

PEA ISLAND NATIONAL WILDLIFE REFUGE

Narrative Report for Period September 1 through December 31, 1959

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PEA ISLAND NATIONAL WILDLIFE REFUGE

REFUGE NARRATIVE REPORT

September 1 through December 31, 1959

Charles F. Noble, Refuge Manager
Houston C. Phillips, Refuge Aid

I. GENERAL

A. Weather Conditions

The one most important factor concerning the weather for the present report period has been the lack of rainfall. In fact, the lack of rainfall for the last eight months is significant. For the calendar year 1959, a deficiency of 10.71 inches was recorded. It is more important to note this deficiency when precipitation for the last eight months is considered since this includes all of the warm weather months and fall; since May 1, Pea Island Refuge has received 22.84 inches, or over 18 $\frac{1}{2}$ inches less than the average normal for the past five years.

It is good to report that no hurricanes came close enough to affect this area this fall. One alert came near the 1st of September but the hurricane went inland without so much as producing cloudy skies in this area.

North-easters are expected during these months. Only six times have they developed and none have been severe. The highest wind recorded was 29 m.p.h.

This fall and winter have been relatively mild. No hard freezes have occurred. The lowest temperature recorded this period was 28 degrees as compared to a low of 22 degrees during this period last year. In general, the weather conditions have been good.

The following weather data was furnished us by the National Park Service from their weather station located three miles north of the refuge. It reflects weather conditions as they actually are on the refuge. For normal precipitation, the five year average since this weather station has been operated is used.

<u>Month</u>	<u>Precipitation</u>			<u>Temperatures</u>	
	<u>This Month</u>	<u>Normal</u>	<u>Dev. from Normal</u>	<u>Max.</u>	<u>Min.</u>
Sept. -	4.18	6.96	- 2.78	91	59
Oct. -	2.81	4.80	- 1.99	88	44
Nov. -	2.01	3.03	- 1.02	80	28
Dec. -	<u>4.09</u>	<u>3.32</u>	<u>- 0.77</u>	<u>67</u>	<u>32</u>
Totals -	13.09	18.11	- 5.02	Extremes - 91	28
Precipitation for 1959 -				38.59 inches	
Average Normal Annual Precipitation -				<u>49.30 inches</u>	
Year 1959 Deviation from Normal -				- 10.71 inches	

B. Habitat Conditions

1. Water Conditions

Within the two impoundments the water level has been extremely low for late fall and winter. The South Pond was almost dry even as late as mid-November. The North Pond has been low, but only narrow marginal edges of the pond bottom have become exposed.

Water conditions in the Pamlico Sound portion of the refuge remained good through the latter part of the growing season. No strong storms developed to destroy this vegetation. Tides have been higher in these waters than during the fall of 1958.

Below is comparative data on both impoundments for the last four months of 1958 and 1959.

<u>End of Month</u>	<u>Staff Gauge Readings</u>			
	<u>North Pond</u>		<u>South Pond</u>	
	<u>1958</u>	<u>1959</u>	<u>1958</u>	<u>1959</u>
Sept. -	4.12	3.78	4.28	3.46
Oct. -	4.40	3.80	4.46	3.50
Nov. -	4.50	3.90	4.78	3.82
Dec. -	4.90	4.26	5.00	4.38

2. Food and Cover

To date the available waterfowl foods have been adequate for the population which the refuge has carried. Salt marshes cordgrass and salt meadow cordgrass are still abundant. Submerged aquatics in the two fresh water impoundments are almost gone. The marshes of the South Pond has carried good numbers of waterfowl; however, it will soon be eaten out if a good flock of birds continue to use it. If the water level rises, however, it will inundate some additional acreage of marsh making additional food available. The 25 acre millet field was used for about two weeks by several hundred Canada geese and since that time has practically been abandoned. Here again, if parts of this field are inundated, dabbling ducks are expected to make use of it. The ryegrass field located in the North Pond is probably the best ever produced at Pea Island. Continued use has been made of it. Under unusually bad weather conditions as many as 3000 Canada geese have been seen using this field. Weather being mild, plant growth continues with heavy browsing.

The shoal areas on Pamlico Sound still provide a good source of food, particularly for the Canada goose flock. Use of this area has been much less than last year until near the end of December.

A large area of marsh on the north end of the refuge was burned on December 20. This area will provide an additional feeding area for snow and Canada geese.

III. WILDLIFE

A. Migratory Birds

1. Waterfowl

The first wintering species of ducks arrived on September 21 when 150 American widgeons and 50 pintails were seen resting on the North Pond. These species increased rapidly in the first and second weeks of October, followed a few weeks later by increasing numbers of black ducks and green-winged teal. About the first of December a flock of 3000 pintails began to use the rich smartweed marshes of the South Pond. A sizeable flock of ducks used this marsh throughout December. Last year only meager numbers of ducks used the South Pond marshes. On the refuge, duck-use has been on a par with last years use; however, in surrounding areas duck populations have been exceptionally low. The peak population last year was just over 9000 and again this year it has been slightly over 9000. Species composition has changed somewhat with bufflehead showing a definite

1. Waterfowl - Continued

increase and ruddys and diving ducks decreasing. Coots also have decreased noticeably.

The first Canada geese arrived in a flock of 18 on October 5. The major influx of this species came in the third and last weeks of October. Canada geese have shown a definite decline on the refuge as compared to last year. The peak population during this period has been 5400 as compared with 8400 last year. The greatest change has been that no large flocks have used the Pamlico Sound shoals as they did last year. Canada geese have fed in the cordgrass marshes more this year, particularly in the early part of the season.

A flock of 45 snow geese arrived on October 26. The beginning of the rapid increase came on Armistice Day, November 11 when a flock of about 3000 arrived on the North Pond. The peak population has been 7600 which is a decrease of 13% from the 8800 recorded last year. By the last of December nearly the entire flock was using the controlled burned marsh on the north end of the refuge. Early in the season the flock was disbursed and flocks of 15 to 4000 could be found from one end of the refuge to the other end.

2. Wading Birds, Gulls, Terns, and Shorebirds

With a late fall, many of the wading birds lingered late. The majority of the herons and egrets began leaving about October 1. The glossy ibis was seen as late as October 5.

Black skimmers were flocking before leaving on November 3. They were also seen later in the month. Brown pelicans were also in this area on November 3.

All species of gulls showed a decline as compared to last year. Those found in the area at this time are herring, ring-billed, and black-backed gulls.

The American avocet is frequenting the refuge in larger numbers than in past years. Fourteen were seen on the edge of the South Pond as late as November 11..

B. Upland Game Birds

The ring-necked pheasant is the only upland game bird found on the refuge. Its population is estimated at forty. It ranges from the north tip of the refuge to the south boundary.

C. Fur Animals, Predators, Rodents, and Other Mammals

There has been little change in the estimated population of muskrats, the major fur bearer, which stands at approximately 2000.

The first refuge record of a rabbit being found on Pea Island Refuge came this fall. One was killed by a car on the highway near the South Pond dike on November 2.

D. Hawks, Eagles, and Crows

Few crows are seen at Pea Island, but boat-tailed grackles are common and often feed on the corn placed at goose trapping sites.

Marsh hawks, duck hawks, and sparrow hawks have been seen this winter.

E. Fish

Surf fishing is common along the 13 mile beach line on the refuge. A fair run of spotted weakfish(speckled trout) produced some fishing during November and December. Not too many fishermen found these since it was late in the season. Flounder fishing in early fall was good, and numbers of fishermen made good catches in the Oregon Inlet vicinity. Few channel bass were caught this fall although one fisherman caught one directly in front of Pea Island Refuge Field Headquarters.

F. Diseases

Few sick geese have been observed. Only four dead Canada geese have been found this winter; all were in December.

III. REFUGE DEVELOPMENT AND MAINTENANCE

A. Physical Development

No major development projects are underway at Pea Island.

The usual maintenance schedules have been maintained during the period. The patrol cabin re-vamping job was completed which includes door replacements, floor repairs, rigging oil storage drum outside, and giving a complete paint job to the inside. Fence repairs were made; roads around the ponds were mowed and the brush cut; a gas heating stove was installed in the reception office; the hot water heater in the residence was replaced; regular maintenance to vehicles and tractors was accom-

A. Physical Development - Continued

plished; many other minor maintenance and repair jobs were done. Fire lines were re-plowed on units set up for planned burning.

B. Plantings - Cultivated Crops

Sixty acres of annual ryegrass was planted in the North Pond by mowing, seeding, and fertilizing. After mowing low, the field was seeded at the rate of 100 pounds to the acre. 150 pounds per acre of 10-20-20 fertilizer was applied. Three weeks later the crop was top dressed with 100 pounds per acre of 33 1/3% ammonium nitrate. Conditions at planting were ideal for equipment operation. Following the initial operation, showers came which helped produce a good stand over the entire field. Most plants have survived and remained green up to this date. Canada geese have used the area continually since the first of November. This probably the best browse crop year so far at Pea Island.

C. Collections and Receipts

None.

D. Control of Vegetation

1. Mechanical Control

A 20 acre area of large wax myrtle and black locust in the North Pond was plowed and dozed. Another years operation on this area will be required before it will become a productive marsh.

2. Herbicidal Control

Widely scattered patches of cattail were treated during a period from May 18 through May 28. All infestations treated were scattered over approximately 120 acres in the South Pond; they were from a few stems to one-half acre in size. The early date of spraying was due to the rapidly dropping pond level and the necessity to operate from a boat.

The total acreage treated was approximately 6 acres composed of 90% *Typha domingensis* and 10% *T. angustifolia*. Little floral development had begun and leaf development was only half mature. The plants were treated with 18.75 pounds acid equivalent per acre of dalapon(Dowpon) in 40 gallons of water. For the operation a gun jet nozzle was used with 100 feet of hose and pump mounted on a boat which was pulled. The cost of the materials for the operation was \$230.00 plus 96 man-hours labor which

2. Herbicidal Control - Continued

should be rated at \$1.00 per hour labor. This was the first treatment and produced an apparent 90% kill.

A mop-up job on cattail eradication of small patches is expected to continue on a yearly basis to hold this pest plant in check.

E. Planned Burning

To be reported in the narrative report for the period ending April 30, 1960.

F. Fires

No wild fires or building fires occurred during the period. Planned burning was carried out as scheduled.

IV. RESOURCES MANAGEMENT

A. Commercial Fishing

Commercial fishing crews operate along the ocean surf. No special permits are required for this activity. Good catches of very large striped bass were made by haul net operators in the surf in mid-December. On December 17 one crew was observed making a catch; the smallest striped bass caught weighed about 25 pounds; some ran up to 65 or 70 pounds. This fishing only lasted 3 or 4 days before sea conditions stopped netting operations.

B. Concessions

Pea Island Campground Store, located on the north end of Pea Island at Oregon Inlet, is a concession for which the National Park Service is responsible. Revenue from this concession is received by our Service at a Regional Office level.

Mr. James S. Turner was released as concessionaire at his request. Mr. John F. Connor succeeded Mr. Turner on September 22, 1959. Mr. Connor plans to maintain residence with his family on the premises on a year-round basis. So far, his operation of the facility has been a vast improvement over the previous concessionaire.

V. FIELD INVESTIGATION

Field investigation has consisted of weekly waterfowl counts, waterfowl food condition checks, routine search for sick or dead Canada geese, and a special census to locate all mallards in this area.

VI. PUBLIC RELATIONS

A. Recreational Uses

Total recreational-use days as determined by occasional spot checks will be found on Form NR-6.

The major use is sight-seeing. Other uses are fishing, bird watching, nature study, beach combing, photography, and a small amount of ocean bathing.

B. Refuge Visitors1. Registered Visitors

252 visitors from 21 States, the District of Columbia, Canada, and the Belgian Congo registered during this period at the reception office located at field headquarters.

2. Official Visitors

<u>Name and Organization</u>	<u>Date</u>	<u>Address</u>
Mr. Carl Fermanich, BSWF	10/13	Washington, D. C.
Mr. Richard Dittman, BSWF	10/13	"
Mr. Lawrence S. Givens, BSWF, R.O.	10/15	Atlanta, Ga.
Mr. Billy F. Horton, BSWF, R.O.	11/4	"
Mr. James A. Taylor, BSWF, R.O.	11/4	"
Mr. Thomas Martin, BSWF	12/9	Chincoteague, Va.
Mr. Al Noltemeier, BSWF	12/30	Washington, N. C.
Mr. Wade Refister, N. C. Wild. Prot.	12/30	Kitty Hawk, N. C.
Mr. Carl Yelverton, BSWF	12/31	Back Bay, N. C.

C. Refuge Participation

At the request of the National Park Service Superintendent, the manager attended the pre-hunting season meeting on regulations on November 6 at their visitor center. I was the only representative of our Service present and supplied information and literature on federal regulations applicable.

C. Refuge Participation - Continued

With Messrs. Fermanich and Dittman the manager attended a meeting and field trip on sand dune stabilization on the Seashore Area on October 13 and 14.

D. Violations

Rumors and some few signs indicated a minor amount of poaching on the refuge. Patrol was set up for several nights and days. No activity associated with violations was observed at these times; it is felt that very little game violations occur on the refuge since all patrols both day and night turned up no violations.

VII. OTHER ITEMS

A. Canada Goose Nasal Gland Study

By direction from the Regional Office, Canada goose head collections have been conducted at the National Park Service public hunting area check-out station at Bodie Island. Time did not allow adequate coverage of this detail, but very good cooperation was received from the N.P.S. on this activity. These heads were collected for Dr. Harold C. Hanson of Illinois State Natural History Survey for nasal gland studies in connection with salt secretion. 18 heads were collected from a total of 88 geese killed on this public hunting area.

B. Photographs

Please find snapshots pertaining to the refuge on the following page.

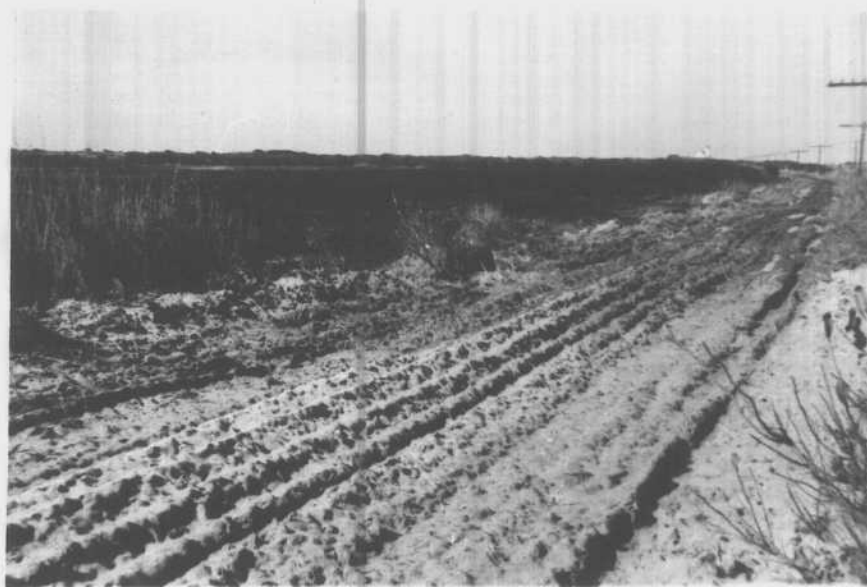
Date submitted: January 18, 1960 Respectfully submitted,

Approved: [Signature] [Signature]
Regional Refuge Supervisor Charles F. Noble
Refuge Manager

Jan. 20, 1960



Part of marsh on the north end before burning.



The same marsh after burning on December 20th.
6000 snow geese were using this area on Dec. 30.

W A T E R F O W L

REFUGE Pea Island

MONTHS OF Sept. 1 TO Dec. 31, 1959

(1) Species	(2) Weeks of reporting period									
	1	2	3	4	5	6	7	8	9	10
<u>Swans:</u>										
Whistling								4	35	50
Trumpeter										
<u>Geese:</u>										
Canada						200	500	2250	3800	3900
Cackling										
Brant										
White-fronted										
Snow									75	250
Blue								27	5	10
Other										
<u>Ducks:</u>										
Mallard								6	20	20
Black	250	200	200	200	250	300	500	700	700	700
Gadwall	400	400	400	350	350	400	400	600	550	500
Baldpate				150	150	900	1800	2500	2200	1800
Pintail				50	100	600	1300	1500	800	850
Green-winged teal								100	150	110
Blue-winged teal	300	300	200	100	70	50	30	10	10	
Cinnamon teal										
Shoveler										7
Wood										
Redhead										
Ring-necked										
Canvasback										
Scaup										
Goldeneye										
Bufflehead										
Ruddy										
Other										
Red-breasted Merganser	450	350	200	100	100	100	100	100	50	50
Unidentified								50	375	500
<u>Coot:</u>							20	30	200	200

3 -1750a

Cont. NR-1

(Rev. March 1953)

W A T E R F O W L
(Continuation Sheet)

REFUGE Pea IslandMONTHS OF Sept. 1 TO Dec. 31, 1959

(1) Species	(2) Weeks of reporting period								(3) Estimated waterfowl days use	(4) Production :Broods:Estimate : seen : total	
	11	12	13	14	15	16	17	18			
<u>Swans:</u>											
Whistling	55	60	60	65	55	35	30	50	3,493		
Trumpeter											
<u>Geese:</u>											
Canada	3300	3500	3800	5400	4600	5200	4300	4600	322,350		
Cackling											
Brant											
White-fronted											
Snow	2800	6000	6500	7500	7500	7300	7600	6200	362,075		
Blue	10	10	10	10	10			12	723		
Other											
<u>Ducks:</u>											
Mallard	30	50	50	150	120	150	120	180	6,272		
Black	700	800	650	2200	2000	1600	1500	1200	103,950		
Gadwall	250	300	250	350	450	400	300	250	47,000		
Baldpate	800	650	650	600	550	700	350	700	100,100		
Pintail	900	900	1100	3200	2400	2200	1200	1300	126,200		
Green-winged teal	60	100	300	250	300	600	350	225	17,365		
Blue-winged teal									6,890		
Cinnamon teal											
Shoveler	10	20	40	75	100	60	50	40	2,734		
Wood											
Redhead	25	10		10	10		20		523		
Ring-necked											
Canvasback	4								28		
Scaup	100	100	80	300	400	600	500	350	16,310		
Goldeneye											
Bufflehead	350	1900	2000	1300	1200	1000	600	500	60,950		
Ruddy	10	10	15	60	100	80	90	40	2,755		
Other											
Red-breasted Merg.	25	100	200	600	800	1000	1000	1200	42,375		
Unidentified	400	350	300	200	400	200	200	200	21,825		
<u>Coot:</u>	300	500	500	400	400	350	300	250	23,650		

(over)

	(5) Total Days Use	:	(6) Peak Number	:	(7) Total Production	SUMMARY
Swans	3,493	:	65	:		Principal feeding areas <u>Rye grass field, tow fresh water</u>
Geese	685,153	:	12,210	:		<u>impoundments, salt marsh, and Pamlico Sound shoals.</u>
Ducks	555,277	:	9,305	:		Principal nesting areas _____
Coots	23,650	:	500	:		
						Reported by <u>Charles F. Noble, Refuge Manager</u>

INSTRUCTIONS (See Secs. 7531 through 7534, 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) Weeks of Reporting Period: Estimated average refuge populations.
- (3) Estimated Waterfowl Days Use: Average weekly populations x number of days present for each species.
- (4) Production: 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.
- (5) Total Days Use: A summary of data recorded under (3).
- (6) Peak Number: Maximum number of waterfowl present on refuge during any census of reporting period.
- (7) Total Production: A summary of data recorded under (4).

3-1751

Form NR-1A
(Nov. 1945)MIGRATORY BIRDS
(other than waterfowl)Refuge Pea IslandMonths of Sept. 1 to Dec. 31 1959

(1) Species Common Name	(2) First Seen		(3) Peak Numbers		(4) Last Seen		(5) Production			(6) Total Estimate
	Number	Date	Number	Date	Number	Date	Number Colonies	Total # Nests	Total Young	Number
<u>I. Water and Marsh Birds:</u>										
Herons, Little blue	Res.		80		2	12/30				100
" , Louisiana	"		90		8	12/30				120
" , Black-crowned night	"		140		14	12/30				180
" , Great blue			12		11	12/30				15
Egrets, Common	Res.		60		6	12/30				80
" , Snowy	"		180		8	12/30				200
Ibis, glossy	Sum. Res.		40		2	10/5				50
Rails, clapper	Res.									200
Cormorants, double-crested			600	10/20	20	12/30				1000
Gannets			75		10	11/28				100
Loons, common			25		6	12/30				50
<u>II. Shorebirds, Gulls and Terns:</u>										
Tern, Common			400		50	11/5				500
" , Royal	Sum. Res.		70	10/20	6	11/5				150
Gulls, Herring			500	12/5	200	12/30				700
" , Black-backed			200	12/5	30	12/30				300
" , Ring-billed			2000	12/5	200	12/30				2000
" , Laughing			2500	9/10	10	12/5				2500
American avocet			40	9/10	14	11/11				40
Yellow legs, Great. & Less.			500		60	12/30				700
Sanderlings, all species			1000		100	11/28				1200

(over)

(1)	(2)		(3)		(4)		(5)			(6)
III. <u>Doves and Pigeons:</u> Mourning dove White-winged dove										
	Only occasionally is a dove seen on Pea Island Refuge.									
IV. <u>Predaceous Birds:</u> Golden eagle Duck hawk Horned owl Magpie Raven Crow										
	1	11/5	4		1	12/30				
Sparrow hawk			5		1	12/30				
Reported by										Charles F. Noble

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.

16:

Refuge Pea Island

Months of Sept. 1 to Dec. 31, 1959

[illegible]

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.

BIG GAME

Refuge Pea Island

Calendar Year 1959

(1) Species	(2) Density	(3) Young Produced	(4) Removals				(5) Losses			(6) Introductions		(7) Estimated Total Refuge Population		(8) Sex Ratio
Common Name	Cover types, total Acreage of Habitat	Number	Hunting	For Re- stocking	Sold	For Research	Predation	Disease	Winter Loss	Number	Source	At period of Greatest use	As of Dec. 31	
	No big game on the refuge.													

Remarks:

Reported by Charles F. Noble

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.

116008

DISEASE

Refuge Pea Island

Year 1959

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
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(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>Canada geese</u>	<u>9</u>	<u>25</u>
_____	_____	_____
_____	_____	_____

Number Recovered _____

Number lost _____

Source of infection Probably saline marshes

Water conditions _____

Food conditions Good

5 found in Jan. & Feb.; 4 found in Dec.
All birds found were dead.

Remarks This number is well within an expected death rate.

PUBLIC USE

Refuge Poa Island

Calendar Year 1959

Total Use Visitor-Days	Hunting Use	Fishing Use	Miscellaneous Use
13,000		3000	9000

Where practical, by means of occasional spot checks, or other methods, show by percent and visitor-days the breakdown of the above figures and other related information:

Hunting (on refuge lands):	Percent	Visitor-Days	Acres	Miscellaneous:	Percent	Visitor-Days
Waterfowl	<u>None</u>	<u></u>	<u></u>	Recreation *	<u>60%</u>	<u>7300</u>
Upland Game	<u>None</u>	<u></u>	<u></u>	Official	<u></u>	<u></u>
Big Game	<u>None</u>	<u></u>	<u></u>	Economic Use	<u></u>	<u></u>
Supervised by refuge <u></u> by State <u></u>		No. of blinds <u></u>		Other	<u>40%</u>	<u>5200</u>

Hunting (off
refuge lands): Estimated man-days of hunting on lands
adjacent to the refuge 965 (These figures
should not be included in hunting-use totals above).

Fishing:

13 miles of ocean front which is fished.
Acres of ponds or lakes and miles of streams
 open to fishing.

Comments:

*(including picnicking, swimming, boating,
camping, viewing wildlife, and photographing)

Species	Location of Area Planted	Rate of Seeding or Planting	Amount Planted (Acres or Yards of Shoreline)	Amount & Nature of Propagules	Date of Plant- ing	Survival	Cause. of Loss	Remarks
								No marsh planting accomplished this year.

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

3-1758
Form NR-8
(Rev. Jan. 1956)

Fish and Wildlife Service Branch of Wildlife Refuges

CULTIVATED CROPS - HAYING - GRAZING

Refuge Pea Island County Dare State North Carolina

Cultivated Crops Grown	Permittee's Share Harvested		Government's Share or Return				Total Acreage Planted	Green Manure, Cover and Water- fowl Browsing Crops Type and Kind	Total Acreage
	Acres	Bu./Tons	Harvested		Unharvested				
			Acres	Bu./Tons	Acres	Bu./Tons			
Japanese millet							25 acres	Waterfowl seed crop	25
Annual ryegrass							60 acres	Winter goose browse	60
(Farming accomplished by refuge personnel.)									
								Fallow Ag. Land	

No. of Permittees: Agricultural Operations 0 Haying Operations 0 Grazing Operations 0

Hay - Improved (Specify Kind)	Tons Harvested	Acres	Cash Revenue	GRAZING	Number Animals	AUM'S	Cash Revenue	ACREAGE
				1. Cattle				
				2. Other				
				1. Total Refuge Acreage Under Cultivation				85
Hay - Wild				2. Acreage Cultivated as Service Operation				85

DIRECTIONS FOR PREPARING FORM NR-8
CULTIVATED CROPS - HAYING - GRAZING

Report Form NR-8 should be prepared on a calendar-year basis for all crops which were planted during the calendar year and for haying and grazing operations carried on during the same period.

Separate reports shall be furnished for Refuge lands in each county when a refuge is located in more than one county or State.

Cultivated Crops Grown - List all crops planted, grown and harvested on the refuge during the reporting period regardless of purpose. Crops in kind which have been planted by more than one permittee or this Service shall be combined for reporting purposes.

Permittee's Share - Only the number of acres 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. Report all crops harvested in bushels or fractions thereof except such crops as silage, watermelons, cotton, tobacco, and hay, which should be reported in tons or fractions thereof.

Government's Share or Return - Harvested - Show the acreage and number of bushels harvested for the Government of crops produced by permittees or refuge personnel. Unharvested - Show the exact acreage and the estimated number of bushels of grain available for wildlife. If grazing is made available to waterfowl through the planting of grain, cover, green manure, grazing or hay crops, estimate the tonnage of green food produced or utilized and report under Bushels Unharvested column.

Total Acreage Planted - Report all acreage planted, including crop failures.

Green Manure, Cover and Waterfowl Grazing Crops - Specify the acreage, kind and purpose of the crop. These crops and the acreage may be duplicated under cultivated crops if planted during the year, or a duplication may occur under hay if the crop results from a perennial planting.

Hay - Improved - List separately the kinds of improved hay grown. Annual plantings should also be reported under Cultivated Crops, and perennial hay should be listed in the same manner at time of planting.

Total Refuge Acreage Under Cultivation - Report total land area devoted to agricultural purposes during the year.

REFUGE GRAIN REPORT

Refuge Pea Island

Months of Sept. through Dec., 1955

(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 OR SUITABLE USE*		
				Transferred	Seeded	Fed	Total		Seed	Feed	Surplus
Shelled corn	None	85 bu.	85 bu.			25 bu. for trapping		60 bu.		60 bu. for trapping	None

(8) Indicate shipping or collection points Received from Carolina Sandhills Refuge by Railway freight.

(9) Grain is stored at Pea Island Refuge Field Headquarters

(10) Remarks _____

*See instructions on back.

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 lb., corn (ear)—70 lb., wheat—60 lb., barley—50 lb., rye—55 lb., oats—30 lb., soy beans—60 lb., millet—50 lb., cowpeas—60 lb., and mixed—50 lb. In computing volume of granaries, multiply the cubic contents (cu. ft.) by 0.8 bushels.

- (1) List each type of grain separately and specifically, as flint corn, yellow dent corn, square deal hybrid corn, garnet wheat, red May wheat, durum wheat, spring wheat, proso millet, combine milo, new era cowpeas, mikado soy beans, etc. Mere listing as corn, wheat, and soybeans will not suffice, as specific details are necessary in considering transfer of seed supplies to other refuges. 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 break-down by varieties of grain listed in column 6. Indicate if grain is suitable for seeding new crops.
- (8) Nearest railroad station for shipping and receiving.
- (9) Where stored on refuge: "Headquarters granary," 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 Year 1945

Species	Collections				Receipts		Total Amounts on Hand	Amount Surplus
	Amount	Date or Period or Collection	Method	Unit Cost	Amount	Source		
None for the year.								

TIMBER REMOVAL

Refuge Pea Island Year 1945

Permittee	Permit No.	Unit or Location	Acreage	No. of Units Expressed in B. F., ties, etc.	Rate of Charge	Total Income	Reservations and/or Diameter Limits	Species Cut
No timber on Pea Island Refuge.								

Total acreage cut over.....

Total income.....

No. of units removed B. F.

Method of slash disposal.....

Cords.....

Ties.....

.....