

Regional Director, Atlanta, Ga.

1/15/54

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

Narrative Report

Find submitted Narrative Report for the period ending Dec. 31, 1953.

It is regretted this Report is several days late, But due to illness of myself and other member of my family during the time I should have been in the office, Submission at an earlier date was impossible

Lewis B. Turner

PEA ISLAND NATIONAL WILDLIFE REFUGE

NARRATIVE REPORT

SEPTEMBER 1, TO DECEMBER 31, 1963

CONTENTS

	Page
I, General	
A, Weather	1,
II, Wildlife	
A, Population and Behavior	2-3
2, Water Conditions	3
3, Food and Cover	3-4
4, Botulism and lead poisoning	4
5, Other Diseases	4
B, Upland Game Birds	4
C, Big Game Animals	4
D, Fur Bearing Animals	4
III, Refuge Development and Maint.	
A, Physical Development	5
B, Maintenance	5
C, Farming	5
D, Wildfires and otherwise	5
IV, Economic Uses	
A, Commercial	6
V, Field Investigation and applied research	
A, Goose Disease Study	6
III	
IV, Public Relations	
A Publicity	6
B, Recreational	6-7
C, Violations	7
Public use Report	
NR Forms	

PEA ISLAND NATIONAL WILDLIFE REFUGE

NARRATIVE REPORT

SEPTEMBER 1, TO DECEMBER 31, 1953

1, General

A. Weather Conditions

For the period concerned weather has not been any to good, no extreme cold weather occurred until around Dec 15 when the first freeze up came along, Until then mild weather prevailed as to temperatures, two severe North Easters occurred during the period and at least two southwester that flooded the Island almost completely not causing any damage to mention except to litter the new fence with a lot of drift, Winds up to 50 M.P.H. were not uncommon for 24 to 48 hours at a time such conditions hamper normal work programs and cause an awful amount of extra work for the refuge personnel in removing drift from the fence and roads, it also effect the burning program due to not being able to plow fire lines for control purposes.

All data listed below was furnished by Mrs Dorothy Brinkwater manager of the local weather bureau maintained in Manteo.

	Precipitation		Temperatures	
	Actual	Depart. From Normal	Max	Min
Sept.	5.08	X .58	90	51
Oct.	.62	-3.88	80	46
Nov.	4.88	X .38	78	30
Dec.	3.58	- .92	70	21
Tot.	<u>14.16</u>	<u>Tot. 5.76</u>	<u>Max 90</u>	<u>Min 21</u>

II, WILDLIFE

A, Migratory Birds

1, Population and Behavior

Populations of summer and visitor residents using the refuge at the start of the period compared very favorably with last years same period, Species consisting of the following were the more abundant for this period, Terns, Gulls, Skimmers Herons, and Egrets, with a few Cormorants and pelicans, The only noticeable increase occurred in laughing Gulls, Waders and shore birds were very abundant with Yellow legs, and willets, Turnstones, Plover, and all Species of sandpipers being represented.

Migration of common and royal terns and laughing gulls started app. 10 days later than last year due to such mild weather during Sept. first decrease was noted about Sept 25, and continued until about Dec. 5, when none of the could be noted, Skimmers were the last to leave some of this Species remaining until Dec 15, after that date none were observed.

As Usual the first incoming fall migrants were Herring Gulls with a few Great black Gulls, These were observed for the first time on Oct. 5 and a steady increase continued all through Oct-Nov. when thousands could be seen, Gannets were first observed on Nov. 26, and all during Dec. at least 1500 could be seen fishing along the surf line app. $\frac{1}{2}$ mile off shore.

First of the Waterfowl to arrive were Blue wing teal over 200 were counted in the north pond the first week in sept. Pie Bill Grebes were also present in some numbers, Black ducks Pintails and wedigons Started coming in on or about Sept. 16, just about on Schedule with last year, Shovelers, Ruddy and other Species arrived app. two weeks later, Pea Concentration of all Species were on Dec 18, Wehe the weekly count showed 18800 of all combined, Coots Peak Count was 2200 on 4 of Dec, these showed an increase over last year of about 40 % but by the end of the year had decreased to App. 600.

The first Canada Geese to Arrive came in on Oct.7, numbering about 35, Steadly increasing until a peak was reached on Dec. 11, when weekly count showed over 8000 this number was actual count and no doubt we missed at least 20 % of them it is estimated that we have app 10,500 or an increase of app. 20 to 25 % over last year.

Snow Geese behaved anterily diffirent from past seasons 300 coming in on or about Nov. 18 and continuing to arrive in small numbers until a peak count on Dec 24 showed slightly over 6000 or just about 50 % of last years population, this behavior is no doubt due to no cold weather during the fall, The snows were in two flocks, one remaining around the north pond area and the other using on the flat just north of the south pond, less than 100 were observed below New Inlet.

Population and Behavior Cont

The first swan to be seen on the refuge came in the first week of No. numbering about a dozen, This number increased during the next two or three weeks until the weekly count third week of Dec showed 264 being present, this compares with a peak of 240 for last year, all of the birds use on the two ponds and bulk up so that it is possible to count them almost 100 % We perhaps have 275, only on the calmest days do these birds leave the ponds and feed on the sound, Having seen less than 30 feeding in the sound during the period.

During the first week in Dec. 8 Brant came in on the very north tip end of Pea Island and remained for about 10 days then left, I believe Mr. Silver obtained a photograph of these during his last visit to the Refuge, These are the only rare Species observed during the period except for three Dovkiesseen migrating south and never seen afterwards.

2, Water Conditions

Due to the hurricane that passed thru on Aug. 13, bringing with it abnormal rainfall during the month of August of App 23 inches and with a near normal precipitation for the last four months Water levels have remained at an all time high for the winter months in the two pond areas, this has been very favorable since it flooded out marginal edges where the Geese and ducks have a much better chance for feeding, Waters of the sound have remained at about normal except for the short periods effected by the high sound tides mentioned under weather, Salinity still remains at about 65 ‰ Sea Strength down as far as New Inlet, No Data is available on areas below this point, Sea tides threaten to become serious on two occasions but never did break over the sand fences along the two ponds east border and no salt water got into the ponds.

3, Food and Cover

Supplies of food for the period has been better than was anticipated in late summer when the hurricane was thought to have caused quite a lot of damage in the sound, But surveys have shown that it recovered most of its stands of Grasses by late September, and the stands of Beach Pea that appeared to have been completely destroyed outside of the ponds came back and produced an almost normal crop, These combined with the 52 Acres of Ryegrass planted during the first week in Oct. Which has done very well indeed is considered a better food situation than existed last winter, In addition plans call for burning off app 370 Acres of marsh during January this along with what the two ponds produce will go far in furnishing a better than normal food supply, As usual most of ducks and Geese concentrated on the two ponds upon arrival and by the last of Dec. had been pretty well cleaned out, This is understandable when as many as 12 to 14000 waterfowl can be counted on the north pond alone with the south pond carrying app. half this number, Feeding conditions in the sound have been fair to good most of the period except

Food and Cover Cont.

For short periods of west or southwest winds which force them all up upon the island, This is the time that Geese and Black ducks can be seen foraging over all of the area that produces Beach Pea, Even upon some of the highest dunes, time and again such spots have been investigated while the Geese were observed using such spots and have always shown that there was a stand of Pea there and the geese move or roll up the old dead vines in search of the beans, This we believe firmly establishes the fact that this native crop is of much more importance than heretofore thought and some system should be worked out to increase its productivity if possible, In summarizing the food conditions as a whole the conclusion is that we will have an adequate supply until time for the waterfowl to migrate north.

4, Botulism and lead poisoning

None for the period

5, Other diseases

The disease that effect Canada geese on Pea Island and is and has been under study at Patuxent for the last several seasons has been very light so far this season, Only 4 Geese have been observed that was thought to be effected, Trapping activities being carried on at this Station shows most ofv the Geese to be in a normal Condition, but since epidemics of this disease usually break out during the months of Jan-Feb it is still to early to forecast what may happen later.

B, Upland Game Birds

Does not apply to Pea Island except for a few doves migrating thru during the early fall

C, Big Game Animals

Does not apply to Pea Island Refuge

D, Fur Bearing Animals

Fur bearer on Pea Island consist of Muskrat, Otter, and Mink no Change in the population of Otter can be noted, Estimated number being 35-40, Muskrat has shown a small increase for the past several months and is believed to number app. 1200 probably More, Mink is a new animal to Pea Island having only discovered that they exist here a few week back while plowing fire lines when we found a small colony along the east side of the north pond, Signs indicate that there may be up to 50 of this Specie using in the area but this is strictly a guss since we have run no study on them so far, they may prove to be a nuisance in the future from a duck nesting angle, and a close check will be maintained to see what the results will be along this lane.

III, REFUGE DEVELOPMENT AND MAINTANENCE

A, Physical Developments

No new developments has bee started this period, Completion of the new fence was carried out during Sept consisting of app. 1 1/4 miles and 12 gates hung, this was a hangover job from last fiscal year the fence is now complete.

B, Maintanence

Maintanence has been a major Item this period since the completion of the 12 miles of fence there has been one Hurricane and several strong south westers that keeps covering it up with drift of all kinds the hurricane broke it into in several places, Repairs of which was not completed until the middle of Sept. It is very evident that this will be a reoccurring Item in the maint. Schedule at Pea Island, since high tides from the Sea side or sound side keep shifting drift wood of all discriptions back and fourth across the rightofway breaking the wire and washing out the concrete post, there is no known remedy for this, Normal maintanence have been maintained on all the equipment, App. 6, Miles of fire line was replowed during the period, this is just over half of the total that needed to be worked but due to so much surface water throughout the fall months this could not be accomplished, Storm damage to some of the buildings of a minor nature has been repaired mostly windows and doors, All of the goose trapping blinds have been rebuilt and all the nets Mortars and other equipment was gone over and necessary repairs made where needed.

C, Farming

Except for the 52 Acres of Ryegrass mentioned under food and cover there was no other farming carried out fpr the period, This planting was done the first week in Oct. and up and well under way before the Geese arrived, Considering there has been some 4 to 600 Geese using it for feeding purposes for the 2 months it is considered well worth the time and expense involved.

FIRE

D, Fires Wild and Otherwise

No wild fires has occured on the refuge, and the controlled burning program has not been started yet, we expect to burn App. 370 acres during the month of January, mostly Spartina marsh.

IV, ECONOMIC USES

A, Commercial

None for the period

V, FIELD INVESTIGATION AND APPLIED RESEARCH

A, Goose Disease Study

In connection with the Goose disease study that is now in its fourth year at Patuxent, we are carrying out a goose trapping program at Pea Island, This program was started Oct, 8, and is still in progress, this project calls for trapping a minimum of 300 Geese Sexing, Weighing ageing, and collar and leg banding them, Also the collection of any sick or ailing birds, at the end of the period 221 Geese had been trapped, 5, of these were sent to Patuxent for research purposes, 26, was transferred to Santee refuge for Decoys, the rest were processed and released, only four birds have been seen that had symptoms of being sick, and they were still able to fly and could not be collected.

VI, PUBLIC RELATIONSA, Publicity

Publicity for the period consisted mostly of informing all interested parties, Which has been numerous as to the most important features of the refuge, Mailing out copys of the Leaflet covering Pea Island to all that request information by mail and keeping Mr. Ascock Brown WEX who is publicity director for the Dare chamber of Commerce, informed on the movement and numbers of the various species of Waterfowl prevelant on the Refuge, This information is broadcast over WGAI at Elizabeth city, two or three times a week and has resulted in many favorable comments concerning the refuge and its program.

B, Recreational

Oct. and Nov is the two favorite months for surf casting for channel bass as well as other species of fish that can be caught along the coast during the fall months as was expected this brought out an unusual number of fishermen who tried their luck all along the beach line from Oregon Inlet to hatteras, a goodly number of these were to be seen along the refuge coast line while most of them went on down around burton and hatteras, No daily check was possible since it requires to much time that is not available to Refuge persennel and keep up

Recreational Cont

with other phases of the work program, random checks were made however and the figure quoted below is based on these checks.

Estimated man days of fishing for the period , 1500

Visitors on sight seeing tours have been about on a par with last season, with one conducted tour of some 28 members of the Cape Henry Bird Club from Norfolk Va. and several consisting of three to the party or more from Md. Va. and other states.

C, Violations

There has been three known instances of Violations consisting of sniping at the geese from Automobiles along the highway, Considerable time was used up in patrolling in an effort to apprehend the Violators But never happened to be on hand at just the right time, all of the shooting was with rifles and since it takes just a moment to shoot and move on it is a tough proposition to catch them at it, this situation will be given more attention in the future.

VI, PUBLIC RELATIONS CONT.

D, Visitors

Official

William P. Baldwin	10/29-30/53	Savannah, Ga.
John H. Steenis	11/4/53	Laurel, Md.
Mr. S. Shuler	11/16/53	Santee, Refuge
Mr. James Silver	12/3/53	Atlanta, Ga.

Unofficial

Mr. Ls Evans and Party of 28 Members of Cape Henry Bird Club, 9/3/53		Norfolk, Va.
Dr. & Mrs Edward Q Cordnar	11/13/53	Yosemite, Nat. Park

Approved: *H. Howard J. Miller*
Regional Refuge Supervisor
Date: *January 18, 1954*

PUBLIC USE - F.I. 1955

Please supply figures, or your best estimates for the following categories when applicable to your refuge:

A. Sea Island, Martin, N. C. National Wildlife Refuge.

B. Estimated total use of all types 7,050 visitor-days.

1. Hunting use (for those refuges having public or regulated hunting.)

Estimate visitor-days _____

2. Fishing use. Estimate visitor-days 5,200

3. Miscellaneous use (lump such uses as picnicking, swimming, wildlife observation, birdwatching, as well as those on the area for business or official use, including economic uses such as farming or trapping.)

Estimate visitor-days 2,850

C. Remarks.

1/11/55
Date

Signed

Samuel B. Turner
Refuge Manager

WATERFOWL

Refuge Pea Island Months of Sept. 1 to Dec. 31 19 53

(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. Swans:									
Whistling swan	17	11/3	264	12/18					275
II. Geese:									
Canada goose	35	10/7	8000	12/4					10,000
Cackling goose									
Brant	8	12/3	8	12/10					8
White-fronted goose									
Snow goose	9	10/7	6000	12/24					7000
Blue goose	6	10/7	6	12/24					10
III. Ducks:									
Mallard	7	10/7	30	12/18					50
Black duck	Res		1300	12/24					2000
Gadwall	Res		300	11/3					500
Baldpate	330	9/20	5220	11/3					6500
Pintail	200	9/20	5500	11/3					7000
Green-winged teal	324	9/20	2000	12/24					4000
Blue-winged teal	200	9/3	500	12/18					2000
Cinnamon teal									
Shoveller	45	10/7	650	12/18					1000
Wood duck									
Redhead									
Ring-necked duck	12	11/3	8000	12/18					15,000
Canvas-back									
Scaup	80	11/3	4500	12/18					10,000
Golden-eye									
Buffle-head									
Ruddy duck	2	9/20	1200	12/11					1500
IV. Coot:	40	10/7	2200	11/3					2500

SUMMARIES

Dates waterfowl counts made Weekly, on Friday

Percent of waterfowl area covered 70%

Dates brood counts made _____

Percent of area covered in brood counts _____

Total production:

Geese _____

Ducks _____

Coots _____

Total waterfowl usage during period 2,740,680

Peak waterfowl numbers 45,678

Areas used by concentrations all over the Refuge

Principal nesting areas this season Does not apply

Reported by Lewis B. Turner, Refuge Mgr.

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 Month of Sept. 1 to Dec. 31 1953

(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. Water and Marsh Birds:										
Commorants	4	9/16	128	10/4	23	10/30				200
Egrets, Snowy	Sum.Res		62	9/3	7	12/4				100
Egrets, American	Sum.Res		47	9/3	2	12/4				60
Hérons, Great Blue	" "		9	9/3	2	12/4				12
" , Louisiana	" "		20	9/3	2	12/4				35
" , Black Crowned	Res		234	9/3	16	12/18				300
" , Yellow Crowned	Res		200	9/3	34	12/18				250
Grebes Piebilled	Res	Mig.	800	10/7	52	12/18				1000
" Horned	2	9/16	12	10/7	3	12/18				15
Loons, Common	10	9/16	34	12/4	9	12/18				50
II. Shorebirds, Gulls and Terns:										
Willetts	Sum Res		210	9/3	8	10/30				350
Plovers, Black Bellied	9	9/16	56	10/3	23	10/30				225
" , Wilson	Sum Res		285	9/3	7	11/13				500
Yellow Legs, Great.Less	" "		425	9/3	32	12/18				600
Sandpipers, All species	" "		6000	9/3	200	12/18				8000
Terns, Royal	" "		375	9/3	12	11/10				700
" , Common	" "		1000	9/3	26	11/10				1500
" , Black	125	10/14	800	10/30	42	11/10				1000
Gulls, Laughing	Sum Res		4500	9/3	120	12/3				5000
" , Herring	Res		4800	10/30	Still here					6000
" , Ring Bill	Res		650	10/30	Still here					1000
" , Black backed	9	10/14	280	10/30	Still here					300
Gannets	800	10/14	3000	12/4						5000
									Totl.	32,222

(1)	(2)	(3)	(4)	(5)	(6)
III. <u>Doves and Pigeons:</u> Mourning dove White-winged dove				Does not apply except for an occasional dove migrating thru	
IV. <u>Predaceous Birds:</u> XXXXXX Duck Hawk, Probably a half dozen throughout the winter. Duck hawk Horned owl Magpie Raven Crow					
				Reported by	Lewis B. Turner

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)
 II. Shorebirds, Gulls and Terns & Gruiformes)
 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, Manteo, N. C. Months of Sept. to Dec. 31, 19 53

(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'vd.	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 except for a few doves seen migrating thru in the fall of the year										

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.

Form NR-3
(June 1945)

BIG GAME

Refuge

Pea Island, Manteo, N. C.

Calendar Year 1953

(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	At period of Greatest use		As of Dec. 31
Common Name	Cover types, total Acreage of Habitat	Number													
	Does not apply to Pea Island.														

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 of 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.

Form NR-4
(June 1945)

SMALL MAMMALS

Refuge Pea Island, Manteo, N. C.

Year ending ~~April 30~~ Dec. 31, 1953

(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	Furs Destroyed		
								Permit Number	Trappers Share	Refuge Share					
Otter	5,800	145 00	0	0	0	0	00	0	0	0	0	0	0	0	App. 40
Muskrat	800	3/4 A.	0	0	0	0	0	0	0	0	0	0	0	0	1200
Mink	200	4	0	0	0	0	0	0	000	0	0	0	0	0	50

* List removals by Predator Animal Hunter

REMARKS:

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, Manteo, N. C. Year 1945

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	_____	_____

(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	Actual Count	Estimated
Species		
<u>1</u>	<u>31</u>	<u>40</u>
_____	_____	_____
_____	_____	_____

Number Recovered None

Number lost Unknown

Source of infection Unknown

Water conditions Good

Food conditions Fair

Note 27 of the number quoted above was reported in Narrative for Jan-May this year and does not reflect conditions for this season.

Remarks _____

3-1756
 Form NR-6
 (April 1946)

FISH

Refuge..... Pea Island, Manteo, N. C. Year 1953..

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	
Channel Bass and other species caught surf casting	Fair	5,200	Unknown	0	0	0	0	0

REMARKS:

3-1757
 Form NR-7
 (April 1946)

PLANTINGS
 (Marsh - Aquatic - Upland)

Refuge.....Pea Island, Manteo, N. C.....Year 1953..

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 Aquatic plantings have been accomplished for the calander year at Pea Island								

TOTAL ACREAGE PLANTED:

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

3-1758
 Form NR-8
 (April 1946)

CULTIVATED CROPS

Refuge Pea Island, Nanteo, N. C. Year 1953

Permittee (If farmed by refuge personnel, so indicate)	Permit No.	Unit or Loca- tion	Crops Grown	Avg. Yield per Acre	Permittee's Share		Government's Share or Return				
					Acres	Bu. Har- vested	Harvested		Unharvested		Compensatory Services, or Cash Revenue
							Acres	Bu.	Acres	Bu.	
Farmed by Refuge Personnel											
52 Acres of Domestic Ryegrass Planted in the North pond area for green browse for geese and ducks during the winter months. Rate of seed per acre 40, None harvested.											

Summary of Crops Grown:	Crop	Acreage	Permittee's Share		Government's Share				Total Revenue \$ _____
			Acres	Bushels	Harvested		Unharvested		
					Acres	Bu.	Acres	Bu.	
Interior Duplicating Section, Wash.D.C.	_____	_____	_____	_____	_____	_____	_____	_____	
	_____	_____	_____	_____	_____	_____	_____	_____	
	_____	_____	_____	_____	_____	_____	_____	_____	
	_____	_____	_____	_____	_____	_____	_____	_____	

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, Manteo, N. C.

Months of Sept thru Dec 1953.

(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.
Yellow Corn	300 lbs.	4500 lbs.	4800 lbs.			3200 lbs. Trapping	1600 lbs.		Trapping		

(8) Indicate shipping or collection points Transferred from Blackwater Refuge and Wheeler Refuge

(9) Grain is stored at Field H. Q. 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.

COLLECTIONS AND RECEIPTS OF PLANTING STOCK
(Seeds, rootstocks, trees, shrubs)

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

Year 1953

Species	Collections				Receipts		Total Amounts on Hand	Amount Surplus
	Amount	Date or Period or Collection	Method	Unit Cost	Amount	Source		
No collections or receipts during the Calendar year.								

HAYING AND GRAZING

Refuge Pea Island, Manteo, N. C.

Year 1953

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
		Does not apply to Pea Island Refuge							

Totals:

Acreage grazed _____ Animal use months _____ Total income Grazing _____

Acreage cut for hay _____ Tons of hay cut _____ Total income Haying _____

PEA ISLAND NATIONAL WILDLIFE REFUGE

NARRATIVE REPORT

MAY 1, TO AUGUST 31, 1953

CONTENTS

I, General	Page
A, Weather Conditions	1
B, Water Conditions	1
II, Wildlife	
1, Population and Behavior	2-3
2, Food and Cover	3
3, Botulism and Other Diseases	3
4, Furbearing Animals	4
III, Refuge Development and Maint.	
A, Physical Developments	4
B, Maintenance	4
C, Fires, Wild and otherwise	5
D, Farming and other planting	5
IV, Economic Uses	5
V, Field investigation and Research	5
VI, Public Relations	
A, Recreational Uses	5-6
B, Violations	6
VII, Pest Plant Control	
A, Cattail Eradication	6
Visitors Schedule	7
NR Forms	

NARRATIVE REPORT

MAY 1, TO AUGUST 31, 1953

I GENERAL

A, Weather Conditions

Generally speaking weather conditions for this period has been by far better than for the same period last year when we were plagued with severe drought and heat during may, june, and, july.

Not only have we had normal seasonable weather for the period with highest temp. 96 compared with 102 last year but rainfall have been above normal with a total of 22.23 inches, Compared with a total of 7.57 last year, The only fly in the ointment was the hurricane that passed thru on Aug. 13-14 which caused considerable damage which will be discussed later in the report.

	Precipitation Actual	Dept. From Normal	Temperatures	
			Max.	Min.
May	3.42	-108	92	43
June	2.18	-232	90	50
July	4.97	X.42	96	67
Aug.	11.66	X7.16	95	50
	Tot. 22.23	Tot. 10.98	Max 96	Min 43

B, Water Conditions

Compared to last season, water conditions have been much better with an abundant supply of rain both ponds remained at a high level considering the summer months, Most summers both pond go almost dry and last summer went completely dry causing havoc to the Aquatics that is native to them.

at the start may 1, pond levels had Guage readings of 4.82 and 4.68 ending up Aug. 31 with readings of 4.80 and 5.00 with some slight changed during the middle of the summer, Waters in the sound have remained almost constant throughout the period with the exception of extreme high Tides caused by the hurricane which is thought to have caused some damage to Aquatic Growths on the sheals, this will be more fully covered under food and cover.

No salinity test have been run this period but with high rainfall logically it should be considerable below normal.

II, WILDLIFE

1, Population and Behavior

Populations for the period compared very favorable with last seasons numbers, Canada geese were short at the start of the period with some 65 remaining, the left soon thereafter with not a single Goose summering, this is the first time in several years that no Geese remained on the Refuge over the summer months, Summer residents usually number 15, to 40,

with water levels remaining fairly high all during the summer in the two ponds, Gadwalls and black ducks had Ideal nesting conditions, Gadwalls same as last year showed a slight increase with 102 Broods and a total of 714 young Counted at the peak, this shows an average of 7 to the brood or the same as last year, and an Increase in hatch from 665 last year, Black Ducks Showed no Increase over last years hatch, Broods counted was 20, and total young 140 or averaging the same as Gadwalls, 7 to the brood this Compares with 6 to the brood last year,

Blue wing Teal consisted of 4 Broods compared with None last year strange to say none of these had more than 3 young to the Brood, Total young Counted was 10, There also was counted 3 Broods of Piebilled Grebes all of these having 3 young to the brood or a total of 9 young birds,

The first fall migrants, Blue wing teal were about 10 days later than in last year the first being observed in the north pond on Aug 26, numbering 23, there has been a few dribbling thru since that date, Pie Billed grebes also showed up about the same time but due to the fact we had a few all summer it is difficult to determine just what was the date of the first arrivals.

Hérons, Egrets, Gulls and Terns and Skimmers, Started arriving during the last week of march and continued to increase all during april and the first week of may, numbers compare about the same as last year, with a slight decrease in Skimmers, Main nesting Species were laughing Gulls using the same sites they have been using for the last several years, Due to a pressing work schedule in construction, No actual census was run on this specie as to nesting activities but from continual observations Estimates is about 1600 nests in a total of three colonies or about the same as last year

Hérons, egrets, also nested in their usual sites along with the laughing Gulls, Black and yellow crowned night herons nested in the rank stands of Wax Myrtle along the west side of the south pond and around the overnight Cabin, As with the laughing Gulls no Census was run on these Sites.

Shore birds, Consisting of the following Species, Yellow legs, Both Greater and lesser, Willits, Plovers, Turnstones, Sanderlings, and several species of sandpiper, Began arriving the last week in march in small numbers, and continued to increase all during the month of april greatest numbers being seen during the first two week of may, They have remained throughout the period but not in the numbers observed during may,

Population and Behavior Cont

None of these species nest on the refuge as far as is known except Willets which nest along the sound side in the marginal edges of the growths of Cord Grass, Altho several of these nest have been found we do not have enough data to warrant quoting numbers, It is known that these birds congregate along the Shore line on the surf side just before Migration in the fall and flocks of from 10, to 30 is very commonly seen,

No avocets have been seen during this period, 4, Oyster Catchers was seen on the north end of the Island during the first week in June, they only stayed a short time and moved on, The first Hudsonian curlews were seen at new Inlet Aug. 14, and they only numbered 4, we should have an increased number of these during Sept. and Oct.

2, Food and Cover

The food situation as a whole is very ^{much} more favorable than last year with water levels remaining high in both ponds, aquatics that took a nose dive last season have come back and at the present a very good crop can be noted in both pools, in Addition a bumper crop of beach Pea came up all over the refuge area and showed promise of being one of the largest production years in several, but the high tide caused by the hurricane which reached a level of about 5 1/2 Ft above normal destroyed all of this crop except that within the two pond Areas and the highest dune types it is estimated that at least 50 % of the pea crop was destroyed, it will be to late for it to recover this season.

A survey of the shoals along the sound side after the storm showed that a considerable amount of the growths in the sound had some or most all of the above ground level leaves beaten off but due to the storm coming so early it is thought that most of this will recover before the wintering waterfowl comes in, As was done last year we expect to plant out about 55 acres of Rye Grass in the north pond farming site only this year we expect to do our planting some two weeks earlier than last year, last years crop proved of considerable value throughout the winter, carrying some 200 to 600 Geese constantly, The controlled burning program will be continued this season on Spartina marshes, but will be unable to burn as much as last season, this years plans call for App. 350 Acres burned some time during the first two weeks in January, If no more Hurricanes occur we should have an adequate food supply for the coming winter.

3, Botulism and other diseases

None has been noted on the refuge for this period.

4. Fur bearing Animals

Fur bearers on Pea Island consist of App. 40 Otters which shows no increase or decrease in numbers as far as can be told from constant ~~REMARK~~ Observation, and some 1000 muskrats, (Estimated) that is thought to have increased some since the severe drought of last summer, After the high tide of the storm receded Muskrats could be seen all over the Refuge in places they were never seen before, Which leads us to believe that perhaps we have more rats on Pea Island than was thought before, Of course these were rats that was flushed out of the tide water creeks and pot holes along the sound side which we hardly ever see, Estimates heretofore have been based mostly on rats within the two pond Areas where they can be most readily seen.

The two or three Nutria known to be present on the refuge have not been seen during the period, As far as is known all the fur bearers on the Refuge is in very good condition and have an adequate supply of food.

III REFUGE DEVELOPMENT AND MAINT

A. Physical Development

This phase of activity have accounted for the major portion of Refuge personnels time for this period, Construction of App 12 miles of fence line running along the west side of the new State Highway was undertaken, altho funds were set up August was a year ago, Due to a shortage of critical Materials, (Copper Wire) Actual construction was not started until April this year, This job was rushed with all possible speed in an effort to complete the project prior to June 30, This was not possible due to non delivery of over half of the wire until after this date, It was necessary to discontinue the crew after June 30 due to withdrawl of funds, Since that date we have not been able to employ a single man, Completion of the job was undertaken by refuge personnel and on Aug. 13, Date when the Hurricane Struck we only liked App 3/8 Miles of wire being in place and 12 Gates to Swing, The Storm attending high tide Covered app. 70 % of the fence smothering it with all kinds of drift and breaking it down in 11 places, all available time since that date has been used in clearing the drift, Repairing Breaks and swung one gate, As of this date we still have to string 3/8 Mile of wire and swing 11 more gates before the job is Complete.

In addition to the fencing project, Two Directional signs 6 X 8 Ft. have been constructed, painted and erected.

B. Maintenance

This activity have been at a low Ebb for the period due to the fence job and has been limited to the essentials, Trucks, Tractors and all farming equipment have been kept in condition and minor damages to some of the windows caused by the storm have been repaired, Most of the south pond Road was piled high with drift and 6 man day was spent clearing the road for truck use, this job is not completed.

C, Fires, Wild or otherwise

No wild fires occurred on the Refuge, And no Controlled burning was done this period.

D, Farming or other plantings

No farming was carried on this period with the exceptions of three Experimental plots of Chufas, consisting of App 1 Acre to each plot The two plots planted near the overnight cabin was drowned out by the high tide, and the one planted on the old farming site in the north pond area, Was drowned out by Rainwater, Farming looks hopeless on Pea Island.

IV Economic Uses

- A, No Economic uses occurred with the exception of Mr. J. B. Tillett's concession near the Oregon Inlet ferry landing, The second payment in the amount of \$100.00 was transmitted to the Regional office in July

V, FIELD INVESTIGATION AND RESEARCH

- A, This phase of activity was limited to Bi-monthly brood counts around the two ponds, and two surveys made out in the sound in connection with the abundance of aquatics in the shoal waters.

VI PUBLIC RELATIONS

A, Recreational Uses

As was expected this seasons flux of Visitors looking for recreation has exceeded all past seasons, With all the publicity being given the area by the park service, the number of Visitors was not how many would have come, but how many the present ferry service could handle, with the two old ferrys running the daily average was from 250 to 350 vehicles daily, a new ferry was put in operation on July 15, with a capacity of 25 Vehicles, this almost doubled the flow but was to late in the season to be of use during the peak.

Surf fishing and bathing was the main attraction as far as public use of the refuge was concerned, fishing was very poor however and not many drum was caught, Blues ran in good numbers and lot of those were caught but was small in size averaging one to one and a half pounds each, It was planned to set up a checking Station on this activity, But due to the fence construction Schedule this was impossible this season.

The recreational Area established on the north end of the Island was well petronized, and on some week ends 8 to 12 overnight camping parties could be counted, Lack of water and toilet facilities hamper

Recreational Uses Cont.

the use of the area to a great extent, not to mention the mosquitoes which has been something terrible for the last three months of the season, In fact they were so bad at times, Refuge personnel working on the fencing job had to quit and find other things to do until a good breeze came up.

B, Violations

No violations of a serious nature occurred for the period, Two camping parties was found out of bounds and rirected to move into the camping Area, Some dumping occurred on Refuge lands, Warnings were issued in these instances, No prosecution proceedings were instigated.

VII Pest plant Control

A, Cattail Eradication

This Item should no doubt have been carried under Maintenance but since it was omitted it will be added here.

Plans were to retreat the 65 acres of cattail existing in the south pond by mechanical means as was done last year with very good results, during the months of June and July, To that end the heavy Stalk Cutter was modified so that it would not mire down in soft ground, Water levels remained so high throughout the entire summer that this was found to be impossible.

Close check on the check plots established, leads us to believe that one treatment during the last week in June with another during the last week in ~~XXXX~~ August will give a 90 % kill, The means is on hand to carry out this kind of operation and if circumstances permit futher work along this plan will be done.

Date Submitted Sept. 11, 1953

Report Prepared by

Approved

Carl V. Jermolovich

Herrie B. Turner

Assistant Regional Refuge Supervisor

Public Relations, Visitors Schedule

OFFICIAL

Richard E. Griffith	5/11/53	Washington, D. C.
Phillip A. Dumont	5/11/53	" "
A. C. Stratton	5/12/53	Manteo, N/ C.
Victor C. Cahalane	5/12/53	Richmond, Va.
H. Raymond Gregg	5/12/53	" "
Elbert Cox	5/12/53	" "
Clyde Patton	5/12/53	Raleigh, N. C.
Howard A. Miller	7/18/53	Atlanta, Ga.
Carl V. Fermanich	7/18/53	" "
Kenneth Wilson	7/27/53	Currituck, N. C.

UNOFFICIAL

M. E. Tharsher	6/19/53	Decatur, Ala.
Mr. & Mrs. Mack Macleod	8/12/53	Norfolk, Va.
Dr. A. E. Radford	8/17/53	Chapel Hill, N. C.
C. E. Miller	8/17/53	" " "
John Hasloop	8/17/53	" " "
W. F. Rountrey, and a party of 19 other members of the Cape Henry Bird Club	8/29/53	Norfolk, Va.

C O P Y

C O P Y

Form 3-1750
NR-1

WATERFOWL

Pea Island Refuge

Months of May 1 to August 31, 1953

Species Common Name	First Seen		Peak Concentration		Last Seen		Young Produced		Total Estimated for Period
	Number	Date	Number	Date	Number	Date	Broods Seen	Estimated Total	
I. <u>Swans</u> Whistling	1	6/8	1		Still here				1
II. <u>Geese</u> Canada			65	5/1	7	6/8			65
III. <u>Ducks</u> Black duck Gadwall	Res.		180	5/28	102	7/14			300
	Res.		700	5/28	200	7/29			990
IV. <u>Coot:</u>			22	5/1	2	6/8			22

SUMMARIES

Dates waterfowl counts made

Percent of waterfowl area covered

Dates brood counts made: Twice monthly during nesting season.

Percent of area covered in brood counts: 90%

Total production:

Geese: 0

Ducks: 854

Coots: 0

Total waterfowl days usage during period 154,560

Peak waterfowl numbers 1288

Areas used by concentrations Two pond areas

Principal nesting areas this season Both ponds

Reported by Lewis B. Turner

3-1751

Form NR-1A
(Nov. 1945)

C O P Y

MIGRATORY BIRDS
(other than waterfowl)Refuge Pea IslandMonth of May 1to Aug. 31, 1953 19

(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>										
Grebes, Piebill	Res.		22	8/29	Still here			3	9	30
Pelicans, Brown			6	8/14	6	8/14				10
Egrets, American	18	5/8	50	6/24	21	8/29				75
Egrets, Snowy	9	5/8	160	6/24	42	8/29	1	Est. 12	30	185
Rails, Clapper	Res. Seen throughout the year - no accurate data									
Herons, Great Blue	2	5/8	9	6/24	6	8/29				15
Herons, Little Blue	20	5/8	38	6/24	17	8/29	1	Est. 7	20	70
Herons, Louisiana	7	5/8	35	6/24	9	8/29	1	Est. 12	35	70
Herons, Black-crowned	Res.						2	Est. 25	60	125
Herons, Yellow-crowned	Res.						1	Est. 15	40	85
II. <u>Shorebirds, Gulls and Terns:</u>										
Plovers, Semiplamated	225	5/8	700	7/24	180	8/29				2000
Plovers, Black Belly	9	5/8	160	6/24	18	8/29				250
Turnstones, Ruddy	118	5/8	1000	6/24	300.	8/29				1000
Willetts	20	5/8	115	6/24	40	8/29				180
Yellow Legs, Great&Less	120	5/8	750	6/24	55	8/29				1000
Gulls, Herring	600	5/8	Migrating,		70	8/29				1000
Dowitchers	1	5/8	100	6/24	9	8/29				350
Sandpipers, all species	700	5/8	4500	6/24	2000	8/29				6000
Gulls, Laughing	700	5/8	3800	6/24	2500	8/29	3	Est. 1600	1800	5000
Terns, Royal	45	5/8	250	6/24	30	8/29	1	Est. 50	150	600
Terns, Common	170	5/8	600	6/24	130	8/29				750
Terns, Black	200	8/3	1500	8/29	Still here					
Terns, Least	70	5/8	800	6/24	70	8/29				1200
Skimmers, Black	150	5/8	300	8/29	Still here		1	Est. 60	100	450

(1)	(2)	(3)	(4)	(5)	(6)
III. <u>Doves and Pigeons:</u> Mourning dove White-winged dove	2 to 5 birds seen at intervals during migration season				
IV. <u>Predaceous Birds:</u> Golden eagle Duck hawk Horned owl Magpie Raven Crow	Small flocks of these birds 15 to 30 present during the winter months.				
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 (Columbiformes to Ciconiiformes)
II. Shorebirds, Gulls and Terns (Charadriiformes) & Gruiformes)
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

C O P Y

Refuge Pea Island

Months of May 1 to August 31, 1953

(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'vd.	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	except		for a few doves	passing	thru	during	migration	season

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.

NR-8a

C O P Y

REFUGE GRAIN REPORT

Pea Island Refuge

Months of May 1 thru Aug. 31, 1953

Yellow Corn, shelled

8 bushels on hand beginning of period

8 bushels on hand end of period

Proposed use:

Trapping Geese.

Collection point: Brigantine Refuge, carry over from last season

Grain is stored at: garage, overnight cabin.

Pea Island National Wildlife Refuge
 Narrative Report
 January 1, to April 30, 1963

CONTENTS

I, General	
A, Weather Conditions	1
II WILDLIFE	
A, Migratory Birds	
1, Population and Behavior	2-3
2, Food and Cover	3
3, Water Conditions	3
4, Botulism and Lead Poisoning	4
5 Other Disease	4
B, Upland Game Birds	4
C, Big Game Animals	4
D, Fur Bearing Animals	4
E, Predators	4
III, Refuge Development and Maintenance	
A, Physical Developments	5
B, Maintenance	5
C, Farming	5
D, Fires, Wild and otherwise	5
IV, Economic Uses	
A, Commercial	6
V, B, Goose Disease Study	6
VI, Public Relations	
A, Publicity	6-7
B, Recreational	7
C, Violations	7
D, Visitors	7
Controlled Burning Report	8
NR Forms	8

Page

PEA ISLAND NATIONAL WILDLIFE REFUGE

NARRATIVE REPORT

JANUARY 1 TO APRIL 30, 1953

I. GENERAL

A. Weather Conditions

The last half of the winter was somewhat milder and warmer than the same period for last year, Also considerable more rainfall occurred with a total precipitation of 12.40 inches compared with 7.66 inches last year same period, Three North Easters occurred but were normal for the season and caused no damage except to flood out some portions of the east side of the refuge for a short period of time and slowing down traffic along the new highway, Sand fences along both side of the two ponds held and no salt water intered either pond,

Data listed in the table below was furnished by the local Coop. weather Station located in Manteo, and managed by Mrs. Rosa Drinkwater, At times this data did not correspond with actual conditions that prevailed in the Refuge Area in past years, Especially as to rainfall, and temperatures are consistently about 5 degrees higher along the outer banks during the winter months.

	Precipitation		Temperatures	
	Actual	Dep. from Normal	Max.	Min.
Jan.	2.90	- 1.60	70	24
Feb.	5.02	X .52	71	32
March	1.58	- 2.90	76	32
April	2.90	- 1.60	81	34
Tot.	<u>12.40</u>	Tot. <u>664</u>	<u>81</u>	<u>32</u>

II. Wildlife

A. Migratory Birds

1. Population and Behavior

Populations of wintering waterfowl in General compare very Favorably with those of the same period a year ago with a few exceptions about half of the 12000 Greater Snow Geese left the refuge area on the night of Dec. 30, the rest remaining until Jan. 6th. when the last half of the flock departed only leaving 18 or 20 these remained for several weeks, The last 9 of these were seen for the last time on March 3,

Canada Geese numbered app. 8000 at the beginning of the period but by the second week in Feb. this number had decreased to just under 6000 these remained until the start of the migrating season the first week in March and by the 23, of March only about 900 remained on the refuge, these continued to dribble out until at the end of the period there were only about 30 left,

Ducks at the start of the period numbered app. 28000 all Species combined this is app. 10,000 more than for the same period last year but can be accounted for by a Raft of App. 8000 Ringneck and Scaup ducks that used continually in the north pond for a period of about 6 weeks that were not present last year, By Feb. 15, this number had dropped to about 16000 and continued to decrease steadily until by April 10, there were only about 1200 still on the Refuge, Most of these being Gadwall and Black Ducks, With app. 300 Bluwing and Greenwing Teal mixed in with them, As of to date all the teal are gone leaving 700 or 800 Gadwall and blackducks still present, It is presumed this is the summer nesting Ducks, and it is known that the blacks are already nesting,

Swan at the peak of the season numbered 240 but at the start of the period only 200 could be counted, This number remained almost constant until about Feb. 25, when they had decreased to 150 and showed a steady decline until the last 18 were seen on the north pond on April 7, none were present at the end of the period.

Geese were very short in numbers compared with last season, Starting the period with app. 600 most of these using in the north pond and did not lose in numbers until the main Migration started, along with the Geese and Ducks, at the end of the period there were about a dozen still present in the north pond.

The spring Migration of Gulls, Terns, Herons, Egrets, and Shore birds began about one week earlier than last year, Great Black, Herring, and Ringbill Gulls started leaving on or about the 15th. of March, and at the end of the period no Black Backed Gulls were left and only a few of the others, Laughing Gulls, Common Terns, Snowy Egrets, and all the Heron Family Began arriving about the 23rd. of March, Black Skimmers

Usually late arrivals were about two weeks early, first coming in on or about the 1st. of April, at the end of the period there were about 200 present, While Laughing gulls, Royal, Common, and least Terns, numbered in the thousands, Gannets were present in varying numbers throughout the period with a peak of at least 3000 on march 10, along the eastern shore of the refuge, seemed to be all working north, This is usual at this time of the year.

Shore birds of all kinds, Including Sandpipers, Plovers, Yellow legs Willets, Sanderlings and turnstones started arriving about march 15th. and continued to increase all thru the rest of march and april, Numbering thousands at the end of the period.

2. Food and Cover

Supplies of food as in past years leave a lot to be desired and as Usual was in short supply at the end of Jan. but it is not believed to have been as bad as in some years past, As was reported 52 Acres of Rye Grass was seeded out during Oct. Last year, and with the 470 Acres of Marsh that was burned off during jan. Some green browse was provided for the last 10 weeks of the season and is credited with the food situation not becoming critical, These burns and the Rye Grass mentioned, furnished at least 65% of the Canada Geese and a goodly number of Black and pintail ducks with a large percent of their food requirements during the latter part of the period as they could be seen feeding on the two Areas in question almost constantly during the last two months they were present.

Geese trapped during this period showed to be in fair to good condition, Close observations show that most of the Geese and part of the duck populations start tapering off on the use of the sound for a feeding ground during the last two weeks of Jan and continues until the last of the season.

This would indicate that the available food supply in the sound waters are about exhausted or of such poor quality that land use feeding is preferred, and accounts for the cleanup of all beach Pea Available and any Green vegetation that can be found during this period.

More experiments is planned on Chufa plantings this summer in an effort to find something that will Grow on Pea Island and that will solve the vital food problem that exist on the Refuge.

Cover is no problem ~~sax~~ Compared to the ^{Food} situation and is believed to be adequate for all Species that need cover.

3. Water Condition

With water levels up to about normal in both of the ponds it is far better than for the same time last year, Levels have remained at 4.50 to 5.30 throughout the period, which is adequate for waterfowl use and to propagate growth of vegetative Species that is common to the ponds,

The waters of the sound have been normal with no severe south west wind to roll it up and cause damage to aquatic vegetation growths that grow on the shoals.

No salinity test have been run during the period but with prevailing Rainfall it is thought to be somewhere normal or About 60% sea strength

4. Botulism and Lead Poisoning

None for the Season

5. Other Diseases

The unknown Disease that has affected the Canada Geese at Pea Island in past years was almost non existent this winter only having found 27 Geese that was known sick or dead of the malady, These was from Jan 8, until the end of the Period, This subject will be more fully reported on under Field Investigation and Research.

B. Upland Game Birds

Does not apply to Pea Island except for an occasional 2 or 3 doves Migrating thru.

C. Big Game Animals

Does not apply to Pea Island

D. Fur bearing Animals

The drought that prevailed last summer, causing extreme low water levels in both ponds, Caused some thought that the population of Muskrats that inhabits the Refuge might show a decline in numbers, but with water levels back up to Normal again, we can detect no radical change in numbers as a matter of fact if any thing there is more rats present than before the drought occurred.

Previous Estimates based on counts of houses and rats seen has been 800 to 1000 rats for the entire Area, This is thought to be a very conservative Estimate.

The Otter Population remain about Static as far as can be determined very little change in Sign and Activities of these animals has been noted in the three last years, Estimates of Total Population is about 40 Animals.

Two Nutria are known to be on the refuge but are not seen except two or three times a year.

Ⓜ

E. Predators

No predators of a serious nature inhabit the Refuge, We still have a few wild house cats despite our effort to get rid of them, One Golden Eagle that was a permanent winter resident caused considerable turmoil among the waterfowl, and at one time found with a freshly killed Canada goose, The Eagle was forced to leave his kill on the ground and upon investigation the Goose was found to be an adult bird in good condition and still warm, This is the only known predation but no doubt there was other.

III, Refuge Development and Maint.

A. Physical Development

Work on Developments was somewhat slow for the period, Due mostly to lack of materials needed for certain projects, and an overload of ~~MM~~ Maintenance.

The new grease Ramp that was started during the last period was completed and is now in use.

two New recognitions signs was hauled in from Sandhills Refuge and erected according to standard plans at the north and south boundarys.

The 12 mile fencing project for which funds have been allotted was held up until April 20, pending the availability of copper wire for it construction clearence was obtained on this and actual work was started April 20, at the end od the period 1320 of the concrete post had been hauled out, Distributed and set up this is about half of the concrete post, in addition there will be App. 500 cresote post used which is now on Contract, If the labor situation does not become critical this project may yet be completed by June 30.

B. Maintenance

Work on Maintenance accounted for the major portion of refuge personnel time for this period, the rehabilitation project on all of the buildings was under was almost constantly, The Garage and service Bldg, was completed, this included weatherboarding with asbestos Shingles, Repairs to all doors and windows, Trim work painting etc. Themess hall Bldg. was in a sad state of neglect and required that all siding be refastened before Shingles could be applied, That was done and the Shingling job completed some repair work was done on windows and doors but still lacks considerable work to complete it, The interior of Quarters occupied by Mr. Phillips in the main Residence Bldg, required repairs to the plaster work and repainting, Two coats of paint was applied throughout, the Front poarch was painted two coats, Floor and ceiling, Railings and other trim work, Work on this project had to be discontinued because of the urgency of completing the fencing project before the end of the fiscal year, It is doubtful if futher progress will be possible before june 30, on this job,

Routine Maintenance was kepted up on Refuge equipment, Such as trucks tractors, The Skiff boat was hauled out and the old paint removed and painted two coats inside and out.

C. Farming

No farming was carried on during the period

D. Fires, Wild and otherwise

No fires ocured on the Refuge except those used in the controlled burning program, Details of which will be found undaer report of controlled burning Program, (An Appendix)

IV, Economic Uses

A, Commercial

None to report for the period except the concession contract of Mr. J. B. Tillett, Located on the north end of the Island, Whoes Establishment is now open for business

V, Field Investigation and Applied Research

A, Goose disease study

Considerable Time was put into this project during the period, mostly keeping a supply of corn on hand and keeping all trap sites baited once daily, And the collection of all sick and dead geese possible over the entire Refuge Area, App. 30 man days was devoted to this project for the period ending, With the following results.

Total Geese Trapped,	336
144 of this number was repeats.	
Total sent to Patuxent for Autopsy,	26
Total Geese neck banded	126
Total Bone marrow samples taken	60
Total of all Geese trapped, Immatures	46%

A Total of 11000 lbs. of corn was used in the trapping program this season compared with about the same amount for last season when a total of 980 Geese were trapped, ?

VI, Public Relations

A, Publicity

Due to such a tight work Schedule for the period there has been very little time available to devote to this phase of activity, Request for all kinds of Information continues to arrive in increasing numbers, most of these have been furnished to the best of our ability, There is an urgent need for printed matter giving an outline of Pea Island, and it is planed to submit a draft of what is needed in the near future for approval and production.

A. Publicity Cont.

One talk of an hour was given to all the students of the grade school at Wanchese N. C. Concerning the importance of wildlife conservation 126 pupils were in attendance and seemed very much interested.

B. Recreational

Due to the poor quality of the fishing along the surf line during the first two months of the period there was very few visitors out to engage in surf fishing. With the arrival of warmer weather about the middle of march, parties have been more numerous for the last six weeks. Based on several checks taken during the period, it is estimated that app. 370 man days of fishing have been done in the period mentioned above.

In addition several parties of sightseers have paid the Refuge a visit. Most of them are interested in securing pictures of most any kind of Wildlife. Even to stands of Wax myrtle or flowers in bloom. As the summer progresses there is expected an ever increasing number of visitors. Especially to take advantage of surf and sun bathing.

C. Violations

None occurred for the period.

D. Visitors

Official

Mr. Carl V. Fermanich	3/30/53	Atlanta, Ga.
Mr. Richard E. Griffith	3/31/53	Washington, D. C.
Dr. Clarence Cottam	3/31/53	Washington, D. C.

Unofficial

Mr. E. T. McNight and a party of seven others	1/17/53	Washington, D. C.
---	---------	-------------------

Date Submitted

May 9, 1953

Prepared by

Lucian B. Turner

CONTROLLED BURNING PROGRAM
PEA ISLAND REFUGE
1952-53

There has been an approved burning program in effect at this Station for several years but according to the records available at this Station there did not seem to have been much progress made in the Actual burning phase. Probably because no fire lines had been established prior to 1950, This plan called for burning at two year intervals, It has since been determined that this was not practical and the plan was modified to burn at three year periods instead, app. 11 miles of fire lines have since been established and maintained which has made it possible to carry out the burning with a minimum of effort when weather and wind conditions are most favorable.

This years program called for burning off three tracts containing app. 470 Acres total, Tract one and tract two was burned off during the 1949-50 season and Tract three had not been burned in at least six years.

Tract one located app. one mile south of the Oregon Inlet C. G. Station containing about 170 Acres, Dominant Growth of Vegetative Matter was *Spartina Patens* 70% *Scirpus Am.* and Misc. 30% this tract is fringed by a narrow border of Wax Myrtle along the west side, Actual burning was done on Jan 28, North East Winds app. 25MPH Clean burn was obtained on 80% of the Area.

Tract two, Located along the East side of the south pond and containing App.90 Acres, Dominant growth *Spartina Patens*, 75% *Scirpus Am.* Broom Sedge, Misc Matter, 25% Parts of this tract is overgrown with Wax Myrtle moderate stand, Burning of the tract was also done on Jan.28 with North East wind app. 25 MPH, Due to high water levels in the pond at the time of burning only about 70% of this area was cleaned burn.

Tract Three, Extending from Sandridge Lodge south to the south boundary of the refuge containing app. 210 Acres, Dominant Growth was *Spartina Patens* 60% *Juncus*, Broom Sedge and bindweed 40%, This tract was burned off on Jan. 29, Due east wind app. 15 MPH Clean burn over about 75% of the Area was obtained.

First noticeable Greoup was Feb. 8, when Canada Geese, Black and Pintail Ducks, began feeding on the Areas and was utilized by large numbers until Migration was over, As stated under food and cover these burned over Areas plus the Rye Grass is credited with furnishing the difference between a critical food Shortage and enough to get by on for the last two months of the winter season.

Date Submitted

May 9, 1953

Report prepared by

Allen R Turner

Approved: May 13, 1953
159d) C. V. J. [Signature]

WATERFOWL

Refuge Pea Island, Manteo, N. C. Months of Jan. to April 30, 1953

(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			200	1/8/53	18	4/7			200
II. <u>Geese:</u> Canada goose Cackling goose Brant White-fronted goose Snow goose Blue goose			8000	1/8/53	32	4/30			8000
			6000	1/1/53	9	3/3			6000
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.		65 6000 1200 750 4000 600 700 X8 250 4500 4500 550	1/1/53 1/1/53 1/1/53 1/1/53 1/1/53 1/1/53 3/30/53 1/1/53 1/1/53 1/1/53 1/1/53 1/1/53 1/1/53 1/1/53 1/1/53 1/1/53 1/1/53	2 23 60 200 16 30 200 16 35	3/22 3/22 3/22 3/22 3/22/ 4/24 3/22 2/25 3/22 3/22 3/22			100 6000 1500 900 4500 900 700 350 4500 4500 800
IV. <u>Coot:</u>			600	1/1	12	4/29			600

SUMMARIES

Dates waterfowl counts made <u>Two Week Intervals</u>	Total waterfowl usage during period <u>15.82000</u>
Percent of waterfowl area covered <u>90%</u>	Peak waterfowl numbers <u>37915</u>
Dates brood counts made _____	Areas used by concentrations <u>Entire Refuge Area</u>
Percent of area covered in brood counts _____	_____
Total production:	Principal nesting areas this season _____
Geese _____	_____
Ducks _____	
Coots _____	Reported by <u>Lewis E. Turner</u>

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 IslandMonths of Janto April 30, 19453

(1) Species	(2) First Seen		(3) Peak Numbers		(4) Last Seen		(5) Production			(6) Total
	Number	Date	Number	Date	Number	Date	Number Colonies	Total # Nests	Total Young	Estimated Number
I. <u>Water and Marsh Birds:</u>										
Commerants	23									
Hérons, Great Blue	Res	3/10/53	480	4/13						600
" Louisanna	Res		3	4/12/53						12
" Black Crowned	Res		23	4/13						30
" Yellow Crowned	Res		70	4/13						100
Egrets American	2	2/18/53	40	4/13						75
Egrets Snowy	1	3/10/53	26	4/13						70
Loons Common	Const. Period		48	4/13						80
Grebes Horned	" "		425	1/20	6	4/18/53				500
" Piebill	" "		50	2/18	2	4/29/53				60
Felicans Grey	2	" "	86	2/18	7	4/29/53				100
	3	3/10/53	26	4/13/53						50
II. <u>Shorebirds, Gulls and Terns:</u>										
Gulls, Black Backed	Const. Period		257	2/18	6	4/29/53				300
" Herring	" "		2600	2/18	300	4/29/53				3500
" Ring Bill	" "		1000	2/18	24	4/29/53				1500
" Laughing	22	3/7/53	2000	4/29						3000
Terns Common Royal	3	3/18/53	150	4/29						300
" Common	7	3/18/53	200	4/29						500
" Least	2	3/18	300	4/29						500
Yellow Legs, Greater	55	3/18	300	4/29						450
Willetts	2	3/18	60	4/29						125
Sandpipers, All Species	2000	3/18	5000	4/29						6000

(over)

(1)	(2)	(3)	(4)	(5)	(6)
III. <u>Doves and Pigeons</u> :					
Mourning dove	Seen 2 or 3 at the time passing thru		None	Permanent	
White-winged dove					
IV. <u>Predaceous Birds</u> :					
Golden eagle	1 Permanent thru the winter months				
Duck hawk					
Horned owl					
Magpie					
Raven					
Crow					
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.

Form NR-4
(June 1945)

SMALL MAMMALS

Refuge Pea Island, Manteo, N. C.

Period
Year ending April 30, 1953

(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		Furs Destroyed
							Permit Number	Trappers Share	Refuge share					
Muskrats	Cattail, Scirpus Am.	Unknown	0	0	0	0	0							800-900
Otter	Ponds and Tide water Creeks	Unknown	0	0	0	0	0							40

* List removals by Predator Animal Hunter

REMARKS: Numbers not considered high enough to warrant harvesting

Lewis B. Turner

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.

Year 1953

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>1</u>	<u>27</u>	<u>36</u>
_____	_____	_____
_____	_____	_____

Number Recovered None

Number lost 27

Source of infection Unknown

Water conditions Good

Food conditions Fair

Remarks Research on this Disease still in Progress

3-1570
NR-8a

REFUGE GRAIN REPORT

Refuge Pea Island, Manteo, N. C.

Months of Jan. thru April 3, 1945.

(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.
Yellow Corn	4000 Lbs	600 Lbs	4600 Lbs			Trapping	4500 Lbs	300 Lbs		Trapping	0

(8) Indicate shipping or collection points Brigantine Refuge, Bellerose, N. C.

(9) Grain is stored at Overnight cabin Garage

(10) Remarks Small Carry Over from trapping season

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.