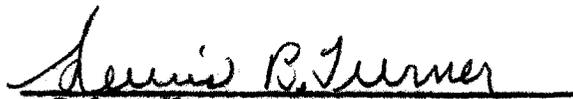


**PEA ISLAND NATIONAL WILDLIFE REFUGE**

**NARRATIVE REPORT**

**SEPTEMBER 1, TO DECEMBER 31, 1952**

Find attached hereto Narrative report covering all activities  
Carried out on the refuge for the period listed above.

  
Dennis B. Turner  
Refuge Manager

# Pea Island National Wildlife Refuge

## Narrative Report

September 1, To Dec. 31, 1952

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## PEA ISLAND NATIONAL WILDLIFE REFUGE

## NARRATIVE REPORT

SEPTEMBER 1, TO DECEMBER 31, 1952

## I, General

A, Weather Conditions

Weather Conditions for the period have been normal or just over normal from a mild standpoint, With a lack of rainfall during the first two months and a plus for the third month, Dec. was far below normal for rainfall.

One severe northeaster occurred Dec 3-5 which is seasonal for this area, winds of 40 to 50 MPH lasted app. 48 hrs. bringing in extreme high tides from the ocean side but causing very little damage except to the new paved road thru the refuge, westerly winds that cause so much trouble have been strangely absent for the period.

Data listed below was furnished by Mrs Dorthy Drinkwater manager of the local weather bureau Station.

	Precipitation		Temperatures	
	Actual	Depart. from Normal	Max	Min
Sept.	1.36	-3.14	83	41
Oct.	1.36	-3.14	83	40
Nov.	11.44	+6.64	77	27
Dec.	1.52	-2.98	72	22
<u>Exk.</u>				
Tot.	<u>15.68</u>	<u>-1.52</u>	<u>83</u>	<u>22</u>

## II WILDLIFE CONT.

A. Migratory Birds1. Population and Behavior

Beginning with the first of the period Pea Island had about the same population of summer Species as has been present for the last two seasons these were mostly, Gulls, Terns, Herons Egrets and Skimmers, Also including a normal or above normal Population of Shore birds and waders, Such as Willets, Yellow legs, Plovers, Turnstones, with most if not all Species of Sandpipers and Sanderlings.

The fall migration of laughing gulls and common terns started on or about Sept. 15 with a steady decline in numbers until by Nov. 30, only Royal terns and Black skimmers were still present, Black skimmers remained until about Dec. 15, when some half dozen were seen for the last time.

The first incoming fall migrants were herring and great black backed gulls, which appeared on or about Oct. 1, and increased by the hundreds for the next three weeks, Black backs showed a small decrease from last winters population with a high count of 180 compared with about 200 last year,

Of the waterfowl family as is usual Blue wing Teal and pie billed Grebes were the first to arrive of the fall migrants, 38 Teal being observed in the south pond Sept. 2, about the same date they arrived last season most of these birds do not remain on the refuge except for a few day when they pass on thru, The peak concentration of this Species was from Sept. 16-20 when there were app. 1100 on the two ponds, Black ducks, Pintails, and Wedgions started coming in Sept 12-15 and on Oct 6, Phillips and myself counted 5800 on the north pond, These increased until by the first week in Nov. the population of all Species had reached a figure of slightly over 20,000, Pintails showed some increase with ruddy off app. 50% The last overall count Dec. 21, Showed a population of 25,000 including a raft of Ring Necks numbering app. 6000, that has been present only about two weeks in the north pond area.

The first Canada geese to arrive numbered 11, coming in on Sept 26, and immediately took up with the flock of 18 which has been present on the refuge for the entire summer, By Nov. 18 app. 6000 had arrived with a peak count on Dec. 21, of app. 8000, This is about the same as for last winter but app. 25% below the population for seasons prior to 51-52 They scattered all over the area and especially in the two ponds but doing most of their feeding in the sound coming back into the ponds and the salt flats for resting and roosting.

Snow Geese were right on schedule the first 400-600 arriving on Nov 26, and increasing almost overnight to 10,000 or slightly over this number has not increased to any extent which leaves us about 2000 short of last seasons Population of 12000 or over, These divided into three main flocks and contrary to previous years about 3000 or over started feeding south of New Inlet along the west side of the salt flats, This is the first time any of this Species has been observed feeding in this Area in the last four years, The snow Geese usually leave Pea Island during the first week in Jan. and go back to upper Currituck sound where they stay

## 1. Population and Behavior Cont.

until about March 1. This year was no exception on the night of Dec 28, over half of the flock took off, And on Dec. 31, there was only about 2500 left on the refuge. In extreme cold weather a small number of these birds have in the past returned to Pea Island, mostly only for a few days, duration.

The first Swan numbering 7, arrived on Oct. 21 and settled down in the south pond where they remained for the next 10 days when the number increased to 110. The peak count was on Nov. 21, of 240 compared with 157 on Dec 3, last year. These birds appear to be a very calm weather bird going out in the sound to feed only on the calmest days and always returning to the two ponds late in the afternoon, on any day that the weather is blustery they can almost always be counted in the two ponds, the whole flock.

Geese arrived along with the pintail and black ducks and during migration the peak count was about 1200 but as the season advanced this number decreased to 300 or less and total wintering population is app. 50% short of last seasons.

No unusual species have been recorded with the exception of one Golden Eagle which arrived along with the first waterfowl and has been a permanent res. of the south pond Area since and is still on hand. We had two of these birds last winter one being an immature the old bird only stayed about three weeks and left but the Immature stayed throughout the winter and it is believed that the one present now is the same Eagle.

Only three Avocets has been observed this winter compared with 11 last year.

## 2. Water Conditions

As stated in Narrative report for the period ending Aug. Water conditions were critical throughout the summer. Some rain occurred during August which brought water levels up to about 5.50 but it was not until the month of Nov. When we had a total of 11.64 inches rain during the month that the ponds came back up to anywhere near normal. This was too late to stimulate Aquatics in the two ponds, but did flood the marginal edges so that waterfowl could utilize the crop of Smartweed millet and three Square that did produce a fair crop of seed even with the drought condition. Levels since Nov 20, have been around the 4.50 to 4.80 mark which is about normal for the ponds. Water conditions in the sound have been very favorable for the growth of grasses native to them. Having had no severe west or south-west winds which causes havoc to plant growth existing in the Shoal waters

No salinity test have been run in the waters this period. (Mr. Baldwin usually runs these test for us and he has not paid a visit this period) but all indications are that the waters in the sound are about normal at 60 to 64% sea strength. One severe N. E. wind occurred Dec. 3-5 bringing in extreme high tides from the ocean side flooding out the low places on the west side of the refuge. The Sand fence along the east side of both ponds held and no salt water entered the ponds.

### 3. Food and Cover

Food on Pea Island is always considered of paramount importance since there seems to be a recurring shortage each winter due to one or more causes. This year the main factor was severe drought conditions during the summer and fall months which resulted in both ponds going dry except for what water was left in the borrow pits, thereby eliminating them as a source of food grasses in the main body. The marginal edges which has three Square, Smartweed and Millet, did produce an almost normal crop.

Beach pea which is an important food item on Pea Island was also retarded due to lack of enough moisture an excellent crop emerged in the early spring but by Aug. at least half of it had died out with the remainder in a very puny condition, upon maturity we estimated about a 50% crop.

Plants were made last season, Based on results obtained from a 6, Acre plot overplanted with ryegrass, to seed out over the best stands of beach pea app. 50 Acres, This was done during the middle of Oct on the old farming area in the north pond planting was done at the rate of 40, lbs to the acre and succeeded in getting up a fair to good stand and due to a very mild season so far has done very well considering the infertility of the soil, since this growth of ryegrass reached a height of about 2, inches a flock of Canada Geese have used on it almost constantly, numbering from 300 to 600, Keeping it browsed down almost bare.

Altho this leaves a lot to be desired in food production it is far better than nothing and future plans include more effort along this line.

Another 65 Acres were reclaimed for food production by killing out a rank growth of Cattail along the east and south sides of the south pond Details of which was quoted in Aug. Narrative, This area was treated during June and a late crop of Smartweed Millet and other seed bearing plants emerged and altho late as stated, matured in time for Waterfowl use this season, And with water levels up to normal this Area is submerged and during Dec. smoo 3000 pintail and Black ducks were giving it a thorough cleaning out.

A controlled burning program has been carried out on the refuge for the last three seasons, App. 480 acres are set up to burn this winter, but due to poor Burn results carried out during the months of Nov.-Dec the program has been modified and all burning will be done during Jan. Weather permitting heretofore to much green Stuff still existed to get good low clean burns which is necessary if the Waterfowl are to get the maximum benefits from the Green Browse that comes out during Feb-March, These are the critical months due to most of all the available foods having been exhausted by about the middle of Jan.

Last survey made in pemlico sound during the last week in Nov. showed the entire 11 mile strip of Shoals along the refuge to have a normal or above normal growth of Native Grasses to be present, With Normal weather Geese can feed a distance of about three miles off shore, Ducks use much closer, but can with east winds feed about two miles off shore, After all is said concerning the food supply at Pea Island the fact remains that the sound Area furnishes up to 75% or more of all food available and with normal weather conditions should remain about constant.

4. Botulism and lead poisoning

None for the period.

5. Other diseases

The disease which has in past years affected the wintering population of Canada Geese at Pea Island in past years and which is now under scientific study, Has not shown up so far this season, No geese has been observed or collected with any symptoms, It is still to early to make any calculations as this condition usually appear during late Jan. and Feb. and running up into ~~the~~ march

6. Upland Game Birds

Does not apply to Pea Island except for an occasional dove.

7. Big game animals

Does not apply to Pea Island

8. Fur bearing Animals

Muskrats on the refuge had an extremely bad condition to contend with during the summer and early fall due to water levels being so low that the entire population moved into or around the borrow pits and took to the tide water creeks, But since water levels have become normal again no noticeable decrease can be noted and the population is still believed to be between 800 and 1000.

Otter shows some sign of increasing, no actual counts of this specie has been attempted due to the wide range they use, Extending from one end of the refuge to the other even along the beach line on the ocean side, evidence of any increase can only be determined by the sign constantly and numbers counted which has run as high as 8, in a bunch, Former estimates have been ~~between~~ 30-40 and this is thought to be conservative.

### III REFUGE DEVELOPMENT AND MAINTENANCE

#### A. Physical Developments

The only new development project undertaken for the period was a new Grease Ramp which has been very badly needed for the last several years for the proper servicing of Gov't owned Equipment.

Enough concrete piling was on hand to erect the foundation, Piling has been placed and cross sills attached, due to difficulty in securing suitable timber for decking this project was not completed this period but we now have the Materials on hand and expect to complete the ramp within the next few days.

The 16, Mile fencing project for which Money has been set up has not been started to date, Due to some controversy as to type of materials to be used and a source of supply of same, It is doubtful if this job can be completed this fiscal year unless we get under way with it at an early date.

#### B. Maintenance

This phase of activity has accounted for the major portion of the refuge personnel's time this period \$500.00 was set up for the rehabilitation of Gov't owned buildings on the refuge, Mostly weatherboarding the buildings with white asbestos shingles, Materials was purchased and hauled in, First job was the removal of all old cracked and scaled off paint on the overnight cabin, Repair of Doors windows and screens, and the appliance of two coats of lead and oil paint, This has been completed, When we started weatherboarding the service building it was found necessary to make repairs to the south end of the building, Rotted out studding and bottom sills were removed and replaced with sound timbers, Two new doors was built and hung, Weatherboarding has been applied on three sides of this building leaving one end yet to be finished and repairs made to the 6 windows, This job about 75% complete, Leaving the Mess hall building to be overhauled in its entirety.

Maintenance has been carried out on all Refuge Equipment on a systematic Schedule, Both pickup trucks has been repainted, Repairs made on the tractor and light plant and farming machinery kept serviced up The skiff boat hauled out and a coat of paint applied to the bottom,

App. 11 miles of fire line has been replowed for the second time this season to facilitate the easy burning of marsh when the weather is suitable during Jan.

#### C. Farming

No extensive farming program has been carried this period and with the exceptions of the 52, Acres mentioned and more fully covered under food and cover there is nothing more to report.

#### IV. ECONOMIC USES

##### A. Commercial

None for the period with the exceptions of Mr. J. B. Tillett's Concession on the north end of the Island, Who's Establishment is almost complete and he expects to open for business on or about April 15,

#### V. FIELD INVESTIGATION AND APPLIED RESEARCH

##### A. Goose disease study

The Goose disease study which is entering its third year is being continued this winter with a limited amount of field work being carried on by refuge Personnel, Contrary to last season when this program kept all hands busy seven days a week, We are only required to keep all trapping sites baited and assist Mr. Steenis when he catches so many Geese he cannot handle them alone, This activity requires app. 20, Hrs a week and up to date app. 160 Geese have been trapped and banded.

#### VI. Public Relations

##### A. Publicity

During this period all assistance possible was given to three professional Photographers in securing pictures of Wildlife in general and especially of the flocks of Snow Geese to be used in the Illustration of feature articles concerning Pea Island Mr. Jack Dermid was here two days securing pictures for his article which will appear in N. C. Wildlife Jan or Feb, this is the monthly magazine issued by the N. C. Wildlife resources Comm. and with whom Mr. Dermid is ~~xxxxx~~ associated.

Mr. Gus Martin who is associated with the Publicity Div. State dept. of Conservation and Development Raleigh secured pictures of the Snow Geese for the illustration of an article to be published in the News Papers it should be in print now or in the very near future the article was written up by Miriam Rabb who is also with this Department.

Mr. W. F. Kubiehek also spent about three days making Movies and Still of the Snow Geese and other subjects to be used in our service's Program.

Several request from in and out of State for information concerning the nature of the refuge, Species, Populations etc have been filled and casual visitors have been very numerous.

##### B. Recreational

The usual flux of surf fishermen showed up during the months of Oct. and Nov. to try their luck with the channel bass running into the hundreds, Exceeding that of last year abot 40% or more, There was a good run of Channel bass along the Coast but strange to say most of the fish

B. Recreational Cont.

Caught was taken south of the refuge, Extending from Salvo south to Hatteras, Some partys catching up to 200 lbs in one days fishing, no daily check was attempted to determine the actual number of fishermen but information based on periodic checks is the basis for our estimate of man days of fishing for the period.

Estimated man days of fishing for this period, 900

Sight seeing parties were very numerous especially after the waterfowl began to arrive, the Snow geese attracting the most of the attention, In fact the visitor list has become so long it is impossible to list them all in the visitors Schedule and it is planned to set up some kind of registration system in the near future so that numbers can be reported rather than individuals for any given period.

C. Violations

No Violations of a serious nature have occurred for the period, one Sign was erected on refuge land along the new highway advertising a certain Hotel at Avon on the Banks, The owner was notified to remove the sign within ten days, since this request was complied with no futher action was taken in the matter.

Approved: 18/C.V.J.  
Act. Regional Wildlife Supervisor

Jan. 12, 1953

## VI, PUBLIC RELATIONS CONT.

D, Visitors

## OFFICIAL

Drs. Martin & Uhler	10/23/52	Washington, D. C.
Mr. Richard E. Griffith & Party	10/24-26/52	Washington, D. C.
Mr. Howard E. Miller	10/26/52	Atlanta, Ga.
Mr. L. S. Givens	10/26/52	" "
Dr. Carlton E. Korman	11/18/52	Laurel, Md.
Dr. Joseph Lindusky	12/11/52	Washington, D. C.
Mr. Alastair McEain	12/11/52	" "
Mr. Robert Halstead	12/11/52	Washington, N. C.
Mr. W. F. Kubichek	12/18-21/52	Washington, D. C.

## UNOFFICIAL

Miss Fasten Cook & Party	10/20/52	Washington, D. C.
Mr. Jack Dermid	12/10/52	Raleigh, N. C.
Mrs. Miriam Rabb	12/19/52	" "
Mr. Gus Martin	12/19/52	" "
Prof. Allen & Kellogg	12/22/52	Cornell, University
Dr. & Mrs Abercrombie	12/30/52	Atlanta, Ga.

REFUGE Pog Island

## WATERFOWL

MONTHS OF Sept. 1. to Dec. 31, 19 52

(1) Species Common Name	(2) First Migrants Seen		(3) Peak Concentration		(4) Last Migrants Seen		(5) Young Produced		(6) Estimated Waterfowl Days
	Number	Date	Number	Inclusive Dates	Number	Date	Broods Seen	Estimated Total	
1. <u>Swans:</u> Whistling swan	7	10/26	240	11/21					11.700
2. <u>Geese:</u> Canada goose	11	9/26	8000	12/21					520.000
Cackling goose									
Brant									
White-fronted goose									
Snow goose	3	11/14	11000	12/18					414.000
Blue goose									
3. <u>Ducks:</u> Mallard	17	10/26	72	12/21					3.250
Black Duck	Res.		6000	12/21					390.000
Gadwall	Res.		900	12/21					58.000
Baldpate	7	10/26	700	12/21					45.500
Pintail	21	9/8	5800	11/6					320.000
Green-winged teal	18	10/26	430	12/21					26.000
Blue-winged teal	38	7/26	1100	8/21					71.500
Cinnamon teal									
Shoveller	3	10/26	300	12/21					
Wood duck									
Redhead									
Ring-necked duck	80	10/26	7000	12/21					280.000
Canvas-back									
Scaup	4	10/26	300	12/21					52.000
Golden-eye									
Buffle-head									
Ruddy duck	9	10/26	700	12/21					
4. <u>Coot:</u>	60	9/8	800	12/21					52.000

3-1750

(Aug. 1952)

(over)

Form NR-1

Total Production:

Geese 0

Ducks 0

Coots 0

SUMMARIES

Total waterfowl days use during period 2,294.850 Dec.10-21

Peak waterfowl numbers 42.882

Areas used by concentrations Entire Refuge Area

Principal nesting areas this season Does not Apply

No. of inventories this period 7 % of refuge covered 80

Reported by Lewis B. Turner

INSTRUCTIONS (See Sec. 7532, Wildlife Refuges Field Manual)

- (1) Species: In addition to the birds listed on form, other species occurring on refuge during the reporting period should be added in appropriate spaces. Special attention should be given to those species of local and National significance.
- (2) First Seen: The first refuge record for the species during the reporting period, and the number seen. This column does not apply to resident species.
- (3) Peak Concentration: Estimated number and inclusive dates when peak population of the species occurred.
- (4) Last Seen: The last refuge record for the species during the reporting period.
- (5) Young Produced: Estimated number of young produced based on observations and actual counts on representative breeding areas. Brood counts should be made on two or more areas aggregating 10% of the breeding habitat. Estimates having no basis in fact should be omitted.
- (6) Total: Estimated waterfowl days use (average population X no. of days present) of refuge for reporting period based. (See Sec. 7532, Wildlife Refuges Field Manual.)

Note: Only columns applicable to the reporting period should be used. It is desirable that the Summaries receive careful attention since these data are necessarily based on an analysis of the rest of the form.

3-1751  
Form NR-1A  
(Nov. 1945)

MIGRATORY BIRDS  
(other than waterfowl)

Refuge Pea Island

Months of Sept. 1, to Dec. 31, 1952 194

(1) Species  Common Name	(2) First Seen		(3) Peak Numbers		(4) Last Seen		(5) Production			(6) Total Estimated Number
	Number	Date	Number	Date	Number	Date	Number Colonies	Total # Nests	Total Young	
<b>I. Water and Marsh Birds:</b>										
Cormorants	25	9/18	104	9/26	18	10/22				150
Egrets, Snowy	Sum. Res.		38	9/26	3	11/2				40
" American	" "		20	9/26	1	10/21				25
Heron, Louisiana	" "		35	9/26	2	11/28				40
" Great Blue	" "		8	9/26	1	11/28				10
" Black Crowned	Res.		185	9/26	26	11/28				200
" Yellow Crowned	Res.		140	9/26	12	11/28				150
Grebes, Pie-billed	55	9/2	260	9/26	42	12/21				300
" Horned	4	9/2	6	9/26	2	12/21				6
Loons, Common	9	9/2	14	9/26	12	12/21				20
<b>II. Shorebirds, Gulls and Terns:</b>										
Willetts	Sum. Res.		170	9/26	3	10/21				380
Plovers, Black Belly	4	9/2	65	9/26	40	10/21				100
" Wilson	Sum. Res.		100	9/26	30	10/21				200
Yellow Legs, Greater-Legs	Sum. Res.		300	9/26	30	12/21				400
Sandpipers, All Species	Sum. Res.		4500	9/26/52	200	10/21				5000
Terns, Royal	Sum. Res.		450	9/26	30	11/24				800
" Common	Sum. Res.		800	9/26	100	10/21				1500
" Sooty	40	9/2	1200	9/26	200	10/21				1500
Gulls, Laughing	Sum. Res.		4000	9/26	185	10/21				5000
" Herring	Res.		5000	9/26	Still Here					5000
" Ring Bill	Res.		800	9/26	Still Here					1000
" Great Black Backed	16	10/2	180	10/28	Still Here					200
Gannets	600	10/2	3000	10/28	400	11/24				5000

(over)

(1)	(2)		(3)		(4)	(5)		(6)
III. <u>Doves and Pigeons</u> :								
Mourning dove	<b>Only Seen occasionally</b>							
White-winged dove								
IV. <u>Predaceous Birds</u> :								
Golden eagle	1	9/2	1	12/21				1
Duck hawk	2	9/2	6	12/21				2
Horned owl								
Magpie								
Raven								
Crow								
								22,280
								Reported by <u>Lewis B. Turner</u>

#### INSTRUCTIONS

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

3-1752  
 Form NR-2  
 (April 1946)

UPLAND GAME BIRDS

1613

Refuge Pea Island Months of Sept. 1 to Dec. 31, 1952

(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'v'd.	Estimated Total	Percentage	Hunting	For Re- stocking	For Research	Estimated number using Refuge	Pertinent information not specifically requested. List introductions here.
Does not apply to Pea Island Refuge except an occasional few Doves migrating thru										

## 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.

3-1753  
Form NR-3  
(June 1945)

BIG GAME

Refuge Pea Island

Calendar Year 1952

(1) Species	(2) Density	(3) Young Produced	(4) Removals				(5) Losses			(6) Introductions	(7) Estimated Total Refuge Population		(8) Sex Ratio
			Hunting	For Re- stocking	Sold	For Research	Predation	Disease	Winter Loss		Number	Source	
Common Name	Cover types, total Acreage of Habitat	Number											
Does not Apply to Pea Island Refuge													

Remarks:

Reported by

## 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:** 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 at period of its greatest abundance and also as of Dec. 31.
- (8) **SEX RATIO:** Indicate the percentage of males and females of each species as determined from field observations or through removals.

3-1754  
Form NR-4  
(June 1945)

SMALL MAMMALS

Refuge Pea Island Refuge Year ending ~~XXXXXX~~ Dec. 31, 1952

(1) Species	(2) Density		(3) Removals					(4) Disposition of Furs					(5) Total Popula- tion
			Hunting	Fur Harvest	Predator Control *	For Re- stocking	For Re- search	Share Trapping			Total Refuges Furs Shipped	Furs Donated	
Common Name	Cover Types & Total Acreage of Habitat	Acres Per Animal						Permit Number	Trappers Share	Refuge share			
Muskrats	700, Cattail Three Square 9/10												
Otter	Total Area, 5000 Acres Salt and Fresh water 115												

\* List removals by Predator Animal Hunter

REMARKS:

Reported by

## INSTRUCTIONS

Form NR-4 - SMALL MAMMALS (Include data on all species of importance in the management program; i. e., muskrats, beaver, coon, mink, coyote. Data on small rodents may be omitted except for estimated total population of each species considered in control operations.)

- (1) SPECIES: Use correct common name. Example: Striped skunk, spotted skunk, short-tailed weasel, gray squirrel, fox squirrel, white-tailed jackrabbit, etc. (Accepted common names in current use are found in the "Field Book of North American Mammals" by H. E. Anthony and the "Manual of the Vertebrate Animals of the Northeastern United States" by David Starr Jordan.)
  - (2) DENSITY: Applies particularly to those species considered in removal programs. 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, bottom land 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) REMOVALS: Indicate the total number under each category removed since April 30 of the previous year, including any taken on the refuge by Service Predatory Animal Hunter. Also show any removals not falling under headings listed.
  - (4) DISPOSITION OF FUR: On share-trapped furs list the permit number, trapper's share, and refuge share. Indicate the number of pelts shipped to market, including furs taken by Service personnel. Total number of pelts of each species destroyed because of unprimeness or damaged condition, and furs donated to institutions or other agencies should be shown in the column provided.
  - (5) TOTAL POPULATION: Estimated total population of each species reported on as of April 30.
- REMARKS: Indicate inventory method(s) used, size of sample area(s), introductions, and any other pertinent information not specifically requested.

Refuge Pea Island

Year 1945

Botulism

Lead Poisoning or other Disease

Period of outbreak None for the period

Kind of disease None for the period

Period of heaviest losses \_\_\_\_\_

Species affected \_\_\_\_\_

Losses:

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

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

Number Hospitalized      No. Recovered      % Recovered

Number Recovered \_\_\_\_\_

(a) Waterfowl	_____	_____
(b) Shorebirds	_____	_____
(c) Other	_____	_____

Number lost \_\_\_\_\_

Source of infection \_\_\_\_\_

Areas affected (location and approximate acreage) \_\_\_\_\_

Water conditions Good

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

Food conditions Poor

Condition of vegetation and invertebrate life \_\_\_\_\_

Remarks No diseases to report for this period

Remarks \_\_\_\_\_

3-1756  
 Form NR-6  
 (April 1946)

FISH

Refuge..... Pea Island..... Sept. 1. To Dec. 31...... Year 194 52

Species	Relative Abundance	Sport Fishing		Commercial Fishing		Restocking		Number removed for Restocking
		Man days Fishing	Number Taken	No. of Permits	Pounds Taken	Number Stocked	Area Stocked	
<b>Channel Bass Blue Fish Flounder</b>	<b>Poor</b>	<b>900</b>	<b>?</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>

REMARKS:

PLANTINGS  
(Marsh - Aquatic - Upland)

Refuge Pea Island Year 1952

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
None for the period								

TOTAL ACREAGE PLANTED:

Marsh and aquatic 0  
 Hedgerows, cover patches 0  
 Food strips, food patches 0  
 Forest plantings 0



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.

3-1570  
NR-8a

REFUGE GRAIN REPORT

Refuge Pea Island

Months of Sept. 1, thru Dec. 31 1948

(1) VARIETY	(2) ON HAND BEGINNING OF PERIOD	(3) RECEIVED DURING PERIOD	(4) TOTAL	(5) GRAIN DISPOSED OF			(6) ON HAND END OF PERIOD	(7) PROPOSED USE			
				TRANS- FERRED	SEEDED	FED		TOTAL	SEED	FEED	SURP.
Shelled Yellow Corn	None	9.500 lbs	9.500 lbs			Trapping	6000 lbs	3500 lbs		Trapping	

- (8) Indicate shipping or collection points Brigantine Refuge, New Jersey
- (9) Grain is stored at Sub Head Quarters Pea Island
- (10) Remarks \_\_\_\_\_

## REFUGE GRAIN REPORT

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

Report all grain in bushels. For the purpose of this report the following approximate weights of grain shall be considered equivalent to a bushel: Corn (shelled)--55 lbs., Corn (ear)--70 lbs., Wheat--60 lbs., Barley--50 lbs., Rye--55 lbs., Oats--30 lbs., Soy Beans--60 lbs., Millet--50 lbs., Cowpeas--60 lbs., and Mixed--50 lbs. In computing volume of granaries, multiply the cubic contents (cu. ft.) by 0.8 bushels.

- (1) List each type of grain separately: Corn, wheat, proso millet, etc. Include only domestic grains; aquatic and other seeds will be listed on NR-9.
- (3) Report all grain received during period from all sources, such as transfer, share-cropping, or harvest from food patches.
- (4) A total of Columns 2 and 3.
- (6) Column 4 less Column 5.
- (7) This is a proposed breakdown by varieties of grain listed in Column 6.
- (8) Nearest railroad station for shipping and receiving.
- (9) Where stored on refuge: "Headquarters grainary", etc.
- (10) Indicate here the source of grain shipped in, destination of grain transferred, data on condition of grain, unusual uses proposed.



3-1760  
 Form NR-10  
 (April 1946)

HAYING AND GRAZING

Refuge Pea Island Refuge Year 1945

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
<b>XXX</b>									
<b>Does not apply to Pea Island Refuge</b>									

Totals:

Acreage grazed..... Animal use months..... Total income Grazing.....  
 Acreage cut for hay..... Tons of hay cut..... Total income Haying.....

Regional Director, Atlanta, Ga

Sept. 10, 1952

Refuge Manager, Pea Island, Manteo, N. C.

**Narrative Report**

Please find submitted herewith Narrative report covering the period May 1, thru August 31, 1952. for Pea Island, It is thought to cover about all activities carried on for the period.

It is regretted that it is a day or so late, but due to Mr. Phillips's absence on Vacation and extra work load connected there with it was impossible to meet the deadline without neglecting the refuge.

  
Dennis R. Turner  
Refuge Manager

PEA ISLAND NATIONAL WILDLIFE REFUGE  
NARRATIVE REPORT  
MAY 1, TO AUGUST 31, 1952

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NARRATIVE REPORT

MAY 1, TO AUGUST 31, 1952

I, GENERAL

A, Weather conditions

Weather for this period have seen Extremes for both high temperatures and low Rainfall, As a matter of fact it was one of the worst summers on record, With several days in july exceeding the 100 mark for heat, Which is most unusual for this Coastal area, Rainfall was almost non-existent thru may with june and july following a close second with Aug. somewhat better but still far below normal.

Pea Island was no exception from the rest of the southeastern belt to feel a severe drought through the summer months, No hurricanes has occurred up until Aug 31, but at present there is a severe one heading up the atlantic Coast .

Data listed in the table below was furnished by the local Metrological Station located in Manteo, And covers the preceeding four months

	Precipitation	Dept.from Normal	Temperatures	
	Actual		Max.	Min.
May	1.10	-3.40	89	47
June	.88	-3.62	98	55
July	2.45	-2.05	102	65
Aug.	<u>3.14</u>	<u>-1.36</u>	<u>91</u>	<u>65</u>
	Tot. 7.57	Tot. -10.43	Max.102	Min.47

B, Water Conditions

With the low rainfall as indicated above the water conditions in the two impoundments were even more critical than last year, Both ponds going completely dry except the borrow pits which retained some water but were very low and stagnant.

Guage readings for the month ending Aug. was north pond ~~were~~ 3.52 south pond 3.30, No data is available on salinity but is assumed to be high due to such low water levels.

Water conditions in the sound was much better remaining almost constant as to tidal action having had no high winds to activate it Salinity must be higher than normal due to such low runoff of Rivers during the drought months, No test have been run on this factor.

1. Population and behavior

The refuge area started of the period may 1, with app. 100 Canada Geese remaining this number slowly decreased until about June 15, there were only 18, remaining these stayed all summer and are still using the north pond and vicinity, a curious fact is that we seem never to lose a summer resident goose if we start off with a certain number that number can be accounted for until Fall migration begins again.

Nesting Gadwall and black ducks showed a slight increase over last summer with 95 broods of Gadwalls averaging 7 young to the brood with a total 665 compared to 619 last season.

There were 23 broods of black ducks averaging 6, to the brood with a total of 138 compared to 128 last year, No Blue wing teal nested on the area this season, But 3 pair of American mergansers paired off and showed every indication of nesting but no nest were ever found and no young were observed, These birds was using in the south pond and remained until well up in August, but have not been seen recently.

The first fall migrating ducks to ~~have~~ be seen were Blue wing teal 32 having arrived on Aug. 16, and were observed in the north pond, Several other flocks ranging in numbers from 8, to 20, have also been seen since, Quite a few Pie bill Grebes arrived Aug. 22, and are still on the Area.

Gulls, Terns, Herons and Egrets were present on the Refuge in about their usual numbers throughout the period, Nesting during the months of June and July in the same locality as last season, Estimates for laughing Gulls nesting were 1600 compared with 2000 last season.

Snowy Egrets, Little blue herons, and Louisiana herons as last year nested along side the laughing Gulls, they also showed a small decrease, Black and yellow crowned Night Herons were more plentiful with over 50 nest in the rank growth of wax myrtle along the west side of the south ponds

Shore birds arrived mostly during the month of April reaching a peak about the 10th. of May, and have been present in large numbers for the entire period, Consisting of the following species, Willets, Yellow legs, Plovers, Turnstones, Sanderlings and all species of sandpipers, The only species of this group known to nest on the refuge are Willets no estimates are available as to the number that hatch off, Hudsonian Curlews have been strangely absent this season having only been seen about a dozen or so thru the period,

Contrary to last year Avocets did not show up on schedule, None arrived until Aug. 24, When 3, were seen in the south pond they only remained for three days and have not been seen since, 11 of this species stayed on the refuge for several weeks last year.

The only other unusual birds that occurred on the refuge during this period was 7, Glossy Ibis which used in the south pond from May 15, to about July 30, and then moved on elsewhere.

2 Food and Cover

With the extreme dry weather that prevailed thru most of the summer months the food outlook does not look very favorable, Since both ponds went dry and the grasses and pond weed native to both of them dried up and bleached out it is doubtful if the available food supply in the open water areas will be over 40% of normal in past years,

The marginal edges did not suffer to such an extent and most of these carry very good stands of Smartweed, Three Square, and some wild millet, Beach Pea is not so abundant as last year on the higher flats and dunes and it suffered for rain also, But with late rains it has improved somewhat, and look at the present time as if we will have near a normal crops of this specie.

On the other hand surveys taken over the sound in the past eight weeks show that the Aquatic vegetative growths over most of the Area is normal or better Especially along the south end of the refuge, where the last survey taken on Aug. 25th disclosed that the flats carry an estimated 70% coverage for a distance of over three miles off shore, Mostly Shoal Grass, Widgeon Grass, with a scattering of small patches of Eel grass, This specie shows very little increase in Area from year to year contrary to reports covering some other portions of pamlico and currituck sounds.

Plans are already underway to seed out ~~APP~~ 60 acres of Rye Grass over the beach pea stands on the old farming sites, about the third week in Oct. or sooner if maturity of Beach Pea will allow, Also plans are to burn about 400 Acres of Spartina marsh later in the winter to provide late winter browse, Mostly needed during the last two weeks of Jan. Feb. and March.

If our rye grass seeding and burning program is anywhere near successful, enough supplemental food should be available to compensate for the lack in the pond Areas.

Cover on Pea Island is of secondary importance since it is considered adequate for all Species, For nesting and other purposes.

3 Botulism and other diseases

None occurring on the refuge for this period.

4 Fur Bearing Animals

The only fur bearers on the refuge is muskrats, Otter and one or two nutria, The muskrats suffered during the first three months of the period due to such low water in both ponds, There being no water at all over the marginal edges where the rats obtain most of their food, Most of them moved into the borrow pits where they could be seen in great numbers and at times could be seen ranging at least one half mile from the nearest water in search of food it is assumed that the estimated population of 800 to 900 decreased somewhat, but the percentage of loss would be any body's guess.

4. Fur bearing Animals Cont.

The Otter population estimated at about 40 did not suffer as a result of the low water condition since all the fish in the two ponds were concentrated in the borrow pits and the otter had a field day. They are also known to range all the tide water creeks along the western shore of the Refuge and if conditions are not favorable in the fresh water ponds they simply move on to other territory.

The one single Nutria caught in a duck trap two winters ago has only been seen once since and it was thought that it had moved on else where, But in the Cattail cutting operation with the tractor and cutter we flushed out two, One female and one half grown, So now we know that we have at least two and probably more since it takes a pair to reproduce, In the future these will be closely checked to determine the rate of increase if any.

III. Refuge Development and Maint

A. No new development programs were carried out this period unless some of those listed under Maint. could be classified as Development.

B. Maintenance

Perhaps some of the Items listed below should have been reported under Physical Developments but since they are a continuation of programs already established they will be reported under Maint.

This has been an unusually busy period for the refuge personnel and at times it seemed that we could not keep abreast of the work program.

During may the entire water boundary was reposted along the western line of the refuge. This operation consisted of jetting down Piling and attaching signs and reflectors, Reflectors being circular around the top of the piling app. 12 X 17 inches. The major portion of the work involved in this project was establishing location Stakes for the piling, The line being so far off shore that signals could not be seen and most of the locations had to be established by running in intersecting lines from shore.

In addition to the above the entire 12.33 miles of new state highway was posted with 4 X 6 X 7, Ft crescented post with standard refuge Shields attached. These were placed 8 to the mile, All old signs were dug out and hauled to the service building.

During the month of June and the first week of July App. 65 Acres of rank Cattail growth were cut down with the heavy duty stalk cutter and Cletrac tractor, around the eastern and south side of the south pond with a few random patches ~~xx~~ along the west side, With the low water it was possible to cut over more than 95% of the total stand in the Area.

Further results of this operation will be found in an appendix ~~found~~ in the back of this report.

Another project that required considerable time was replowing app. 13 miles of fire line

B. Maintenance Cont.

it has been found necessary to cultivate these line at least two times a year if they are to be kept in a fool proof condition, and will have to be plowed again during Nov. or Dec.

The regular schedule of maintenance have been carried on on all the Refuge Equipment such as trucks, Tractor, Light plant, Water pumps etc. which is no small Item within itself.

C. Fires, Wild or other wise

no fires have ocured on the refuge for this period.

D. Farming or other plantings

No farming was carried on on the refuge this period except app. two acres of Chufas was planted out april 26 on an experimental basis the results of which was null and void, We obtained about an 85% stand but when they were about 4, Inches high the severe drought conditions just burned them up, Altho they were planted on the north end of the old farming site on a fairly low flat, At present not over 3% survive and they did not produce any tubers to mention.

IV, Economic uses

- A. None for the period., except Initial payment on J. B. Tillett's new Concession contract

V, Field investigation and research

- A. Except for periodic Brood counts involving Black and Gadwall ducks, and Surveys of the sound and other food producing Areas on the refuge very little work was done in this phase of management, Mostly due to the tight work schedule for the summer.

VI, Public Relations

A. Recreational uses

With the completion of the last 12 mile leg of the hatteras paved highway thru the refuge and opened to traffic on or about June 15, there has been from 200 to 350 vehicles ferried across Oregon Inlet ~~xxxx~~ almost daily, With some weekend days even more, while most of these continued on to Hatteras and return mostly sightseeing, large numbers used the beach for surf fishing and bathing some days the partys fishing would exceed the 100 mark and altho fishing have not been so good as last year most of the partys caught fish of one kind or another, Drum have been exceeding scarce and the blue fish running in small size, No accurate data is available as to number of pounds or fish taken, Altho at least three partys carried out catches weighing over 100 lbs. for the day, Sun and water bathing was popular around the north end of the Island with some overnight camping in the

A, Recreational Uses Cont.

public use Area, We did not succeed in getting this area properly posted for this season and some confusion arose as to just where camping was permitted and prohibited, With the Area properly posted and the public acquainted with it we can expect large numbers for next season.

B, Violations

No Violations of a serious nature have occurred, Some of the more Ambitious citizens living on south of the Refuge around Avon and Buxton hauled off 108 pieces of landing Mats from the abandoned Ramps over the Dykes, These were located and the the partys notified to return them or face prosecution, The mats were hauled back and stacked at the Refuge Station within about six Hours, No legal action were taken as our request was complied with.

VI, Public Relations Cont.C, Visitors

## Official

Mr. Cook, Regional Engineer	5/14/52	Atlanta, Ga.
Mr. Gray " Draftsman	5/14/52	Atlanta, Ga.
Mr. Carl E Fermanich	7/20/52	Atlanta, Ga.
Mr. William P. Baldwin	7/20/52	Port Wentworth, Ga.
Mr. Robert Hines	7/22/52	Washington, D. C.
Mr. Paul Sturm	8/29/52	McClellandville, S. C.
Mr. H. A. Jenson	8/30/52	London, England

## Unofficial

Dr. John Gray	7/16/52	Raleigh, N. C.
Mr. Harry T. Davis	7/16/52	Williamsburg, Va.
Mr. Douglas Wade and Family	8/19/52	Clemments, S. C.

## Appendix No. 1 Cattail Eradication

The idea of using a heavy duty Stalk Cutter for the control of cattail and other undesirable plants was the outgrowth of former trials by the use of Bush and Bog plows and other mechanical means some of which has been successful and some of which has not.

The main difficulty encountered with plows heavy enough to do the job is that when soft or boggy ground was reached the plow usually bog down to such an extent that the tractor start spinning the tracks and also miredown this limited its use to the higher marginal edges with uncertain results, It was believed that some piece of Equipment that would have a rolling and chopping action would accomplish the same results and still remain up on the surface thus making it possible to operate in grounds not heretofore possible.

We accordingly put the Idea into effect, the Stalk Cutter used was a John-Deere, Mod. 207 weighing 630 lbs. with app. ~~1000~~ 700 lbs of added weight, Even this much weight will not cut completely thru rank growths of Cattail, but will lay it down in a solid mass and mangle up the stems so that they sour and decay sets in, The ranker the growth the better the results obtained.

The low water levels in the pond made for an ideal condition and we had little difficulty in operating over 95% of the area to be treated the exception being a small gut or creek in the south end of the pond where it was so mushy that the tractor would hardly stand up with load detached.

App. 65 Acres was cut over during the last two weeks of June and the first week in July, The rate of cut was about 5 Acres for a 8 hour work day, a check plot of app.  $2\frac{1}{2}$  acres was cut over the second time one month later, and half of this check plot was cut over again on Aug. 27 at the present time the original cutover has a survival of app. 15% the second cutover area 8 to 10 percent with the third cutover plot showing none standing.

We have no hope of a complete killout with one summers treatment but to hold it in check and open up land that does not produce feed, The remaining few Cattail left will not seed out before frost kills it down, we had hoped to bring in Wild Millet and smartweed over this area, and did obtain some very good stands of Smartweed but no Millet emerged, The Smartweed will be late in maturing but will mature about first frost if not before.

End results will not be known before next spring when we get reaction from root stocks remaining alive further information will be furnished in Results of Operation, Pest plant Mechanical treatment control due Nov. 30 report.

WATERFOWL

Refuge Pea Island, Manteo, N. C. Months of May 1, to Aug. 31, 19 52

(1) Species	(2) First Seen		(3) Peak Concentration		(4) Last Seen		(5) Young Produced		(6) Total
	Number	Date	Number	Date	Number	Date	Broods Seen	Estimated Total	Estimated for period
I. <u>Swans:</u> Whistling swan									
II. <u>Geese:</u> Canada goose Cackling goose Brant White-fronted goose Snow goose Blue goose			100	May 1,	18	Aug. 25	0	0	18
III. <u>Ducks:</u> Mallard Black duck Gadwall Baldpate Pintail Green-winged teal Blue-winged teal Cinnamon teal Shoveller Wood duck Redhead Ring-necked duck Canvas-back Scaup Golden-eye Buffle-head Ruddy duck	Res. Res.		162 760	June 14, July 24,	90 460	Aug. 25 Aug. 25	23 95	138 665	250 850
IV. <u>Coot:</u>			40	May 11,	3	June 1,	0	0	0

### SUMMARIES

Dates waterfowl counts made 20 day intervals thru nesting season Total waterfowl usage during period 920  
Percent of waterfowl area covered App. 90 Peak waterfowl numbers 1200  
Dates brood counts made Same as brood Waterfowl Counts Areas used by concentrations Two pond Areas  
Percent of area covered in brood counts 90  
Total production: Principal nesting areas this season North and south pond  
Geese 0  
Ducks 803  
Coots 0 Reported by Lewis B. Turner

### INSTRUCTIONS

- (1) Species: In addition to the birds listed on form, other species occurring on refuge during the reporting period should be added in appropriate spaces. Special attention should be given to those species of local and National significance.
- (2) First seen: The first refuge record for the species during the season concerned in the reporting period, and the number seen. This column does not apply to resident species.
- (3) Peak concentration: The greatest number of the species present in a limited interval of time.
- (4) Last seen: The last refuge record for the species during the season concerned in the reporting period.
- (5) Young produced: Estimated number of young produced based on observations and actual counts on representative breeding areas. Brood counts should be made on two or more areas aggregating 10% of the breeding habitat. Estimates having no basis in fact should be omitted.
- (6) 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 nature of the migrational movement.

Note: Only columns applicable to the reporting period should be used. It is desirable that the Summaries receive careful attention since the data are necessarily based on an analysis of the rest of the form.

3-1751

Form NR-1A  
(Nov. 1945)MIGRATORY BIRDS  
(other than waterfowl)Refuge Pea Island, Manteo, N. C. Months of May 1, to Aug. 31, 19452

(1) Species Common Name	(2) First Seen		(3) Peak Numbers		(4) Last Seen		(5) Production			(6) Total Estimated Number	
	Number	Date	Number	Date	Number	Date	Number Colonies	Total # Nests	Total Young		
<b>I. Water and Marsh Birds:</b>											
Grebes, Piebill	8	8/22/52	8	8/22/52	Still here						
Pelicans, Brown	16	5/11/52	54	6/10/52	4	8/25/52	0	0	0	100	
Egrets, American	9	5/11/52	60	6/10/52	40	8/25/52	0	0	0	90	
" Snowy	16	5/11/52	134	6/10/52	61	8/25/52	1	14	45	160	
Rails, Clapper	Res. Seen throughout the year no accurate data available										
Hercans, Great blue	5	5/11/52	13	6/10/52	4	8/25/52	0	0	0	13	
" Little Blue	12	5/11/52	40	6/10/52	11	8/25/52	1	9	30	65	
" Louisiana	3	5/11/52	50	6/10/52	21	8/25/52	1	16	45	80	
" Black Crowned	Res. Seen throughout the year										
" Yellow Crowned	Res. Seen throughout the year										
<b>II. Shorebirds, Gulls and Terns:</b>											
Flowers Semipalmated	200	5/11/52	800	6/10/52	350	7/30/52	0	0	0	2000	
" Black belly	30	5/11/52	255	6/10/52	30	7/30/52	0	0	0	350	
Turnstones, Rudy	165	5/11/52	1000	6/10/52	420	7/30/52	0	0	0	1200	
Willetts,	11	5/11/52	100	6/10/52	17	7/30/52	No data on nesting			150	
Yellow Legs, Great.&Less	73	5/11/52	900	6/10/52	128	7/30/52	0	0	0	1400	
Dowitchers,	3	5/11/52	400	6/10/52	45	7/30/52	0	0	0	550	
Sandpipers, All Species	540	5/11/52	4000	6/10/52	650	7/30/52	0	0	0	5500	
Gulls, Herring	1100	5/11/52	2500	5/28/52	120	7/30/52	0	0	0	3000	
" Laughing	450	5/11/52	4000	6/10/52	1100	8/25/52	3	Est. 1600	2000	4500g	
Terns, Royal	30	5/11/52	400	6/10/52	55	8/25/52	1	Est 60	150	600	
" Common	44	5/11/52	550	6/10/52	50	8/25/52	0	0	0	700	
" Least	65	5/11/52	750	6/10/52	85	8/25/52	0	0	0	1000	
Skimmers, Black	5	5/11/52	350	6/10/52	120	8/25/52	1	80	100	400	

(1)	(2)	(3)	(4)	(5)	(6)
III. <u>Doves and Pigeons</u> : Mourning dove White-winged dove					
IV. <u>Predaceous Birds</u> : Golden eagle Duck hawk Horned owl Magpie Raven Crow	Crows seen in small numbers thru this period, but mostly during the winter months Otherwise does not apply.				
					Reported by <u>Lewis B. Turner</u>

#### INSTRUCTIONS

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

3-1752  
 Form NR-2  
 (April 1946)

UPLAND GAME BIRDS

Refuge Pea Island, Manteo, N. C. Months of May 1. to Aug. 31., 19452

(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'v'd. Estimated Total	Percentage	Hunting	For Re- stocking	For Research	Estimated number using Refuge	Pertinent information not specificoally requested. List introductions here.	
Does not apply to Pea Island Refuge except for a few morning doves migrating thru in fall and spring										

## 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.

3-1570  
NR-8a

REFUGE GRAIN REPORT

Refuge Pea Island, Manteo, N. C.

Months of May thru Aug. 19452

(1) VARIETY	(2) ON HAND BEGINNING OF PERIOD	(3) RECEIVED DURING PERIOD	(4) TOTAL	(5) GRAIN DISPOSED OF				(6) ON HAND END OF PERIOD	(7) PROPOSED USE		
				TRANS- FERRED	SEEDED	FED	TOTAL		SEED	FEED	SURP.
<b>Yellow Corn</b>	20 Bu.	0	20 Bu.			20 Bu.		None			

(8) Indicate shipping or collection points Bellecross, N. C.

(9) Grain ~~is~~<sup>was</sup> stored at Overnight cabin, Pea Island

(10) Remarks.....

NR-8a

REFUGE GRAIN REPORT

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

Report all grain in bushels. For the purpose of this report the following approximate weights of grain shall be considered equivalent to a bushel: Corn (shelled)--55 lbs., Corn (ear)--70 lbs., Wheat--60 lbs., Barley--50 lbs., Rye--55 lbs., Oats--30 lbs., Soy Beans--60 lbs., Millet--50 lbs., Cowpeas--60 lbs., and Mixed--50 lbs. In computing volume of granaries, multiply the cubic contents (cu. ft.) by 0.8 bushels.

- (1) List each type of grain separately: Corn, wheat, proso millet, etc. Include only domestic grains; aquatic and other seeds will be listed on NR-9.
- (3) Report all grain received during period from all sources, such as transfer, share-cropping, or harvest from food patches.
- (4) A total of Columns 2 and 3.
- (6) Column 4 less Column 5.
- (7) This is a proposed breakdown by varieties of grain listed in Column 6.
- (8) Nearest railroad station for shipping and receiving.
- (9) Where stored on refuge: "Headquarters grainary", etc.
- (10) Indicate here the source of grain shipped in, destination of grain transferred, data on condition of grain, unusual uses proposed.

PEA ISLAND NATIONAL WILDLIFE REFUGE

NARRATIVE REPORT

January 1, To April 30. 1952

Find attached hereto report covering all activities carried out on Pea Island Refuge for the period mentioned above, It is regretted that no photographs are available for illustrative purposes, But since the theft of the Government owned Camera from Mr. Phillips residence we have no means of securing suitable Materials for the purpose.

Respectfully,

Dennis B. Turner

PEA ISLAND NATIONAL WILDLIFE REFUGE  
NARRATIVE REPORT  
JANUARY 1, TO APRIL 30, 1952

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## NARRATIVE REPORT

JANUARY 1, TO APRIL 30, 1952

## I. GENERAL

A. Weather Conditions

Weather Conditions were above average throughout the period and very good compared to the same period for last year with temperatures not near so frigid, Lowest reading being 22 degrees on Jan. 23 and ranging up to 88 on April 23, Rainfall was sadly deficient with a - 9.34" for the period, Only had one severe north Easter which reached a peak on Feb. 27 with winds up to 55 MPH. only damage was to flood out the roads to a point where they were almost impossible to travel for several days, No high sounds occurred for the Period.

All data listed below were furnished by the local Coop. weather bureau Station, Managed by Mrs. Rosa Drinkwater here in Manteo and have been found in the past to be highly inaccurate as far as Actual weather prevails on the outer Banks

	Actual	Precipitation	Temperatures	
		Dep. from Normal	Max.	Min.
Jan.	1.68	-2.42	76	22
Feb.	3.86	- .62	69	31
March	1.90	-2.60	74	30
April	.82	-3.70	88	40
Totals	<u>7.66</u>	<u>9.34</u>	<u>88</u>	<u>22</u>

B. Water Conditions

Water levels in both pools remained fair for the period, low rain fall notwithstanding, Gudge readings at the start were 4.45 and 4.50 which is about normal or a little above, On April 30, readings were 4.30 and 4.40 No salinity test were run for the period but last taken by Mr. Baldwin showed the North Pool to be 22% sea strength, South pool 2.6% and Pamlico sound waters 64%, All factors considered Water Conditions are considered normal or above.

## II. WILDLIFE

A. Migratory Birds1. Population and behavior

Local populations of waterfowl continued on the Pea Island Area in about the same numbers as reported in the Dec. Narrative with the exception of Snow Geese all of which departed on Dec. 25 except 3, the population of Canadas during the first six weeks of the period numbered App. 7,500 and showed a steady decline after that date until a count made April 26 showed 100 or there about still remaining, This is App. 35% below the number present for the same period last year

Ducks of all species combined, numbered App 19000 at the start of January and remained almost constant thru Feb. when it was noted there were a decrease but not as great as in the Canadas, The main spring Migration started on or about March 5th. and by April 26th. only a small remnant of all species remained.

Swan showed an increase over last season with a high count on Jan. 22 of 134 birds or almost double that of last year 90% of this number used constantly in both ponds with most use in the north pool, They departed along with the Geese and Ducks and the last 8 were seen Mar. 28th.

The spring migration of Gulls, Terns, Herons and egrets came about on schedule, First being observed the first week in April and increasing rapidly all thru the month, No black skimmers have been seen to date, Black backed gulls were present all thru the period with a scattering still left as late as the third week in April.

Shore birds began coming in during the last week of March, with yellow legs and ~~BLACK~~ redbacked sandpipers being the first to arrive, Since that time Willets, Turnstones, plover, have been arriving daily and now have about a normal population of all species,

Gannets were present throughout this period in varying numbers with a peak population the first week in March, these birds move constantly and it is presumed that they move with the run of fish along the shore line an Estimated 4500 were observed along the east side during the week mentioned above

2. Food and cover

As in the past this item food, was in short supply and remains one of the most urgent problems to be solved in connection with wildlife management on Pea Island, With both ponds exhausted by the middle of Feb. most of the population of waterfowl had to depend on the Sound Area during the last two months of the season with the exception of Swan which still stayed in the pools, what they found in the way of food is a mystery, We did produce some Green browse to supplement the supply through an extensive burning program and overplanting some of the burned over marsh with Rye Grass which did fair considering where

Food and Cover Cont

we had to plant it, and the salt condition to contend with, Future plans call for planting entirely within the pond Areas not subject to High tidal action, It was noted that as the season progress, the Canada Geese, Black and Pintail ducks used upon the beach Pea Stands and the burns in ever increasing numbers and by the end of the season hardly left it at all which indicates that what food is left in the sound late in the season is probably not of a quality and type that can be utilized it was also noted that the old farming Area which had an excellent stand of beach pea, actually carried by far a greater number of Geese than any year previously the last two months of the season in some instances they rolled up the dead vines in windrows as much as one foot high in their search for the shattered out Peas

With the new equipment recently bought for the purpose we expect to concentrate this coming fall on an attempt to bring in Beach Pea not only on the old field but other areas also.

3. Botulism and ~~lead~~ <sup>lead</sup> Posining

None for the period.

4. Other diseases

The unknown disease that affects the Canada Geese on Pea Island periodically sometimes in epidemic proportions have been very light this season, With a overall count of 55 birds either sick or found dead compared with 127 last year, This is believed to be at least 80% affected since the entire area was canvassed almost daily while engaged in trapping operations, this phase will be more fully covered under Field investigation and applied research.

## II. Wildlife Continued

B. Upland Game Birds

Except for a very small number of mourning Doves, Does not apply to Pea Island

C. Big Game Animals

Does not apply to Pea Island.

D. Fur Bearing Animals

There is an estimated population of app.800 muskrats that inhabit the refuge Area, Close observation for the last two years indicate very little if any change in numbers either way, the number is not considered great enough to warrant a fur harvesting program

D. Fur Bearing Animals Cont.

Also an estimated population of 35-40 Otter are permanent residents They are known to range from below sand ridge lodge to the extreme north end of the island most of the time however they can be observed in and around the two fresh water ponds in groups of from 2 to 5 and on some occasions up to 8 in number their number also seems to remain about static.

E. Predators

Pea Island is extremely fortunate in having none of the common run of predators, such as Bobcats, Raccoons, Skunks and etc that commonly is present on refuges. The only ones to contend with are a few common house cats that roam the Area, Some of which have been destroyed in the last few months.

III. Refuge Development and Maint.

A. Physical Development

No new physical development have been completed this period, But Creosoted piling and post have been purchased and hauled in and are ready for the posting program to be carried out within the next few weeks.

B. Maintenance

Maintenance is a never ending process at this Station due mostly to extremely heavy salt action on anything made of metal. All Equipment have to be serviced regularly by painting and spraying with heavy Oil and is one of the major problems that consumes a large percent of the Personnels time, App. 55 days was expended on this activity for the period, this also includes Bldgs. and Sandfence.

C. Farming

No farming have been carried on for the period.

IV. Economic Uses

A. None for the period.

## V. Field Investigation and applied research

### A. Goose disease Study

This phase of activity will be treated on a seasonal basis rather than for the period, since all data quoted is on this basis and not broken down, and will overlap back to november 15, 1951.

During the season mentioned four net type traps were operated seven days a week, 11000 lbs. of corn was used for baiting purposes, App. 4500 lbs. of synthetic foods were fed to Geese in captivity, Refuge personnel expended 145 man days in the execution of the trapping and sample collection program listed below is a summary of the results of this program.

Total number of Geese trapped for the season,	980
Total number of new bands attached,	523
Total number of trap Repeats,	457
Total number of Foreign Banded birds trapped,	10
Total number of sick or dead birds collected,	55
Total Number of snow Geese collected,	8
Total Black ducks collected,	3
Total number of Fecal samples Collected,	1600
Total Number of Misc. Samples, Tissue Etc.	8

In view of the fact that each of these Geese had to be confined separately to collect each specific sample, and at times this took hours it can be seen that a vast amount of work and time was involved in this project.

## VI. Public Relations

### A. Publicity

Publicity have been limited to furnishing information to local as well as visiting partys, interested in the Refuge and some of the objectives of the service in General, Arrangements have been made to cooperate with at least two wildlife publication photographer that are interested in the Gadwall duck nesting activities on the refuge for the coming nesting season, If they are successful in securing the shots needed, We will probably get some favorable publicity out from the results.

VI, Public Relations Cont.

B. Recreational Uses

Sightseeing party and Surf fishermen were at a minimum thru the first three months of the period due to weather conditions, But with warm weather during the month of april and Channel bass beginning to run along the Coast, Partys of Fishermen have been arriving daily luck have not been to good to date and no data is available as to the number of fish taken, With the New Highway due to be opened on or about july 15, we can expect Visitors to increase to a great extent within the next few months, It is planned to run a census on fishing latter in the summer and perhaps during the peak weigh out all the fish taken, this information should prove interesting.

C. Violations

No Violations ocured during the period.

VI, Public Relations ContD, Visitors

## Official

Mr. Richard E. Dittman	1/11/52	Atlanta, Ga.
Mr. Carl W. Fermanich	1/11/52	Atlanta, Ga.
Mr. J. Clark Selyer II	1/11/52	Washington, D. C.
Mr. Paul Sturm	1/15/52	McClellandville, S. C.
Mr. Jack Diamond	3/17/52	Laurel, Md.
Mr. William Good	3/17/52	Laurel, Md.
Mr. True Steffenhagen	3/20/52	Washington, D. C.
Mr. Ted Ball	4/15/52	Atlanta, Ga.
Mr. Walter A. Gresh	4/22/52	Atlanta, Ga.
Mr. William Davis	4/22/52	Atlanta, Ga.

## Unofficial

Mr. Jack Dermid	1/15/52	Raleigh, N. C.
Mrs. Catherine Crane	2/21/52	Washington, D. C.
Mrs. Mary Goldman	2/21/52	Washington, D. C.

Mr. Robert E. Hooke and a party of 6 Students from Dartmouth College, Hanover, Mass. This party occupied the overnight Cabin for a period of five days, Studying Wildlife in General and mostly interested in Otter.

WATERFOWL

Refuge Pea Island

Months of Jan. 1,

to April 30, 19 52

(1) Species	(2) First Seen		(3) Peak Concentration		(4) Last Seen		(5) Young Produced		(6) Total
	Number	Date	Number	Date	Number	Date	Broods Seen	Estimated Total	Estimated for period
I. <u>Swans:</u> Whistling swan			134	1/22/52	8	3/28/52			140
II. <u>Geese:</u> Canada goose			7500	1/8/52	100	4/26/52			7500
Cackling goose									
Brant <u>Black</u>			3	1/8/52	3	1/7/52			3
White-fronted goose									
Snow goose			<del>12000</del>		3	3/8/52			3
Blue goose									
III. <u>Ducks:</u> Mallard			30	1/8/52	2	3/28/52			35
Black duck			6500	1/8/52	100	4/26/52			7000
Gadwall			700	1/8/52	45	4/26/52			800
Baldpate			800	1/8/52	3	4/26/52			1000
Pintail			3800	1/8/52	32	4/26/52			4500
Green-winged teal			500	1/8/52	46	3/28/52			700
Blue-winged teal			350	1/8/52	11	4/26/52			500
Cinnamon teal									
Shoveller			600	1/8/52	4	4/26/52			800
Wood duck									
Redhead									
Ring-necked duck			200	1/8/52	10	3/28/52			300
Canvas-back									
Scaup			2500	1/8/52	9	3/28/52			3000
Golden-eye									
Buffle-head			25	1/8/52	3	3/28/52			60
Ruddy duck			800	1/8/52	18	4/26/52			1000
IV. <u>Coot:</u>			1800	1/8/52	8	4/26/52			2000

SUMMARIES

Dates waterfowl counts made Two week intervals for the period

Percent of waterfowl area covered 90%

Dates brood counts made \_\_\_\_\_

Percent of area covered in brood counts \_\_\_\_\_

Total production;

Geese \_\_\_\_\_

Ducks \_\_\_\_\_

Coots \_\_\_\_\_

Total waterfowl usage during period 29541

Peak waterfowl numbers 26,242

Areas used by concentrations Entire Refuge, and all the Shoal waters of the sound

Principal nesting areas this season \_\_\_\_\_

Reported by Lewis B. Turner

INSTRUCTIONS

- (1) Species: In addition to the birds listed on form, other species occurring on refuge during the reporting period should be added in appropriate spaces. Special attention should be given to those species of local and National significance.
- (2) First seen: The first refuge record for the species during the season concerned in the reporting period, and the number seen. This column does not apply to resident species.
- (3) Peak concentration: The greatest number of the species present in a limited interval of time.
- (4) Last seen: The last refuge record for the species during the season concerned in the reporting period.
- (5) Young produced: Estimated number of young produced based on observations and actual counts on representative breeding areas. Brood counts should be made on two or more areas aggregating 10% of the breeding habitat. Estimates having no basis in fact should be omitted.
- (6) 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 nature of the migrational movement.

Note: Only columns applicable to the reporting period should be used. It is desirable that the Summaries receive careful attention since these data are necessarily based on an analysis of the rest of the form.

3-1751  
Form NR-1A  
(Nov. 1945)

MIGRATORY BIRDS  
(other than waterfowl)

Refuge Pea Island Refuge Months of Jan. to April 1952

(1) Species Common Name	(2) First Seen		(3) Peak Numbers		(4) Last Seen		(5) Production			(6) Total Estimated Number
	Number	Date	Number	Date	Number	Date	Number Colonies	Total # Nests	Total Young	
I. <u>Water and Marsh Birds:</u>										
Comorants,	85	4/8/52	735	4/26/52						800
Hérons, Great Blue,	Res.		8	4/26/52						24
" Louisiana,	Res.		25	4/26/52						30
" Black Crowned,	Res.		90	4/26/52						185
" Yellow Crowned,	Res.		30	4/26/52						85
Egrets American,	2	2/24/52	40	4/26/52						75
" Snowy,	7	2/24/52	65	4/26/52						100
Loons Common,	Const. Period		400	3/22/52	22	4/26/52				600
Grèbes Horned	" "		55	4/26/52						75
" Piebill	" "		70	2/28/52	8					120
Pelicans Grey	6	2/8/52	30	4/26/52	30	4/26/52				50
II. <u>Shorebirds, Gulls and Terns:</u>										
Gulls, Great Black Back	Const. Period		208	1/21/52	8	4/26/52				250
" Herring	" "		1400	3/22/52	300	4/26/52				3000
" Ring Bill	" "		850	3/28/52	600	4/26/52				1200
" Laughing	30	3/15/52	800	4/26/52	800	4/26/52				2000
" Bonapartes	3	3/15/52	150	4/26/52	150	4/25/52				200
Terns, Royal	12	4/16/52	70	4/26/52	70	4/26/52				300
" Common	8	4/16/52	100	4/26/52	100	4/26/52				500
Yellow legs, Greater	70	4/16/52	300	4/26/52	300	4/26/52				550
Willetts,	4	4/16/52	55	4/26/52	55	4/26/52				150
Sandpipers, Red Back	Res.		1000	4/26/52	1000	4/26/52				2500
Sandpiper, All other Sp.	650	4/16/52	3500	4/26/52	3500	4/26/52				6000

(over)

(1)	(2)	(3)	(4)	(5)	(6)
III. <u>Doves and Pigeons:</u> Mourning dove White-winged dove	<b>Some 20 doves were counted during the month of March, Migrating</b>				
IV. <u>Predaceous Birds:</u> Golden eagle Duck hawk Horned owl Magpie Raven Crow	<b>One, of the two Golden Eagles reported on Dec Narrative Remained on the refuge until March 20.</b>				
<b>Tot. 18.794</b>					Reported by <b>Lewis B. Turner</b>

#### INSTRUCTIONS

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

3-1754  
Form NR-4  
(June 1945)

SMALL MAMMALS

Refuge Pea Island, Manteo, N. C. Year ending April 30, 1952

(1) Species  Common Name	(2) Density  Cover Types & Total Acreage of Habitat  Acres Per Animal		(3) Removals					(4) Disposition of Furs					(5) Total Popula- tion
			Hunting	Fur Harvest	Predator Control *	For Re- stocking	For Re- search	Share Trapping			Total Refuge Furs Shipped	Furs Donated	
						Permit Number	Trappers Share	Refuge share					
Muskrat	Cattail, Three Squares, Acreage unknown				None								Est. 200
Otter	Fresh Water Ponds and Tide water Creeks												" 40

\* List removals by Predator Animal Hunter

REMARKS:

Reported by Lewis B. Turner, Refuge Mgr

## INSTRUCTIONS

Form NR-4 - SMALL MAMMALS (Include data on all species of importance in the management program; i. e., muskrats, beaver, coon, mink, coyote. Data on small rodents may be omitted except for estimated total population of each species considered in control operations.)

- (1) SPECIES: Use correct common name. Example: Striped skunk, spotted skunk, short-tailed weasel, gray squirrel, fox squirrel, white-tailed jackrabbit, etc. (Accepted common names in current use are found in the "Field Book of North American Mammals" by H. E. Anthony and the "Manual of the Vertebrate Animals of the Northeastern United States" by David Starr Jordan.)
- (2) DENSITY: Applies particularly to those species considered in removal programs. 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, bottom land 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) REMOVALS: Indicate the total number under each category removed since April 30 of the previous year, including any taken on the refuge by Service Predatory Animal Hunter. Also show any removals not falling under headings listed.
- (4) DISPOSITION OF FUR: On share-trapped furs list the permit number, trapper's share, and refuge share. Indicate the number of pelts shipped to market, including furs taken by Service personnel. Total number of pelts of each species destroyed because of unprime-ness or damaged condition, and furs donated to institutions or other agencies should be shown in the column provided.
- (5) TOTAL POPULATION: Estimated total population of each species reported on as of April 30.
- REMARKS: Indicate inventory method(s) used, size of sample area(s), introductions, and any other pertinent information not specifically requested.

Refuge Pea Island, Manteo, N. C. Jan. Thru April, Year 1952

Botulism

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 Unknown

Species affected Canada Geese

Number Affected Species	Actual Count	Estimated
<u>Canada Geese</u>	<u>55</u>	<u>65</u>
_____	_____	_____
_____	_____	_____

Number Recovered None

Number lost All

Source of infection Unknown

Water conditions Good

Food conditions Considered Poor

Remarks Depends upon Report covering this Disease From Laurel Md.

3-1570  
NR-8a

REFUGE GRAIN REPORT

Refuge Pea Island, Manteo, N. C.,

Months of XXXX Jan thru April 194 52

(1) VARIETY	(2) ON HAND BEGINNING OF PERIOD	(3) RECEIVED DURING PERIOD	(4) TOTAL	(5) GRAIN DISPOSED OF			(6) ON HAND END OF PERIOD	(7) PROPOSED USE			
				TRANS- FERRED	SEEDED	FED		TOTAL	SEED	FEED	SURP.
<b>Yellow Corn</b>	<b>20 Bu.</b>	<b>110 Bu</b>	<b>130 Bu.</b>			<b>Trap Bait</b>	<b>130, Bu</b>	<b>None</b>			

(8) Indicate shipping or collection points 20 Bu. Purchased Open Market, Bellhaven, N. C. 110 Bu.  
Received on Transfer from Black Water Refuge

(9) Grain is stored at .....

(10) Remarks .....

NR-8a

REFUGE GRAIN REPORT

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

Report all grain in bushels. For the purpose of this report the following approximate weights of grain shall be considered equivalent to a bushel: Corn (shelled)--55 lbs., Corn (ear)--70 lbs., Wheat--60 lbs., Barley--50 lbs., Rye--55 lbs., Oats--30 lbs., Soy Beans--60 lbs., Millet--50 lbs., Cowpeas--60 lbs., and Mixed--50 lbs. In computing volume of granaries, multiply the cubic contents (cu. ft.) by 0.8 bushels.

- (1) List each type of grain separately: Corn, wheat, proso millet, etc. Include only domestic grains; aquatic and other seeds will be listed on NR-9.
- (3) Report all grain received during period from all sources, such as transfer, share-cropping, or harvest from food patches.
- (4) A total of Columns 2 and 3.
- (6) Column 4 less Column 5.
- (7) This is a proposed breakdown by varieties of grain listed in Column 6.
- (8) Nearest railroad station for shipping and receiving.
- (9) Where stored on refuge: "Headquarters grainary", etc.
- (10) Indicate here the source of grain shipped in, destination of grain transferred, data on condition of grain, unusual uses proposed.