

ROUTING SLIPDIVISION OF WILDLIFE REFUGESDATE: 8-20 1944MR. SALYERSECTION OF HABITAT IMPROVEMENT:MRS. WOODINMr. KubichekMR. ELMER 9Mr. SmithMRS. GARVINMr. Griffith RC 11-23MR. DUMONT PAD 11/28Miss Cook gwc 10-26SECTION OF OPERATIONS:SECTION OF ERA:Mr. Krummel WS 10/16Mr. Regan HR 9/11/44Mr. GustafsonDr. Bourn DSB 10/18/44Miss BaumMrs. FishmanMrs. KricunSECTION OF LAND MANAGEMENT:STENOGRAPHERS:Mr. Tolstunov 13Miss WhorleyMr. AckerknechtSECTION OF STRUCTURES:Mr. Decker WV 9/22/44REMARKS:BEAR RIVER NARRATIVE REPORTMAY-AUGUST 1944Return to: Hab. Improvement

UNITED STATES DEPARTMENT OF THE INTERIOR
FISH AND WILDLIFE SERVICE

BEAR RIVER MIGRATORY BIRD REFUGE
BOX ELDER COUNTY, UTAH

--NARRATIVE REPORT--

FOR PERIOD: MAY, JUNE, JULY, and AUGUST, 1944

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--NARRATIVE REPORT--
FOR PERIOD MAY, JUNE, JULY, and AUGUST, 1944

I- GENERAL

A. Weather Conditions

	<u>Snowfall</u>	<u>Precipitation</u>	<u>Max. Temp.</u>	<u>Min. Temp.</u>
May, 1944	0	1.08	85°	37°
June, 1944	0	3.49	95°	41°
July, 1944	0	0.12	96°	55°
August, 1944	0	0.00	97°	45°
	<u>0</u>	<u>4.69</u> Ext.	<u>97°</u>	<u>37°</u>

The weather during the forepart of the month of May was mild and spring like, with the last half being somewhat cold and unsettled. Rain fell on eleven days and sixteen days were clear. The mean temperature for the month was 60.6°. The total wind movement for the month was 2412 miles.

In general, the weather during the month of June was cool and wet; as a matter of fact, it was the wettest June of record for the Great Basin and the state as a whole. Rain fell on sixteen days and eleven days were clear. The mean temperature for the month was 62.8°, with a total wind movement of 2131 miles.

The weather during the month of July was about normal, generally hot and dry. Thirty days out of the month were clear and only one partly cloudy. Rain fell on but one day. The total evaporation from an evaporation pan was 10.93 inches and the wind movement for the month was 1753 miles.

The weather during the month of August was extremely hot and dry. Not a drop of rain fell during the entire month. Twenty-nine days were clear and two partly cloudy. The total evaporation for the month was 10.78 inches and the wind movement 1603 miles.

B. Water Conditions

The flow of water entering the Refuge from the Bear River was about normal during May and June. However, we had no high spring run-off as is usual during April or May. The Cutler power station shut down on June 21 and since that date we have had but little water, only return flow, in the river.

Flash-boards were placed in all the spillboxes through the outside dike on June 23 and on July 1 all units were at or near maximum carrying capacity. Unit 1 was at elevation 4205.20; Unit 2 at 05.25; Unit 3 at 05.03; Unit 4 at 05.02; and Unit 5 at 05.16. During July the entire flow in the river, with the exception of that that leaked around the control gates, was diverted into Unit 5.

Starting August 1, water was released from Units 1 and 4 as called for by water manipulation schedule in connection with Botulism Experiment 1-A. For more detailed information and water surface elevations in the various units see our monthly report of gage readings and weather data. At the present time, for all intent and purpose, Units 1, 3 and 4 are dry. The first available water for reflooding is expected during the last week in September.

C. Fires

We have had no fires of any kind on the Refuge during the period covered by this report. Due to man power shortage the Forest Service has not had a fire guard stationed at our Perry cabin this summer as in previous years. Inspections for fire hazards have been made and the dry grass around the north guard cabin cleared away. Our fire fighting equipment is in good condition.

II- WILDLIFE

A. Migratory Birds

1. Population and Behavior. With a few exceptions the bird population on the Refuge during the past four months appeared to be about the same as for the past few years. There was a noticeable decrease in the number of Franklin gulls on the Refuge and but a small percentage of the former nesting colonies were on the Refuge. There appeared to be some increase in the number of Avocets and black-necked stilts on the area, and about the usual numbers of Brewster's egrets, white-faced glossy ibis and other shore birds using the Refuge.

The number of Canada geese using the Refuge for nesting and the rearing of their young appeared to be somewhat less than for the past two years. On May the 23, a brood count was made from along the dikes and a total of 255 broods counted as compared with 286 broods in 1943, and 331 broods in 1942. More geese nested along the dikes this past spring than in previous years. However, there was considerably less nesting in the interior of Unit 2, where previously the majority of our geese nested. This may be due in some extent to higher water levels and fewer muskrat houses on which a large number of geese have nested in previous years.

On July 20 a count was made of the number of pair of cliff swallows nesting around the buildings at Refuge Headquarters. A total of 233 nests were counted as compared with 221 nests for last year.

As the principal bird activity on the Refuge during the period covered by this report is that of nesting and the rearing of their young, Considerable time has been spent making nesting surveys, and the balance of this part of the report on migratory birds will be confined in general to this subject.

The trend of duck nesting at Bear River Refuge was measured this year by the continued use of sample plots set up in 1941 and followed through the consecutive seasons since that time. A description of the actual plots and discussion of their use was submitted in the narrative report for the period of May, June and July 1941, and will not be recounted here.

A summary of the utilization of the sample plots by ducks is shown in table No. 1. Three hundred and fifty-one duck nests were found, of which 92 nests or 26 per cent were already hatched. Eleven nests were found deserted, 8 of which (3 per cent) were probably due to flooding. Twenty-two nests or 6 per cent had been destroyed. The relatively large number of nests found hatched was perhaps due to the fact that the surveys were made rather late this season. The amount of flooding encountered was not great, but nesting in some of the lower marshy plots was limited or entirely lacking due to the high water levels. Avian predators were largely responsible for the loss of eggs in destroyed nests. The raven was thought to be the chief contributor to this loss, but magpies and skunks no doubt accounted for some.

There were 2118 eggs found in the 351 nests recorded which yields an average of 6.03 eggs per nest. This figure, however, does not take into account the fact that some nests were terminated for various reasons when found. Therefore, the average of 6.03 is not a true measure of the average clutch size. Two hundred and twenty-six nests were being actively incubated at the time of the survey, and using this figure as a basis the average eggs per nest would be 9.3.

The occurrence of the various vegetative types as nesting cover is indicated by the number of nests in each type in the following list.

Weed	212 nests	60.5 per cent
Salt grass	51 nests	14.3 per cent
Hardstem bulrush	52 nests	14.6 per cent
Alkali bulrush	15 nests	4.3 per cent
Willows	13 nests	3.8 per cent
Misc. grass	8 nests	2.3 per cent

Each of these groups of vegetative cover was present on most of the sample plots in Unit 2, but the preference seemed to be for the dry weed beds rather than the other emergents. The most apparent reason for the lack of use of the hardstem and alkali bulrush in the lower portions of plots 2-1 to 2-7, was the fact that these species have become extremely thick and dense. Many of these patches of accelerated plant growth were stunted and sparse and being heavily utilized by ducks during the years from 1938 to 1942, but have been revived and stimulated to new growth by the high water levels in Unit 2 during 1943 and 1944.

Table No. 2 is a comparison of the number of duck nests found on the various plots during the four year period from 1941 to 1944 inclusive. The total nests show little variation except for the 1942 season. The variation in total number of eggs from one season to another is probably due to the difference in the number of nests found terminated for one reason or another at the time the survey is made.

A comparison, by species, of the number of nests and eggs found on the sample plots during the past four seasons is shown in Table No. 3. It is apparent from the table that the nesting population of the various species varies somewhat from year to year, this is probably the result of the tendency of the nesting concentrations to shift around in the local environment.

Nesting surveys made over the past several years on the artificial islands of the Refuge were carried on again this season. These islands have in the past been highly utilized as nesting sites for California gulls. Nearly all of the California gulls nesting on the Refuge are located on these artificial islands.

Table No. 4, which shows the population of nesting birds on the islands also includes the nesting colonies on the "O" line, "P" line, and the west lateral dike from the "P" line which extends into Unit 4. In addition to 2735 California gull nests, 46 cormorants were found here.

Table No. 5 represents the seasonal totals of California gulls nesting on each of the colonies present on the Refuge. The table indicates a 13.3 per cent increase in the gull population on the Refuge between 1939 and 1944, most of which is represented by the increased nesting on the dike lines.

BEAR RIVER MIGRATORY BIRD REFUGE

DUCK NESTING SURVEY - 1944

SAMPLE PLOT METHOD

Table No. 1

Species	Plot Number												Total		Avg. no. eggs per nest
	1-1	1-2	2-1	2-2	2-3	2-4	2-5	2-6	2-7	2-8	3-1	3-2	Nests	Eggs	
Gadwall	6	-	54	60	22	13	28	5	-	8	37	4	237	1639	6.91
Cinn. Teal	14	4	4	8	3	2	-	1	-	2	5	4	47	245	5.21
Mallard	-	2	2	2	1	1	2	-	-	1	2	3	16	30	1.88
Redhead	1	3	13	2	3	7	7	-	-	2	-	4	42	193	4.60
Shoveler	-	-	-	-	-	-	-	-	1	-	-	-	1	3	3.00
Pintail	1	-	-	1	-	-	-	-	-	-	-	-	2	8	4.00
Ruddy	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Coot	2	-	-	-	-	-	1	-	-	1	2	-	6	-	-
Totals	24	9	73	73	29	23	38	6	1	14	46	15	351	2118	6.03

Destroyed -- 22 nests - 06% Deserted -- 11 nests - (8 due to flooding) 03% Terminated when found --
92 nests (hatched) 26% Active nests at time of survey -- 226 or 64%.

Dates of Survey:

Plot 1-1	July 6	Plot 3-1	July 13
Plot 1-2	July 7	Plot 2-3	July 13
Plot 2-8	July 7	Plot 2-4	July 14
Plot 2-2	July 8	Plot 2-5	July 14
Plot 3-2	July 11	Plot 2-6	July 14
Plot 2-1	July 12	Plot 2-7	July 14

351
6
345

BEAR RIVER MIGRATORY BIRD REFUGE
DUCK NESTING SURVEY - SAMPLE PLOT METHOD
Comparative Table - Years 1941 - 1944

Table No. 2

Year	Plot No.												Total		Average eggs per nest
	1-1	1-2	2-1	2-2	2-3	2-4	2-5	2-6	2-7	2-8	3-1	3-2	Nests	Eggs	
1941	15	12	114	27	22	27	20	38	7	11	14	43	350	3046	8.7
1942	6	13	201	37	42	65	46	29	7	7	26	21	500	4150	8.3
1943	15	12	69	68	21	34	34	23	5	14	51	11	357	2836	7.94
1944	24	9	73	73	29	25	38	6	1	14	46	15	351	2118	6.03

BEAR RIVER MIGRATORY BIRD REFUGE

YEARLY COMPARISON BY SPECIES OF TOTAL NUMBER OF NESTS AND EGGS FOUND
ON SAMPLE PLOTS

Table No. 3

Species	1941		1942		1943		1944	
	No. Nests	No. Eggs	No. Nests	No. Eggs	No. Nests	No. Eggs	No. Nests	No. Eggs
Gadwall	194	1857	401	5443	215	1741	237	1639
Cinn. Teal	55	363	43	220	62	396	47	245
Mallard	52	454	16	154	15	133	16	30
Redhead	28	241	29	259	38	393	42	193
Shoveler	2	13	5	32	-	-	1	3
Pintail	10	79	1	4	-	-	2	8
Ruddy	-	-	1	14	3	19	-	-
Coot	9	39	4	24	24	154	6	-
Totals	350	3046	500	4150	357	2836	351	2118

BEAR RIVER MIGRATORY BIRD REFUGE

CALIFORNIA GULL NESTING SURVEY AND SURVEY
OF OTHER BIRD NESTS ON ARTIFICIAL ISLANDS, 1944

Table # 4

Date	Area	Nests	Number of eggs in nest	Total eggs	Young	Remarks
May 19	"O" Line Dike between Units 3 and 4	67	0		100	
		178	1	177		
		424	2	848		
		329	3	987		
		3	4	12		
		<u>1001</u>		<u>2024</u>	<u>100</u>	
May 19	West Island in Unit 4	64	0			
		174	1	64		
		135	2	348		
		4	3	405		
		<u>4</u>	4	16		
		<u>377</u>		<u>833</u>		
May 19	East Island in Unit 3	78	0			
		105	1	78		
		103	2	210		
			3	309		
		<u></u>	4	<u></u>		
		<u>286</u>		<u>597</u>		
May 19	"P" Line Dike between Units 4 and 5	41	0			
		52	1	41		
		57	2	104		
			3	171		
		<u></u>	4	<u></u>		
		<u>150</u>		<u>316</u>		
May 20	West Lateral from "P" Line into Unit 4	86	0			
		143	1	86		
		106	2	286		
			3	318		
		<u></u>	4	<u></u>		
		<u>335</u>		<u>690</u>		
May 20	West Island in Unit 5	68	0			Other nestings: Cormorants 16 nests 56 eggs
		91	1	68		
		60	2	182		
		<u>1</u>	3	180		
		<u>1</u>	4	4		
		<u>220</u>		<u>434</u>		
May 20	East Island in Unit 4	71	0			Other nestings: Cormorants 30 nests 160 eggs
		159	1	71		
		132	2	318		
		<u>4</u>	3	396		
		<u>4</u>	4	16		
		<u>366</u>		<u>801</u>		
GRAND TOTALS		2735		5695	100	

Note: No California Gull nests found in Units 1 and 2.

Continuation - Survey of Nests on Artificial Islands

Date	Area	Species	Nests	Eggs
6/10/44	East Island Unit 1	Avocet	41	132
6/10/44	West Island Unit 1	Avocet	9	29
6/5/44	Rock Island Unit 2	Avocet	3	10
6/5/44	East Island Unit 2	Avocet Gadwall	16 1	41 6
6/8/44	North Island Unit 2	Avocet Canada Goose Redhead	121 1 1	386 2 12
6/5/44	West Island Unit 3	Avocet Canada Goose Pintail Gadwall Mallard Cinnamon Teal	24 1 3 4 5 2	73 1 37 23 42 16

BEAR RIVER MIGRATORY BIRD REFUGE

COMPARATIVE TABLE OF CALIFORNIA GULL NESTING SURVEY

YEARS - 1939 to 1944

(omitting 1940)

Table # 5

Year	Areas							Total nests	Total eggs	Total young
	"P" Line	"O" Line	Unit 4 W.Lateral "P" Line	West Island Unit 5	West Island Unit 4	East Island Unit 4	East Island Unit 3			
1939	17		142	429	401	508	331	1828	4137	228
1941		146	152	373	394	512	337	1914	3719	200
1942	24	694	251	343	375	452	290	2429	4094	703
1943	22	598	357	367	423	465	320	2552	5152	182
1944	150	1001	335	220	377	366	286	2735	5695	100

2. Food and Cover. Food conditions on the Refuge during the past spring and summer have been good. However, at the present time, Units 1, 3 and 4 are dry and therefore no feed is available in these units. Undoubtedly the sago pondweed matured in these units before the drying up to a point where there will be some waterfowl food available when the units are reflooded. This reflooding will depend on the flow of water in the river and will probably be by the first of October. The pondweed in Units 2 and 5 made a good growth and we are now harvesting seed along the dikes of these two units. All the waterfowl on the Refuge are concentrated on these two units at the present time.

The salicornia has made a good growth on the alkaline flats beyond the dikes and should provide a good source of food this coming fall after it has been frost-bitten and reflooded.

The emergent vegetation in Units 2 and 5 is still green and has made a good growth. However, the vegetation in Unit 1 is very dry and it is doubtful if some of it will survive the drying out it has received this summer. It appears that the muskrats have all left this unit due largely to the drying up of the emergent vegetation.

3. Botulism. The loss of bird life from botulism has been relatively small so far this season. The first sick birds were picked up on July 21, and since that date a few sick and dead birds have been picked up practically every day. At the present time sickness is confined to Units 2 and 5 as the other three units are dry. Up to September 1, 389 sick birds, principally ducks, have been treated in the hospital. The total number of dead gathered to date is not available at this time as some of these have been picked up by the research personnel and have not been reported on as yet. A complete report on losses will be submitted with our next narrative report.

4. Lead Poisoning and other diseases. During the period covered by this report, we have had practically no loss of bird life from lead poisoning or other diseases except botulism. The few birds picked up with lead poisoning have been turned over to the Research Staff.

B. Upland Game Birds

Our ring-necked pheasant population remains about constant, estimated at about 300 birds. Food and cover conditions, while limited to the immediate area around Refuge Headquarters, appears to be good.

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

Our muskrat population appears at the present time to be somewhat less than a year ago. However, it is difficult to estimate or compare with previous years as Units 1, 3 and 4 are dry and the majority of the rats from Units 1 and 3 may have shifted into Unit 2. As early as possible this coming winter, we will make our annual count of rat houses and this will assist in judging the trend in population.

No predatory animals have been taken during the period.

E. Predaceous Birds

The raven and magpie are the only predaceous birds, of any consequence, that we have at the Bear River Refuge.

During the month of May, control measures were carried on against the magpie and a total of 13 nests and 46 eggs were destroyed on the Refuge. Off the Refuge and along the river banks, 92 nests and 255 eggs were destroyed.

F. Fish

General conditions for fish life on the Refuge have been good and compare favorably with other years. No dead fish have been observed in the channels or barrow-pits as has been the case in some previous years.

III- REFUGE DEVELOPMENT AND MAINTENANCE

A. Physical Development

No new projects or construction work has been carried on during the past period. The field work has consisted largely of general maintenance and repairs. Considerable time has been spent hauling gravel etc. to repair the dike roads and to maintain beach lines.

Several days have been spent checking and repairing Refuge boundary signs and fences. Also some time has been spent repairing water control structures. For the past two or three weeks we have been concentrating on the harvesting of sago pondweed seed.

One of our light and power plants has just recently been overhauled and the small job of removing the gutters from the laboratory building has been taken care of.

The usual repair and maintenance work on our equipment and particularly the motor vehicles and water filtering system have taken considerable time. Most of our equipment is in good operating condition. However, we are much in need of the services of a good mechanic.

B. Plantings

No planting of any kind has been done during the past period.

C. Collections

At the present time we are concentrating all our time and manpower on the collection of sago pondweed seed. To date we have harvested approximately 6,000 pounds. Mr. R. E. Griffith of the central office

has been at the Refuge for the past week assisting with this work.

D. Receipt of Seed and Nursery Stock

No seed or nursery stock have been received during the past period.

IV- ECONOMIC USE OF REFUGE

We have nothing to report under this heading for the past period.

V- FIELD INVESTIGATION OR APPLIED RESEARCH

A. Bird Banding

A total of approximately 500 ducks have been banded during the period; most of these are ducks that have recovered from botulism at the bird hospital. In addition to this a considerable number have been banded by the research men in the field in connection with botulism studies.

Some 40 or 50 banding returns have been received during the period and entered on the station records.

B. Botulism

We have cooperated with and assisted in every way possible the research men stationed here in connection with botulism studies, and particularly with the water level manipulation experiments.

VI- PUBLIC RELATIONS

A. Recreational Uses

During the past four months a total of 921 people have registered at Refuge Headquarters and have been permitted to visit on the Refuge. In addition to this we estimate that about 300 people have fished in the river and visited the Headquarters area that have not been registered, particularly on Sundays and after office hours.

We have had eight large groups of patients from the Army's General Hospital at Brigham visit the Refuge, also one Wildlife Federation party consisting of 35 members.

Official Visitors

<u>Date</u>	<u>Name</u>	<u>Title</u>	<u>Address</u>
5/3/44	Brice McBride	Dist. Engineer	Salt Lake City, Utah
5/3/44	E. H. Nelson	Engineer	Salt Lake City, Utah
5/12/44	J. C. Salyer II	Chief, Division of Wildlife Refuges	Chicago, Illinois
5/24/44	F. Delacour	Advisor	New York, New York
5/24/44	Leo L. Lathe	Regional Director	Portland, Oregon
5/30/44	Ken. F. MacDonald	Refuge Supervisor	Albuquerque, New Mexico
7/20/44	H. O. Crowley	Admin. Officer	Albuquerque, New Mexico
7/21/44	A. C. Elmer	Asst. Chief WL Ref.	Chicago, Illinois
9/4/44	R. E. Griffith	In charge, WL Hab.	Chicago, Illinois
9/8/44	D. I. Rasmussen	Biologist	USAC Logan, Utah
9/8/44	Jess Low	State Fish and Game	Ogden Bay Refuge

F. Violations

We have had no violations of the Refuge laws or regulations to report on during the past period.

September 9, 1944

Approved:

John G. Gatten
9/14/44

Submitted by:

James Wilson
Supt. Bear River Bird Refuge

MIGRATORY BIRDS

Refuge Bear River Migratory Bird Refuge Months of May to August, 1944

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
Western Grebe								70	2	350	900
Hared Grebe										35	100
Pied-billed Grebe								5	4	60	135
White Pelican											10,000
Double-crested Cormorant								46	4	200	300
Treganza's Heron								5	3	60	350
Brewster's Egret								15	3	600	3,000
Black-crowned Night Heron								6	3	80	400
White-faced Glossy Ibis								20	3	650	3,500
Canada Goose								255	5	2,000	3,000
Mallard								16	7	1,200	75,000
Gadwall								235	7	24,000	70,000
Pintail								14	6	600	400,000
Green-winged Teal											300,000
Cinnamon Teal								30	7	2,000	6,000
Shoveler								3	7	200	35,000
Redhead								46	7	1,500	4,000
Ruddy Duck								14	6	200	1,000

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 Bear River Migratory Bird Refuge Months of May to August, 1944

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
Marsh Hawk										12	20
Duck Hawk											6
American Coot								80	4	2,500	9,000
Killdeer								15	3	200	700
Long-billed Curlew								5	2	25	75
Marbled Godwit											2,500
Avocet								497	2	2,000	7,000
Black-necked Stilt								35	2	500	4,000
California Gull										3,500	10,000
Franklin's Gull										500	2,000
Forster's Tern										500	1,500
Caspian Tern								7	3	25	100
Black Tern										400	1,200

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 Bear River Migratory Bird Refuge Months of May to August, 1944

(1) Species	(2) Density		(3) Young Produced		(4) Sex Ratio	(5) Removals			(6) Total	(7) Remarks
Common Name	Cover types, total acreage of habitat	Acres per Bird	Number broods obs'd.	Estimated Total	Percentage	Hunting	For Re- stocking	For Research	Estimated number using Refuge	Pertinent information not specifically requested. List introductions here.
Ring-necked Pheasant	600 Marsh area with salt grass and weeds along channel banks and road-ways.	2	5	30		none			300	

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.