etc.; use "green-winged teal" or "lesser scaup".
- (2) FIRST OBSERVED: The first refuge record for the species during spring migration, fall migration, wintering, or summering, and the number observed. In the case of resident species this column may be disregarded.
- (3) BECAME COMMON: The date the species became common on the refuge.
- (4) PEAK CONCENTRATION: The greatest number of the species present on any one date or limited interval of time.
- (5) LAST OBSERVED: The last refuge record for the species during the spring or fall migration, wintering, or summering, and the numbers observed exclusive of obvious cripples or non-migrants.
- (6) YOUNG PRODUCED: Estimated number of young produced based upon 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 are to be omitted.
- (7) TOTAL: Estimated total number of the species using the refuge during the period. This figure may or may not be more than that used for peak concentrations, depending upon the manner in which birds come through; i.e., in waves or all at once. On refuges representing the terminus of the flight lane, the figures would probably be the same in many cases.

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



Refuge BORDEN Black Coulee Months of May 1 to August 31, 1945

(1) Species	(2) Density	Acres per Bird	(3) Young Produced	(4) Sex Ratio	Hunting	(5) Removals	For Re- stocking	For Research	(6) Total	(7) Remarks
Common Name	Cover types, total acreage of habitat		Number broods obs'd. Estimated Total	Percentage					Estimated number using Refuge	Pertinent information not specifically requested. List introductions here.
Hungarian Partridge	Upland grass with few small trees and brush along lakeshore 200 acres	5							40	No young birds seen on occasional visits to area.  It is known that sage grouse and Ring-necked pheasants also visit the area occasionally but none were observed this period. Surrounding country is not favorable to pheasants tho some sage hens should be found but infrequent and short visits did not reveal any birds on the area. Not believed to be nesting there.



## 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.



## MIGRATORY BIRDS

Refuge Lake ThibedeanMonths of May 1 to August 31, 1943

1612

(1) Species	(2) First Observed		(3) Became Common	(4) Peak Concentration		(5) Last Observed		(6) Young Produced			(7) Total
Common Name	Number	Date	Date	Number	Date	Number	Date	No. Broods Obsvd.	Avg. Size	Esti- mated Total	Number Using Refuge
Eared Grebe				50	6/15			2	3	20	60
Western Grebe				25	6/15						30
Great Blue Heron				15							20
Common Mallard				150	6/15			3	5		200
Gadwall				80	7/1			3	6	20	100
Baldpate				60	7/1						80
American Pintail				200	7/1			4	5	60	300
Green-winged Teal				100	7/1			1	6	30	150
Blue-winged Teal				80	7/1						100
Shoveller				120	7/1			2	7	40	200
Ruddyduck				15	6/15						20
Swainson's Hawk				5	8/1						5
American Rough-leg				8	8/1						10
Northern Bald Eagle				2							2
Marsh Hawk				20	8/1			1	4	10	40
American Coot				30	8/1			2	3	15	50
Killdeer				80	8/1			1	2	20	100
Western Willet				20	8/1						30
Least Sandpiper				40	8/1						50
Avocet				20	8/1			1	2	10	40
Ring-billed Gull				60	7/1						80
Common Tern				20	8/1						30

REMARKS: (Pertinent information not specifically requested)

Black Tern  
Western Burrowing Owl

30 8/1  
20

50  
25



# INSTRUCTIONS

Form NR-1 - MIGRATORY BIRDS (Include species in families Gaviidae through Strigidae; also doves and woodcocks)\*

In case a resident form occurs, such as mottled duck on the Gulf Coast, use only the columns that apply.

- (1) SPECIES: Use correct common names as found in the A.O.U. Check List, 1931 Edition, and list in A.O.U. order. General terms are to be avoided, such as "scaup", "teal", etc.; use "green-winged teal" or "lesser scaup".
- (2) FIRST OBSERVED: The first refuge record for the species during spring migration, fall migration, wintering, or summering, and the number observed. In the case of resident species this column may be disregarded.
- (3) BECAME COMMON: The date the species became common on the refuge.
- (4) PEAK CONCENTRATION: The greatest number of the species present on any one date or limited interval of time.
- (5) LAST OBSERVED: The last refuge record for the species during the spring or fall migration, wintering, or summering, and the numbers observed exclusive of obvious cripples or non-migrants.
- (6) YOUNG PRODUCED: Estimated number of young produced based upon 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 are to be omitted.
- (7) TOTAL: Estimated total number of the species using the refuge during the period. This figure may or may not be more than that used for peak concentrations, depending upon the manner in which birds come through; i.e., in waves or all at once. On refuges representing the terminus of the flight lane, the figures would probably be the same in many cases.

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



Refuge Thibedeau Lake (Easement)Months of May 1 to August 31, 1948

(1) Species	(2) Density	(3) Young Produced		(4) Sex Ratio	(5) Removals			(6) Total	(7) Remarks
Common Name	Cover types, total acreage of habitat	Acres per Bird	Number broods obs'd. Estimated Total	Percentage	Hunting	For Re- stocking	For Research	Estimated number using Refuge	Pertinent information not specifically requested. List introductions here.
Prairie Sharp-tailed Grouse	Upland grass inter- spersed w/ small plots of buckbrush & wild rose. 500 acres	10						50	No nesting observed but believed likely that they do nest here.
Sage Hen	Upland grass and small sage 800 A.	40						20	
Hungarian Partridge	Grass, wild rose and buckbrush 500 acres	50	20					40	No nests found but young were seen on last visit
									Because of type of cover it is doubtful that any large population of these birds will ever be carried.



## 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.



## MIGRATORY BIRDS

Refuge Creedman's Coulee (Easement) Months of May 1 to August 31, 1948

1612

(1) Species	(2) First Observed		(3) Became Common	(4) Peak Concentration		(5) Last Observed		(6) Young Produced			(7) Total
Common Name	Number	Date	Date	Number	Date	Number	Date	No. Broods Obsvd.	Avg. Size	Esti- mated Total	Number Using Refuge
Eared Grebe				100	7/1			1	2	40	150
Western Grebe				50	7/1						70
White Pelican				100	7/20						150
Great Blue Heron				20							30
Common Canada Goose				60							80
Common Mallard				300	7/1			4	5	60	400
Gadwall				200	7/1					50	250
Baldpate				100	7/1						150
American Pintail				300	7/1			2	6	50	400
Green-winged Teal				100	7/15			1	7	30	150
Blue-winged Teal				100	7/15						120
Shoveller				120	7/15			2	5	40	200
Redhead				40	8/1						60
Canvasback				20	8/1						40
Ruddyduck				30	8/1						40
Ferruginous Rough-leg				10							10
Marsh Hawk				30							40
American Coot				50	8/1						60
Killdeer				120	7/1			2	2	30	150
Long-billed Curlew				100							100
Western Willet				50	7/1						70
Least Sandpiper				100	7/20						120

REMARKS: (Pertinent information not specifically requested)

Avocet	30		50
Ring-billed Gull	75	7/1	100
Common Tern	20		30



# INSTRUCTIONS

Form NR-1 - MIGRATORY BIRDS (Include species in families Gaviidae through Strigidae; also doves and woodcocks)\*

In case a resident form occurs, such as mottled duck on the Gulf Coast, use only the columns that apply.

- (1) SPECIES: Use correct common names as found in the A.O.U. Check List, 1931 Edition, and list in A.O.U. order. General terms are to be avoided, such as "scaup", "teal", etc.; use "green-winged teal" or "lesser scaup".
- (2) FIRST OBSERVED: The first refuge record for the species during spring migration, fall migration, wintering, or summering, and the number observed. In the case of resident species this column may be disregarded.
- (3) BECAME COMMON: The date the species became common on the refuge.
- (4) PEAK CONCENTRATION: The greatest number of the species present on any one date or limited interval of time.
- (5) LAST OBSERVED: The last refuge record for the species during the spring or fall migration, wintering, or summering, and the numbers observed exclusive of obvious cripples or non-migrants.
- (6) YOUNG PRODUCED: Estimated number of young produced based upon 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 are to be omitted.
- (7) TOTAL: Estimated total number of the species using the refuge during the period. This figure may or may not be more than that used for peak concentrations, depending upon the manner in which birds come through; i.e., in waves or all at once. On refuges representing the terminus of the flight lane, the figures would probably be the same in many cases.

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



Refuge Creedman's Coulee (Easement)Months of May 1 to August 31, 1943

(1) Species	(2) Density	Acres per Bird	(3) Young Produced	(4) Sex Ratio	Hunting	(5) Removals	For Re- stocking	For Research	(6) Total	(7) Remarks
Common Name	Cover types, total acreage of habitat		Number broods obs'd. Estimated Total	Percentage					Estimated number using Refuge	Pertinent information not specifically requested. List introductions here.
Prairie Sharp- tailed Grouse	Upland grass, inter- sprersed w/ willow, wild rose & buck- brush. 150 A.	3							50	
Sage Hen	Upland grass, w/ small sage & willow 300 A.	3	30						100	
Hungarian Partridge	Same as above for sharp-tail	3	1	20					50	
Ring-necked Pheasant	Same	1	2	50 each					150	



## INSTRUCTIONS

Form NR-2

## 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.





No. 744 6-20-43  
White Pelicans on their  
nesting grounds on  
Woody Island



No. 745 Another view  
of Pelicans 6-20-43



No. 746 Nest and  
eggs of Canada Goose  
on shore of Big Is.  
5-14-43





No. 747 7-1-43  
Five year old growth of  
Russian Olive, Cotton-  
wood and Chinese Elm  
This is same clump as  
shown on Picture No.  
721 with my May-Aug.  
1942 Narrative



No. 748 8-1-43  
View of Headquarters  
from tower. Compare  
with No. 724 with my  
May-Aug. 1942 Narrative  
to see growth of trees.



No. 749 8-1-43  
Bowdoin residence  
showing growth of trees  
shrubs etc.





No. 750 8-1-43  
New Refuge sign set  
at NW corner of refuge  
along highway.



No. 751 7-15-43  
Building trap to stop  
fish from leaving storage  
reservoir when irrigation  
water is taken out.  
State Fish and Game men  
doing work with our coop-  
eration.



No. 752 Dead ducks along  
lake shore at Dry Lake  
where Botulism has hit  
the hardest. These birds  
were photographed exactly  
as they were found. Note  
bare shoreline and sparse  
vegetation in water.  
8-20-43