

BOMBAY HOOK

NARRATIVE REPORTS

JANUARY 1944-DECEMBER 1944

ROUTING SLIP

DIVISION OF WILDLIFE REFUGES

DATE: 3/12 1945

_____ MR. SALYER _____

_____ MR. ELMER _____

_____ _____

_____ _____

SECTION OF HABITAT IMPROVEMENT:

Mr. Griffith PEG 3/11

Dr. Bourn WSB 5/1

Miss Cook 3/16

SECTION OF OPERATIONS:

Mr. Krummes AK 3/25

Mr. Regan NR 4/1

Miss Baum _____

SECTION OF LAND MANAGEMENT:

Mr. Barnshaw _____

Mr. DuMont PD 5/6

SECTION OF STRUCTURES:

Mr. Taylor WV 3/14

STENOGRAPHERS:

_____ WV 5/12

REMARKS:

Bombay Hook

Narrative

Sept-Dec. 1944

Return to: _____

Bombay Hook National Wildlife Refuge
Quarterly Narrative Report

September, October, November and December 1944

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1. GENERAL.

A. Weather Conditions.

<u>Month</u>	<u>Precipitation</u>	<u>Max. Temp.</u>	<u>Min. Temp.</u>
September	5.68	91	44
October	3.35	85	30
November	4.80	71	27
December	2.64	56	14

The weather for the period was considered normal with the exception of the hurricane of September 14. During a three day period, September 13-15, 3.30 inches of rain fell and the wind approached 75 miles an hour. With the exception of a few shingles blown off the Boathouse and Patrolmans House, no damage was done on the Refuge.

B. Water Conditions.

During the period a tide gauge was installed at Raymonds Pool and readings on this as well as the gauges at Finis Swamp and the Boathouse were taken starting on November 17. The readings given in the following table are height above mean sea level. The Boathouse readings were taken at high tide.

<u>Month and Date</u>	<u>Raymonds Pool</u>	<u>Finis Swamp</u>	<u>Boathouse</u>
November 17	1.02	2.10	3.22
November 25	1.36	2.76	3.24
November 30	1.50	2.76	2.60
December 4	1.50	2.76	2.86
December 12	1.50	2.60	2.34
December 23	1.52	2.64	2.80
December 29	1.52	---	3.00

C. Fires.

During the period the only fires occurring on the Refuge were those started as a result of the aerial activity by the Army Air Force. When observed these fires were reported to the Air Base at Dover and the fire crew of the Base aided materially in suppressing the fires. The greater part of the burnt area is used as nesting grounds by waterfowl and as a result of the damage will be in poor condition for this activity during the coming breeding season. However, it is doubtful if breeding birds would use the area due to the aerial activity. A complete report on damage is not included due to the danger of the aerial activity and possible duds.

2. Wildlife.

A. Migratory Birds.

Populations and Behaviour.

The populations and behavior of the migrating birds were not too closely observed during the period due to the heavy press of maintenance work and the limited area for observation due to aerial activity. Data given below are those taken in conjunction with other work or during the few times spent on patrol and observation.

Waterfowl.

The waterfowl population were noticeably smaller due to the aerial activity. The migration started about the middle of September built up to a peak concentration on about November 4 and ended with the first heavy freeze on December 26.

Pintail,

The Black, Mallard, Teals, ~~Shovelers~~, Gadwall and Baldpate in decreasing order made up the greater percentage of the migrants. The aerial activity seemed to affect the Mergansers to a much lesser degree than the other species. For this reason they appeared to be common during the period. Due to various factors, the off-shore areas were not patrolled during the period. Few Scoters, Goldeneye or Scaup were seen on the Refuge.

Very few Shoveler ducks were seen on the Refuge during the period. This is considered an unusual occurrence as heretofore they have appeared in much greater numbers.

Other Waterbirds and Shorebirds.

Due to the fact that patrol and observation work took place in a restricted area, the shorebird count was seriously handicapped. The most abundant species were Greater and Lesser Yellowlegs, Least and Semi-palmated Sandpipers. Occasional records were made of the following species: Woodcock, Killdeer, Blackbellied Plover, and Wilsons Snipe.

Food and Cover

The food and cover conditions on the Refuge appeared normal. *? wsb*

B. Upland Game Birds.

The upland game bird population has increased appreciatively over former years especially in the case of the pheasant. About 100 pheasants are estimated to use the Refuge for all or part of their territories. The Bob White Quail are increasing with an estimated 50 birds being present.

C. Big Game Animals.

The deer herd of approximately seven has been scattered by the aerial activity and now is rarely seen except on the periphery of the Refuge.

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

The muskrat population on the Refuge has decreased noticeably according to trappers reports and observations made at several stations. The reasons for the decrease seem to be the effect of the drought and possibly the aerial activity. The concussion of bombs and rockets may cave in bank burrows and other places inhabited by the muskrat as well as forcing the animals to other areas.

The raccoon population is estimated to be about 200. Tracks are fairly common and are seen on all portions of the Refuge.

There are an estimated 100 foxes on the Refuge with the Red Fox comprising the majority.

The Refuge supports a heavy Skunk population.

The cottontail rabbit has decreased in numbers due mainly to the activities of the foxes.

E. Predacious Birds, including Crows.

The Marsh Hawk, Red-tail Hawk, Turkey Vulture are the common species in this class that are always present on the Refuge. Occasional records were made of the Coopers Hawk, Red-shouldered Hawk, Rough-legged Hawk, and Sparrow Hawk. The Bald Eagles heretofore seen on the Refuge appeared only when aerial activity had ceased for several days.

The Great Horned Owl, Barn Owl and Screech Owl were noted on the Refuge.

Crows are common on the wooded portions of the Refuge. These birds usually spend the day on the cultivated land and return at night to roost in the wooded areas.

3. Refuge Maintenance and Development.

A. The major items of Refuge maintenance during the period were: painting the outside of the Headquarters Office Building, truck maintenance, terracing the Boathouse area, bolstering Finis Causeway with unservicable cement. Various other items in the way of maintenance of Government equipment such as repair of auxilliary engines, boat maintenance and repair took up the remainder of the period.

B. Development.

No development work was carried on during the period.

4. Public Relations.

On December 12, 1944, four members of the Miller Ornithological Club of Philadelphia attempted a bird observation trip on the Refuge. Aerial activity at the time prevented a satisfactory trip.

Service officials visiting the Refuge included Dr. Bourn, Mr. Taylor, Mr. C.T. Wallace and assistant and Mr. L.G. MacNamara, Regional Refuge Supervisor.

Respectfully submitted,

Charles L. Slaughter
Charles L. Slaughter.
Labor- Patrolman.

Regional Office J. H. Roche

MIGRATORY BIRDS

Refuge Bombay HookMonths of September to December, 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
Pied-billed Grebe			9-1	25	9-20	2	12-3				25
Great Blue Heron			9-1	400	10-20						400
Black Crowned Night Heron			9-1	700	9-2						700
American Bittern			9-1	10	9-1						10
Canada Goose	10	11-4	11-15	300	11-30	4	12-28				300
Whistling Swan			9-3	3	9-3	1	11-1				3
Greater Snow Goose	75	11-12					11-12				75
Mallard				1 50	11-6						150
Black				7000	11-6						8000
Blue-winged Teal			9-1	1000	10-6	50	11-7				2000
Green-winged Teal	60	9-6	10-20	1000	11-6	20	12-8				3000
Gadwall			9-1	3000	11-6						400
Baldpate	10	9-30	10-28	300	11-30	3	12-16				400
Pintails	30	9-6	10-20	300	10-24	8	12-16				600
Shoveler			9-6	115	10-6	6	12-6				200
Goldeneye	2	9-1				2	9-1				2
Hooded Merganser	12	10-31	11-4	200	11-6						700
American Merganser	2	10-31	11-4	300	12-15						500

REMARKS: (Pertinent information not specifically requested)

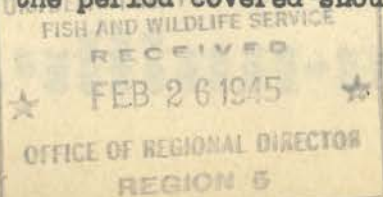
INSTRUCTIONS

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 Bombay HookMonths of September to December, 1944

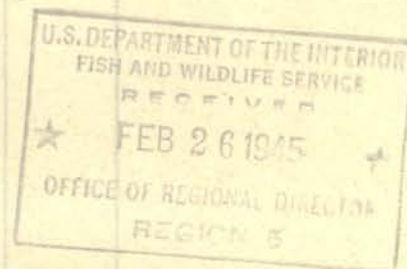
(1) Species	(2) Density		(3) Young Produced		(4) Sex Ratio	(5) Removals			(6) Total	(7) Remarks
Pheasant Common Name	Cover types, total acreage of habitat	Acres per Bird	Number broods obs'y'd.	Estimated Total	Percentage	Hunting	For Re- stocking	For Research	Estimated number using Refuge	Pertinent information not specifically requested. List introductions here.
Pheasant	550	5.5							100	
Bob White Quail	550 40%-Cultivated 30%-Swamp 15%-Old field 15%-Swamp timber	30							50	

INSTRUCTIONS

Form NR-2 - UPLAND GAME BIRDS.*

- (1) SPECIES: Use correct common name.
- (2) DENSITY: Applies particularly to those species considered in removal programs (public hunts, etc.). Detailed data may be omitted for species occurring in limited numbers. Density to be expressed in acres per animal by cover types. This information is to be prefaced by a statement from the refuge manager as to the number of acres in each cover type found on the refuge; once submitted, this information need not be repeated except as significant changes occur in the area of cover types. Cover types should be detailed enough to furnish the desired information but not so much as to obscure the general picture. Examples: spruce swamp, upland hardwoods, reverting agriculture land, bottomland hardwoods, short grass prairie, etc. Standard type symbols listed in Wildlife Management Series No. 7 should be used where possible. Figures submitted should be based on actual observations and counts on representative sample areas. Survey method used and size of sample area or areas should be indicated under Remarks.
- (3) YOUNG PRODUCED: Estimated number of young produced, based upon observations and actual counts in representative breeding habitat.
- (4) SEX RATIO: This column applies primarily to wild turkey, pheasants, etc. Include data on other species if available.
- (5) REMOVALS: Indicate total number in each category removed during the report period.
- (6) TOTAL: Estimated total number using the refuge during the report period. This may include resident birds plus those migrating into the refuge during certain seasons.
- (7) REMARKS: Indicate method used to determine population and area covered in survey. Also include other pertinent information not specifically requested.

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



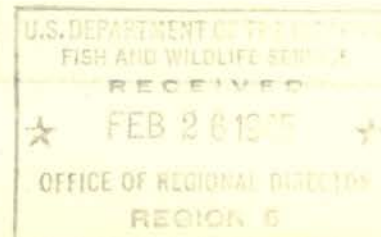
Refuge Bombay HookYear 1944

(1) Species	(2) Density	(3) Young Produced	(4) Removals				(5) Losses			(6) Introductions		(7) Estimated Total Refuge Population as of Dec. 31	(8) Sex Ratio
Common Name	Cover types, total Acreage of Habitat	Number	Hunting	For Re- stocking	Sold	For Research	Predation	Disease	Winter Losses	Number	Source		Percentage
Virginia White- Tailed Deer	300 50% Swamp Timber 30% Old Field 10% Cultivated 10% Swamp											7	Unknown

INSTRUCTIONS

Form NR-3 - BIG GAME

- (1) SPECIES: Use correct common name; i.e., Mule deer, black-tailed deer, white-tailed deer. It is unnecessary to indicate sub-species such as northern or Louisiana white-tailed deer.
- (2) DENSITY: Applies particularly to those species considered in removal programs (public hunts, etc.) exclusive of fenced herds. Detailed data may be omitted for species occurring in limited numbers. Density to be expressed in acres per animal by cover types. This information is to be prefaced by a statement from the refuge manager as to the number of acres in each cover type found on the refuge; once submitted, this information need not be repeated except as significant changes occur in the area of cover types. Cover types should be detailed enough to furnish the desired information but not so much as to obscure the general picture. Examples: spruce swamp, upland hardwoods, reverting agriculture land, bottomland hardwoods, short grass prairie, etc. Standard type symbols listed in Wildlife Management Series No. 7 should be used where possible. Figures submitted should be based on actual observations and counts on representative sample areas. Survey method used and size of sample area or areas should be indicated under Remarks.
- (3) YOUNG PRODUCED: Estimated total number of young produced on refuge.
- (4) REMOVALS: Indicate total number in each category removed during the year.
- (5) LOSSES: On the basis of known records or reliable estimates indicate total losses in each category during the year.
- (6) INTRODUCTIONS: Indicate the number and refuge or agency from which stock was secured.
- (7) TOTAL REFUGE POPULATION: Give the estimated population of each species on the refuge as of December 31.
- (8) SEX RATION: Indicate the percentage of males and females of each species as determined from field observations or through removals.



Refuge Bombay Hook Year 1944Botulism NO DISEASE NOTED

Lead Poisoning or other Disease

Period of outbreak _____

Period of heaviest losses _____

Losses:

	Actual Count	Estimated
(a) Waterfowl	_____	_____
(b) Shorebirds	_____	_____
(c) Other	_____	_____

Number Hospitalized	No. Recovered	% Recovered
(a) Waterfowl	_____	_____
(b) Shorebirds	_____	_____
(c) Other	_____	_____

Areas affected (location and approximate acreage) _____

Water conditions (average depth of water in sickness areas, reflooding of exposed flats, etc.) _____

Condition of vegetation and invertebrate life _____

Remarks _____

Kind of disease NO DISEASE NOTED

Species affected _____

Number Affected Species	Actual Count	Estimated
_____	_____	_____
_____	_____	_____
_____	_____	_____

Number Recovered _____

Number lost _____

Source of infection _____

Water conditions _____

Food conditions _____

Remarks _____

Year 1944

Fish farming or other business

Name

Name of business

Name of person in charge

Address:

- (a) State
(b) County
(c) Other

Number of fish

- (a) Species
(b) Variety
(c) Other

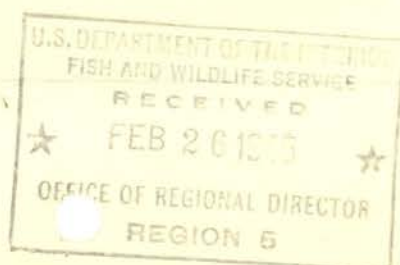
Area enclosed (in acres and approximate number)

Water conditions (average depth of water in stream, stream, collection of exposed life, etc.)

Fish conditions

Location of collection and investigation

Remarks



Refuge Bombay Hook Year 194 4

Species	Relative Abundance	Sport Fishing		Commercial Fishing		Restocking		Number re- moved for Restocking
		Man days Fishing	Number Taken	No. of Permits	Pounds Taken	Number Stocked	Area Stocked	

REMARKS:

No data taken

62, 302

PLANTINGS
(Marsh - Aquatic - Upland)

Refuge Bombay Hook Year 1944

Species	Location of Area Planted	Rate of Seeding or Planting	Amount Planted (Acres or Yards of Shoreline)	Amount & Nature of Propagules	Date of Planting	Survival	Cause of Loss	Remarks
								No planting carried out on Refuge in 1944

TOTAL ACREAGE PLANTED:

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

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CULTIVATED CROPS

Refuge Bombay Hook Year 1944

Permittee (If farmed by refuge personnel, so indicate)	Permit No.	Unit or Loca- tion	Crops Grown	Ave. Yield per Acre	Permittee's Share		Government's Share or Return				Compensatory Services, or Cash Revenue	
					Acres	Bu. Har- vested	Harvested		Unharvested			
							Acres	Bu.	Acres	Bu.		
McClements, Joseph	8450	Fields 8&9	Tomatoes		5.0							
			Soy Beans		9.5							Cash revenue,
			Field Corn		6.5							\$ \$3.00 per acre
Carrow, Artur Jr.	8578	Fields 4	Field Corn		14							
			Winter Wheat		14							Cash revenue,
												\$ \$3.00 per acre

Summary of Crops Grown:		Crop	Acreage	Permittee's Share		Government's Share				Total Revenue
				Acres	Bushels	Harvested		Unharvested		
						Acres	Bu.	Acres	Bu.	\$
										105.00
		Tomatoes	5.0	5.0						
		Soy Beans	9.5	9.5						
		Field Corn	20.5	20.5						
		Winter Wheat	14.0	14.0						

\$ 105.00

DIRECTIONS FOR PREPARING FORM NR-8
CULTIVATED CROPS

Cultivated Crops Report Form NR-8 should be prepared on a calendar-year basis for all crops harvested or utilized during the calendar year and submitted with the December 31 refuge report.

Permittee - List each permittee separately. If lands of the refuge are farmed by refuge personnel or hired labor, this should be indicated in the Permittee column.

Permit No. - List the number of the Special Use Permit issued to the individual.

Use or Location - The Unit No. or name specified in the Economic Use Plan should be listed in this column.

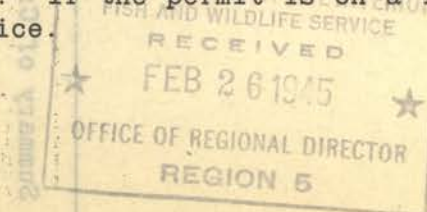
Crops Grown - A separate line of the form should be used for each crop grown by each permittee or by refuge personnel. This is important, since if each crop grown by each operator is not specifically enumerated, the report will be of no value for statistical purposes.

Average Yield per Acre - It is important that the average yield per acre of each crop grown by each operator should be shown.

Permittee's Share - Only the number of acres harvested or utilized by the permittee for his own benefit should be shown under the Acres column, and only the number of bushels of farm crops harvested by the permittee for himself should be shown under the Bushels Harvested column. It is requested that all crops harvested be reduced to bushels wherever possible, or, as in the case with the harvesting of seed such as that of sweet clover, alfalfa, bromegrass, etc., the total harvested crop in pounds may be shown. Timothy, alfalfa, or other hay harvested by the permittee should be shown on Form NR-10 and should not be shown in the Permittee's Share column.

Government's Share or Return - Harvested - Show the number of bushels harvested for the Government and the acreage from which this share is harvested, both for grain raised by refuge personnel and by permittees. Unharvested - show the exact number of acres of crops allowed to remain unharvested as food and cover for wildlife. An estimate of the number of bushels of grain that is available for the wildlife in such unharvested crops should be shown in the Bushels column.

Compensatory Services, or Cash Revenue - Show other services received by the Government in cooperative farming activities, the number of acres of food strips planted for wildlife, the amount of wildlife crops not otherwise reported that are planted by cooperators for the Service, or the cultivation of wildlife plantations. If the permit is on a fee basis, the total cash revenue received by the Service.



Refuge Bombay Hook Year 1944

Species	Collections				Receipts		Total Amounts on Hand	Amount Surplus
	Amount	Date or Period or Collection	Method	Unit Cost	Amount	Source		
	THERE WERE NO SEEDS, ROOTSTOCKS, TREES OR SHRUBS COLLECTED OR RECEIVED IN 1944							

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Refuge Bombay Hook Year 1944

Permittee	Permit No.	Unit or Location	Actual Acreage Utilized	Animal Use Months	Tons of Hay Harvested	Period of use From - To	Rate	Total Income	Remarks
THERE WERE NO HAYING OR GRAZING PERMITS ISSUED IN 1944									

Totals:

Acreage grazed _____ Animal use months _____ Total income Grazing _____

Acreage out for hay _____ Tons of hay cut***** _____ Total income haying _____

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Refuge Bombay Hook Year 1944

Permittee	Permit No.	Unit or Location	Acreage	No. of Units Expressed in B.F., ties, etc.	Rate of Charge	Total Income	Reservations and/or Diameter Limits	Species Cut
THERE WERE NO TIMBER REMOVAL PERMITS ISSUED IN 1944								

Total acreage cut over _____ Total income _____

No. of units removed B. F. _____ Method of slash disposal _____

Cords _____

Ties _____

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