

FRA ISLAND NATIONAL WILDLIFE REFUGE.

NARRATIVE REPORT

SEPTEMBER 1, TO DECEMBER 31, 1952

Find attached hereto Narrative report covering all
Activities concerning the refuge for the period stated above



Refuge Manager

PEA ISLAND NATIONAL WILDLIFE REFUGE

NARRATIVE REPORT

SEPT.1, TO DEC. 31, 1951

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PEA ISLAND NATIONAL WILDLIFE REFUGE

NARRATIVE REPORT

SEPTEMBER 1, TO DECEMBER 31, 1951

I, GENERAL

A. Weather Conditions

All of the outer banks area where the refuge is located had very mild weather for the season up to date, Lowest temperature recorded so far was 25 degrees on Dec. 15, two or three other cold spells have occurred with readings of around 30, but mild compared with the same period last year.

During Oct. 15-16 a small tropical hurricane passed close inshore with winds up to 50 MPH with attendant heavy rainfall, which was a blessing as water in the two ponds were at a very low level and altho the records listed below does not show it there must have been at least 6 to 8 inches of rainfall as the pond levels rose app. 8 inches, No damage was suffered due to storm, Several normal north Easters have blown in but none as severe as these of last year and no blowouts have occurred in the sand fences.

All data contained in the table below was furnished by Mrs. Rosa Drinkwater Manager of the meteorological station located in Mantee which is located some 15 Miles from the refuge and does not reflect the actual weather conditions as they prevail on the outer banks.

	Precipitation		Temperatures	
	Actual	Depart. from Normal	Max.	Min.
Sept.	3.32	- 1.18	90	61
Oct.	2.92	- 1.58	90	55
Nov.	2.70	- 1.80	78	31
Dec.	1.92	- 2.60	76	23
Tot.	<u>10.84</u>	<u>-7.16</u>	Max. <u>90</u>	Min. <u>23</u>

II. WILDLIFE

A. Migratory Birds1. Population and Behavior

The refuge started off the period with a normal if not above normal Population of all the summer resident Species, including Gulls, Terns, Skimmers, Herons and Egrets, And all Species of Shore birds and waders, Willets, Yellow legs, Knots, Dowitchers, Plovers, Turnstones, and all or about all of the sandpiper family.

The fall migration started about 10 day later than usual first noticeable decline started Sept. 20, and continuing thru until about Nov. 30, when about all of the summer group had departed with the exceptions of Black Skimmers which remained until Dec. 10, Laughing Gulls were the only Species to show much change over the same period last year with an increase of about 50%.

The first incoming fall migrants were Herring and Black Backed Gulls Herrings in great numbers with a scattering of Black backs, first of these were observed Sept. 28, when 17 were seen Near New Inlet and continued to increase until about 200 were present at the peak and about that number are still remaining.

Of the Waterfowl, As usual blue wing teal were the first to arrive, 36 having been seen on the north pond on Sept. 2, they remained only a couple of days and were gone, About 10 days later the migration began in full swing when there were several hundred blue wing observed on both the ponds the next were Blacks, Pintails, Ruddy, Gadwalls with a few Widgeons which started arriving Sept 22, and continued until by Oct 24, there were App. 6000 of all kinds using the two ponds.

Canada Geese were right on Schedule with the first 23 seen on Sept. 21, in the south pond, Starting off slow they continued to dribble in until on Nov. 28, there were present some 7800 scattered over the refuge from one end to the other, And from counts conducted several times since that date they have not increased over the 8000 mark, That is app. 33% less than for last year, This is the first time in the last four years that the Canada Geese population have fluctuated to any great extent, Normal Population being 12000-13000.

The first Snow Geese arrived on ^{Nov.} Nov. 13, only 30 coming in on that date and remained until Nov. 21, when the main flock arrived in mass numbering 12000 or a few over This is five days earlier than they have arrived for the last two years which has been Nov 26, in each instance, As usual they divided in to two large flocks and only use the north half of the refuge none having been seen south of New Inlet.

On Dec 9, Mr. John H. Steenis assisted by Mr. Phillips attempted to collect 5-7 of the birds by shooting in Connection with the Geese disease study, Some amazing results occurred, Two days after the attempt was made less than 400 Snows could be found on the refuge, It is not known where they went but were gone 6 days and arrived back in mass in about the same number, They remained on the area until Christmas night, Dec. 25 and departed again and have not returned to date, This is 11 days earlier than usual since for the last two years Jan. 6. have been the day they departed.

Population and Behavior Cont.

In collecting these birds it was necessary to fire into large flocks and since it is apparent that they speak easily it is recommended that no further attempts be made to collect any more until if and when they can be collected by other means than shooting.

The first six swan to arrive came in on Oct. 26, and were observed in the south pond. They continued to come until a peak of 157 were counted Dec. 3. Most of these were using in the north pond and on the last count conducted there was 129 still there, with some using the south pond and out in the sound. This is an increase of almost 100 % over last years population.

For the first time in several years Black brant have been observed on the refuge. Only 3 have been seen and they were observed at the very north tip end of the Island feeding with a flock of Canadas first on Dec. 24, and again on Dec. 27.

No unusual species in the waterfowl family have occurred with this exception. The only other have been the presence of 2 Golden Eagles one Mature and one Immature, First noticed on or about Dec 12, and are still present. Using mostly in the north pond vicinity, 11 Avocets came in on or about the 28th. of Oct stayed about 10 days and left, Another 5, arrived Dec. 20 and are still present.

2. Water Conditions

Water in both ponds remained at a very low level thru sept. and the first two weeks of Oct. when as stated the Tropical hurricane passed close in shore bringing heavy rainfall that brought levels back up to near normal. But this was too late to stimulate growths of aquatics to any very great extent but did improve the situation as for waterfowl use. Since Oct 15, levels have remained almost constant with readings of 4.30-50 in both pools. Water conditions in the sound have been very favorable throughout the period, with no hurricanes or severe westerly winds to play havoc with the aquatics common to the shallow shoals that exist for a distance of over three miles off shore. Salinity test taken during Aug. showed the sound water approx. five miles south of Oregon Inlet, to be 64 ‰ sea strength or 2 ‰ higher than for the corresponding period last year.

3. Food and Cover

Food sufficient to meet the requirements of the wintering population of waterfowl, have been and still is the major problem. We feel that some progress have been made in meeting this requirement, but still leaves a lot to be desired. For the past two years attempts have been made to produce a supplemental supply of green browse thru agricultural methods, this proved almost a total failure due to factors beyond our control, Soil Sterility, and salt action from nearby surf. The only thing tried so far that showed any promise was Italian Rye Grass, 16 Acres of which was planted out over a burned off marsh last season which gave very good results. Accordingly plans were made during the summer to plant out an area of about 50 Acre this season. Adverse weather conditions prohibited burning off the marsh until well up in Nov. which is considered quite late to plant rye Grass for two reasons, Cold weather retards growth and the

Food and Cover Cont.

The geese start browsing it off almost at the time it sprouts and comes up before sufficient root system has been developed, But these factors notwithstanding 170 Acres of marsh was burned off during the third week in Nov. 45 of which was overplanted with rye grass, About a 70 % stand was obtained and up to date the geese have kept it browsed ~~XX~~ down to the ground to such an extent that it is hard to estimate what results can be obtained by this method, From 400 to 600 Geese are steady occupants of the area, and it is considered worth while from the Expenditure and effort standpoint, In addition to the Area mentioned above App. 6 Acres of the best stands of beach Pea prevalent on the former farming area was overplanted with rye Grass and harrowed in lightly, This is strictly on an experimental basis and have a two fold purpose in view, to stimulate further growth of Beach Pea next season thru reduction of competitive growth of existing weeds and Grasses and produce Green Browse to attract the Geese to the area where abundant supply of Beach Pea is known to be present.

Even with low water levels existing in both pond areas as mentioned under Water conditions, Both ponds produced a fair crop of all the Aquatics common to them with the north pool being by far the best, The marginal edges of both ponds produced very good supplies of ~~XX~~ wild Millet, smartweed, and three Square, C. Amer and C. Reb and additional species such as giant foxtail and other seed bearing plants, The combined areas of both ponds carried some 8000 ducks and App. 600 Geese for a period of over five weeks, At present the south pond appears to be just about finished with the north pond still carrying some 4000 ducks of all Species

Surveys conducted at about two weeks intervals showed the sound to be about on a par with last year from a food standpoint, No Hurricanes have occurred and severe westerly wind such as we had last year that ruined the crops planted outside of the ponds by tidal action did not repeat this season, With continued good weather conditions it is believed that sufficient food supplies will be available to perhaps squeeze thru for the remainder of the present season.

Even though we have burned off App. 250 Acres ~~XXXXXXXXXXXX~~ of marsh and plans call for burning another 150-200 there is still abundant cover available for all Species that require it, with plenty of Myrtle and Iva for nesting small birds and the Dykes covered with Spartina Patens that is used mostly by nesting Gadwall and Black Ducks around both ponds.

4. Botulism and Lead Poisoning None for the Period

5. Other Diseases

The Disease of unknown origin that have effected the Canada Goose Population at Pea Island in years past have not shown up this year to date, only one sick bird having been collected which was a doubtful, Compared with 21 for the same period a year ago, As a matter of fact trapping activities show the most of the geese caught so far to be in anormal healthy condition

II, WILDLIFE CONT.

B. Upland Game Birds

Does not apply to Pea Island except for a few Doves passing thru Seasonally.

C. Big Game Animals

Does not apply to Pea Island

D. Fur Bearing Animals

The Population of muskrat and otter remain about constant on the refuge, With an estimated 800 muskrats 90 % of which use the two ponds with a few scattered over the rest of the island along the tide water creeks and potholes, Estimates for otter is 30 to 40 and does not seem to have increased any for the last two years.

D. Predators

With the exceptions of a few common house cats gone wild there are no predators on Pea Island, Some of the cats mentioned have been destroyed in the last few months.

III, Refuge Development and Maint.

A. Physical Developments

The only actual development carried on for the period was the construction of ~~the~~ Geese holding pens built for use in connection with the goose Disease study being carried on here, Wire was brought up from Santee Refuge, and Post and braces were salvaged off the beach and the pens were built in a sheltered site near the overnight cabin along the dyke around the south pond, At present there is 100 Canada Geese confined in the four pens and are being fed pellet type food fortified with low and high proteins content.

B. Maintenance

General Maint. was kept up on all the Equipment based on the Refuge, Trucks, Tractors, Light Plant, Pumps, and Boats, The Ramps over the four dykes required some repairs due to heavy traffic, a New Cooling system pump had to be installed on the Boat Red head along with repairs to the Generator and Ignition system before its transfer to Mattamuskeet, The Skiff Boat was pulled out and cleaned off and the bottom Painted, Several boundary markers were replaced along the sound side where found missing, Most of the fire lines were replowed so that marsh burning could be done on schedule.

III, REFUGE DEVELOPMENT AND MAINT. CONT.

C, Farming

No large scale farming program was carried on this fall on the refuge, 6 Small Experimental plots were planted out to winter Vegetables on Oct. 15, Results of which were very poor, None of them showing much promise for future planting on a large scale.

App. 6, Acres of the best stands of Beach Pea that could be found in the north end of the farming area were oversewn with Rye Grass and harrowed in lightly, This was on an Experimental basis also with a two fold purpose in mind, First by attracting Geese to the site where the Beach Pea exist with some green Browse mixed in, Second to stimulate better stands of Beach Pea next spring by covering up enough to assure a good stand and relieve competition from other weeds and grasses on the area, In addition 45 Acres of burned over marsh was overplanted with Rye Grass, Details of which is more fully covered under Food and Cover.

IV, ECONOMIC USES

A,

None for the period

V, FIELD INVESTIGATION AND APPLIED RESEARCH

A, Goose Disease Study

This phase of the activities accounted for the major portion of the Refuge personnel's time for the last three months of the period, Some very time consuming preparations were necessary before actual Operations could be started, trapping Sites had to be selected, Fool proof blinds constructed, all traps overhauled and put in first class operating condition, Corn purchased and hauled in, Actual trapping started about the 15th of ~~Jan~~ and since that date all traps have to be attended daily and the 100 geese in the holding pens has to be fed, Watered, and grit supplied.

To date over 300 Geese have been trapped and App. 460 fecal samples collected, This latter is a very slow process since each bird have to be confined separately until said sample is available and collected.

App. 82 Man days have been devoted to this project up to the present time with over half of the season still to go, It is hoped that all the effort put into this project will not be in vain.

VI, PUBLIC RELATIONS

A, Publicity

With the work load prevelant at this Station for the period very little time has been available for outside publicity purposes, Also it has been observed that factors outlined as good public relations in the past have had a tendency to boomerang, Which leads us to wonder if there isent ~~is~~ such a thing as too much Publicity when considering Pea Island.

A. Publicity Cont.

For the period several partys of Bird Club Members and others, have been carried in and shown all the points of interest and the refuge program and objectives explained, One group of Students from UNC. Raleigh, Were given first hand information concerning the Operations of the net traps, Some of these boys are taking Wildlife Management and it should prove to be of value to them in their future work along this line,

We are constantly receiveing request for information concerning the work, Wildlife Populations, and various Items, connected with the refuge some as far away as calif. all of which has been furnished to the best of our ability.

B. Recreational Uses

It has been found impossible to check each party of Sight Seers and Surf Fisherman visiting the refuge without neglecting more important work on the project, And figures listed below are computed on the basis of perodic checks taken about two times weekly, These checks show that app. 30 people came daily for the purpose of fishing along the surf, or just sight seeing during the first six weeks of the period, Since that time visitors have shown a steady decline and at the presnet time only a very few can be checked on the area, The best fishing is seasonal and as the channel bass run is over, this is very easy to understand, Not many of the fishing partys put in the entire day at the sport and the man days shown below were divided by one half as to actual fishing time.

Estimated, man days of surf Fishing 630

Estimated Man Days, Sightseeing 120

As to the numbers and actual pounds of fish taken we think any figure we quoted would be a shot in the dark, As no check census were conducted but it prebably ran into thousands of pounds as several partys of two or three men are known to have taken out catches of over 100 lbs. Daily, mostly Channel bass, with some flounder and Blue Fish.

C. VEX Violations

None have occured on the refuge except of a minor nature, One small dog was caught and returned to its owner, And several partys have been warned against dumping.

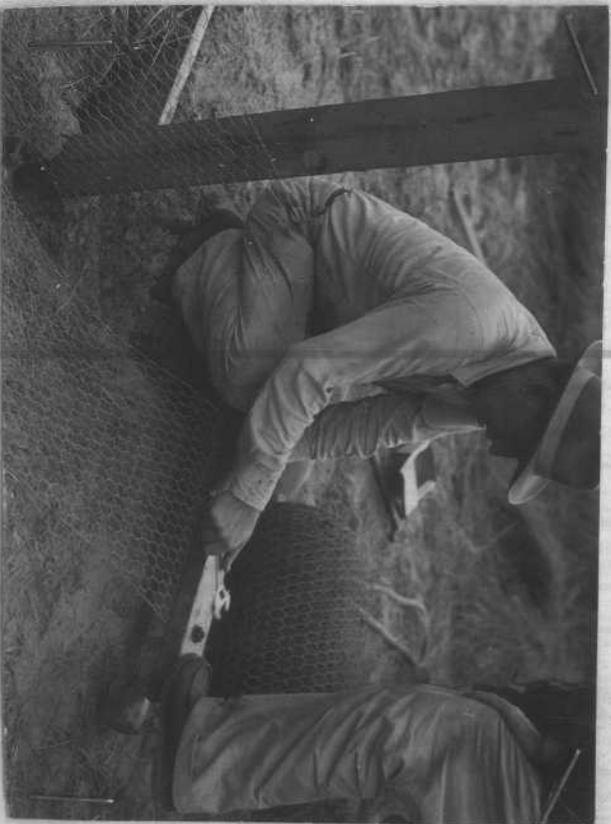
VI, PUBLIC RELATIONS CONT.

C, VisitorsOfficial

Mr. J. Clark Salyer II,	9/8/51	Wash, D. C.
Dr. Carlton E. Herman	12/14/51	Laurel, Md.
Dr. EE. Wehr	12/14/ 51	" "
Mr. J. (Bud) Diamond	12/14/51	" "
Mr. Lawrence S. Givens	12/15/51	Atlanta, Ga.
Mr. William P. Baldwin	12/15/51	P. Wentworth, Ga

Unofficial

Mr. Kenneth Wilson	8/2/51	Currituck, N. C.
Mr. Jack Dermid	8/2/51	Raleigh, N. C.
Mr. William Freeman	9/28/51	Atlanta, Ga.
Mr. (Sandy) McCulloh	12/27/51	Raleigh, N. C.
Mr. Robert Halverlin	12/27/51	" " "
Mr. H. L. Host	12/27/51	" " "
Miss Pearl Heaps	12/28/51	Baltimore, Md.



Starting Construction of holding pens for Geese



Continuing Construction of pens



Finished Product, Empty



Holding pens Completed with Geese confined



Showing a small portion of one flock of the 12500 Greater Snow Geese
Wintering on Pea Island this season.

WATERFOWL

Refuge Fox Island Months of Sept. 1, to Dec. 31, 19 51

(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	6	9/6/51	157	12/5	134	12/26/51			160
II. <u>Geese:</u>									
Canada goose	23	8/21	7800	12/5	5780	12/26			8000
Cackling goose									
Brant	3	12/24	3	12/27	3	12/27			3
White-fronted goose									
Snow goose	30	11/13	12000	12/8	9800	12/23			12500
Blue goose	3	11/13	3	12/8	1	12/23			3
III. <u>Ducks:</u>									
Mallard	5	10/14	35	12/26	13	12/26			40
Black duck	Res.		7200	12/5	3800	12/26			7500
Cadwall	Res.		620	12/5	460	12/26			800
Baldpate	35	10/14	300	12/5	180	12/26			500
Pintail	60	9/22	4500	12/5	2800	12/26			5000
Green-winged teal	10	11/2	400	12/26	340	12/26			500
Blue-winged teal	50	8/2	600	9/20	70	12/26			800
Cinnamon teal									
Shoveller	9	10/14	450	12/5	325	12/26			500
Wood duck									
Redhead									
Ring-necked duck	25	10/14	400	12/5	275	12/26			600
Canvas-back	2	11/1	8	12/5	5	12/26			10
Scaup	30	10/14	3000	12/26	1600	12/26			3000
Golden-eye									
Buffle-head									
Ruddy duck	20	10/14	900	12/26	725	12/26			1000
IV. <u>Coot:</u>	400	9/16	2000	12/5	1200	12/26			2500

SUMMARIES

Dates waterfowl counts made at two week intervals throughout Total waterfowl usage during period 43,416
Season

Percent of waterfowl area covered 90 % Peak waterfowl numbers 40,376

Dates brood counts made None this period Areas used by concentrations Entire Refuge Area

Percent of area covered in brood counts _____

Total production: Principal nesting areas this season None for the Period.

Geese _____

Ducks _____

Coots _____

Reported by Lewis B. Turner

INSTRUCTIONS

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

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

3-1751

Form NR-1A

(Nov. 1945)

MIGRATORY BIRDS
(other than waterfowl)Refuge... Pea IslandMonths of Sept 1. to Dec. 31. 194 51

(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>										
<u>Cormorants</u>	18	8/18	80	8/25						150
<u>Egrets Amer.</u>			50	8/25						100
" <u>Snowy</u>			40	8/25						80
<u>Heron, Great Blue</u>			12	8/25						30
" <u>Louisiana</u>			30	8/25						50
" <u>Little Blue</u>			35	8/25						75
" <u>Black Crowned</u>	Res.		200	8/25						300
" <u>Yellow Crowned</u>	Res.		150	8/25						256
<u>Grebe Piedbilled</u>	60	8/15	300	10/15	135	12/26				350
" <u>Horned</u>	2	9/20	3	12/26	8	12/26				15
<u>Loons Common</u>	8	9/20	20	12/25	20	12/26				35
II. <u>Shorebirds, Gulls and Terns:</u>										
<u>Yellow legs, Greater</u>			200	8/25						500
<u>Willetts,</u>			150	8/25						350
<u>Plovers, Wilson</u>			35	8/25						50
" <u>Semipalmated</u>			400	8/25						800
<u>Sandpipers, Western</u>			30	8/25						50
" <u>Redbacked</u>			3000	8/25						4000
<u>Terns, Royal</u>			600	8/25						850
" <u>Common</u>			1000	8/25						1500
" <u>sooty</u>			2000	9/15						4000
<u>Gulls, Herring</u>	Res.		4500	12/26						5000
" <u>Ring Bill</u>	Res.		400	12/26						600
<u>Gannets</u>	400	9/20	3000	10/25						5000
<u>Rails, Clapper</u>	Res.		250	9/20						400

(over)

Refuge Pea Island Months of Sept. 1, to Dec. 31, 19451

(1) Species	(2) Density		(3) Young Produced		(4) Sex Ratio	(5) Removals			(6) Total	(7) Remarks
Common Name	Cover types, total acreage of habitat	Acres per Bird	Number broods obs'v'd.	Estimated Total	Percentage	Hunting	For Re- stocking	For Research	Estimated number using Refuge	Pertinent information not specificoally requested. List introductions here.
Does not apply to Pea Island Refuge										

○
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

Calendar Year 1951

(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	
Common Name	Cover types, total Acreage of Habitat	Number											
Does not Apply to Pea Island Refuge													

Remarks:

Reported by

INSTRUCTIONS

Form NR-3 - BIG GAME

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

3-1754
Form NR-4
(June 1945)

SMALL MAMMALS

Refuge Pea Island Refuge Year ending ~~XXXXXX~~ Dec. 31, 1951

(1) Species	(2) Density		(3) Removals					(4) Disposition of Furs					(5) Total Popula- tion
								Share Trapping			Total Refuge Furs Shipped	Furs Donated	
Common Name	Cover Types & Total Acreage of Habitat	Acres Per Animal	Hunting	Fur Harvest	Predator Control *	For Re- stocking	For Re- search	Permit Number	Trappers Share	Refuge share			
Muskrat	700	9/10											

* List removals by Predator Animal Hunter

REMARKS:

Reported by _____

INSTRUCTIONS

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

- (1) SPECIES: Use correct common name. Example: Striped skunk, spotted skunk, short-tailed weasel, gray squirrel, fox squirrel, white-tailed jackrabbit, etc. (Accepted common names in current use are found in the "Field Book of North American Mammals" by H. E. Anthony and the "Manual of the Vertebrate Animals of the Northeastern United States" by David Starr Jordan.)
 - (2) DENSITY: Applies particularly to those species considered in removal programs. Detailed data may be omitted for species occurring in limited numbers. Density to be expressed in acres per animal by cover types. This information is to be prefaced by a statement from the refuge manager as to the number of acres in each cover type found on the refuge; once submitted, this information need not be repeated except as significant changes occur in the area of cover types. Cover types should be detailed enough to furnish the desired information but not so much as to obscure the general picture. Examples: spruce swamp, upland hardwoods, reverting agriculture land, bottom land hardwoods, short grass prairie, etc. Standard type symbols listed in Wildlife Management Series No. 7 should be used where possible. Figures submitted should be based on actual observations and counts on representative sample areas. Survey method used and size of sample area or areas should be indicated under Remarks.
 - (3) REMOVALS: Indicate the total number under each category removed since April 30 of the previous year, including any taken on the refuge by Service Predatory Animal Hunter. Also show any removals not falling under headings listed.
 - (4) DISPOSITION OF FUR: On share-trapped furs list the permit number, trapper's share, and refuge share. Indicate the number of pelts shipped to market, including furs taken by Service personnel. Total number of pelts of each species destroyed because of unprimeness or damaged condition, and furs donated to institutions or other agencies should be shown in the column provided.
 - (5) TOTAL POPULATION: Estimated total population of each species reported on as of April 30.
- REMARKS: Indicate inventory method(s) used, size of sample area(s), introductions, and any other pertinent information not specifically requested.

Refuge Pea IslandYear 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 UnknownSpecies affected Canada Geese

Number Affected Species	Actual Count	Estimated
<u>Canada Geese</u>	<u>1,</u>	<u>3,</u>
_____	_____	_____
_____	_____	_____

Number Recovered 0 ?Number lost 1, ?Source of infection UnknownWater conditions GoodFood conditions FairRemarks One sick Goose found this period. Compared to 21 for the same period last year



3-1756
 Form NR-6
 (April 1946)

FISH

Refuge.....Pea Island, Manteo, N. C......Year 1945

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 Flounder & Blue Fish		630	Unknown	0	0	0	0	0

REMARKS:

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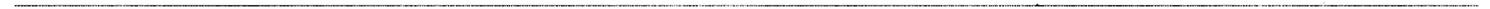
PLANTINGS
(Marsh - Aquatic - Upland)

Refuge Pea Island, Manteo, N. C. Year 1951

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
Rye Grass, (Italian)	Between Ponds	53 Lbs. Per Acre	App. 51		11/15	65 %	to Wet	

TOTAL ACREAGE PLANTED:

Marsh and aquatic _____
 Hedgerows, cover patches _____
 Food strips, food patches 45 Acres of burned over marsh. Plus 6 Acres of upland type over
 Forest plantings Beach Pines



DIRECTIONS FOR PREPARING FORM NR-8
CULTIVATED CROPS

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

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

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

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

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

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

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

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

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

3-1570
NR-8a

REFUGE GRAIN REPORT

Refuge Pea Island

Months of Sept. 1, thru Dec. 31, 1945l.

(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.
Corn Yellow	None	5400 Lbs.	5400Lbs			4200	4200	1200		1200	

(8) Indicate shipping or collection points. Purchased at Belcross, N. C. on informal Bid

(9) Grain is stored at Over Night Cabin, Pea Island

(10) Remarks Additional corn in the amount of 6000 lbs will be needed to complete the 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.

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		
Beach Pea, (Helvella)	60 Lbs	10/5-10/51	Hand Picked	?	Transferred	to Santee Refuge		



10

3-1760
 Form NR-10
 (April 1946)

HAYING AND GRAZING

Refuge Pea Island Year 1945

Permittee	Permit No.	Unit or Location	Actual Acreage Utilized	Animal Use Months	Tons of Hay Harvested	Period of Use From - To	Rate	Total Income	Remarks
		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, 1951

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PEA ISLAND NATIONAL WILDLIFE REFUGE

NARRATIVE REPORT

MAY 1, TO AUGUST 31, 1951

I, GENERAL

A. Weather Conditions

All data contained in this report and listed below was furnished by Mrs Rosa Drinkwater, Operator and Manager of the local Metrological Station located in Manteo, N. C. To whom I am indebted.

Past experience have shown that data recorded on Roanoke Island does not reflect the actual conditions as they exist on Pea Island most of the time, This especially true concerning Rainfall.

Temperatures for this period have been well above that for the same period last year averaging from 3, to 6, Degrees hotter, June was the hottest month of the period with a high of 97 on the 25th. and well above 90 for most of the month.

Precipitation was far below normal with an actual reading of 9.80" for the period compared with 22.80" last year, There have been no severe North Easters, Or Hurricanes up until the end of August, Find listed in the table below Data recorded by the Month.

Precipitation		Dept. From Normal	Temperatures	
	Actual		Max.	Min.
May	2.26	-2.40	85	52
June	1.10	-3.40	97	53
July	4.06	- .44	96	62
August	2.38	-2.12	93	62
	<u>Tot. 9.80</u>	<u>Tot.-8.20</u>	<u>Max. 97</u>	<u>52</u>

B. Water Conditions

With rainfall the last four months being just about half normal it can be readily understood that water conditions in the two ponds have been critical, neither one of them went completely dry as the south pond did last year but water levels have been at such a low ebb that the Vegetative Growth have been greatly retarded and it is doubted that it will recover unless we get enough rain in the near future to bring levels back up to normal.

Guage readings at the end of August was North Pond 3.60 South Pond 3.80 which is some what higher than for the months of June and July but still to low for Maximum plant growth,

Waters in the sound have been normal for this season of the year with salinity running about 54 to 60 ‰ sea strength with normal tidal action having no extreme highs as they occur during the fall and winter months.

II. Wildlife

1 Population and Behavior

As is usual some 150 to 200 Canada Geese remained on the refuge area until after the first of May, but continued to dribble out until at the end of July only about 30 was still present and at the end of August only 14 could be found these in groups of two to five are still using around the ponds and new Inlet.

Gadwall Ducks have shown an increase in numbers for the last three seasons to return and nest on the refuge Area, a Total of 619 young Gadwalls hatched off in the north pond this season compared with 427, last year, Black ducks also had an increase with a hatch of 128 compared with 66, for last season, one brood of Blue wing Teal also hatched off in the north pool numbering 6.

The migration of Gulls, Terns Herons, Egrets were about on schedule starting to arrive the latter part of April and all thru May, Nesting thru June and July, Several surveys were made on the Island where the nesting colonies were and it was estimated there were at least 2000 laughing gull nests on two islands alone with scattering in other localities, ~~XXXXXX~~ also nesting all mixed up with the Gulls were Little Blue herons, Snowy Egrets, Louisiana Herons, There were also about 40 Yellow and Black Crowned night herons nested in the rank growth of wax Myrtle just south of the over night Cabin.

Shore birds were on schedule, Migration started about the 18th. of April and they were at their peak during May, Consisting mostly of the following Species, Sandpipers, Sanderlings, Turnstones, Plovers, Yellowlegs, Willets, and Curlews There were thousands of them and no accurate estimate of the numbers are available, 12 Avocets came in on Schedule April 18th. but contrary to last years behavior did not remain, Only stayed four day and departed, last year 7 Stayed on the area until some time in ~~XXXX~~ August Rest of the Species have been present in about their usual numbers through out the period with a marked decrease in the numbers of Hudsonian Curlews.

2

2, Food and Cover

Lack of normal rainfall as shown under weather conditions have had a very detrimental effect on the Aquatic Growth in the open water areas in both of the fresh water ponds, a very puny growth is the results, and it is estimated that not over 65% normal stand exist more especially in the south pond, The Marginal edges have not suffered to such an extent and very good stands of Smartweed, Three Square and some wild millet plus other seed bearing plants will perhaps compensate for the lack of Grasses in the open water Areas, The East side of the North pond has an unusual stand of Scirpus Robustus and seems to increase annually.

Beach Pea, Strophostyles Helvela is very abundant all over the Island where the terrain is suitable for it growth since it prefers dry dune type most of this Species can be found along the entire east side of the Island, It is of interest to note that the Area farmed last fall and winter has a crop exceeding over 100% over adjacent areas which was not farmed, In addition the growth is very rank compared to unbroken ground stands and gives promise of bearing an exceeding good crop of beans, It is the opinion of the writer that instead of wasting time and money trying to propagate crops of an unknown quantity that more attention be given to trying to find ways of improving the stands and quality of plants that is native to the Area and of definite value.

2. Food and Cover

Periodic Surveys of about every three weeks for the last two months of the sound waters and bottom lying adjacent to the refuge along the west side of the refuge, reveal that from about one mile south of Oregon Inlet south to our southern boundary that the Vegetative Growth are in very good condition, Dominant types are Widgeon Grass, Sago Pond weed, Shoal Grass with small areas of Eel Grass intermingled, This is the third consecutive summer that these surveys have been made and it is estimated that available foods from this source will be at least normal if not better than past years, Barring Hurracines.

Areas set up for burning this fall and winter have excellent stands of Spartina Patens mixed up with various ~~XXX~~ Species of weeds and other grasses which should enable us to get good clean burns and with purposed plant of over seeding with Rye Grass it is hoped to supplement the natural food supply to an extent not heretofore possible.

Cover, There is no lack of cover on the refuge area for all species needing cover for nesting or otherwise.

3. Botulism and other diseases

None prevalent on the refuge for this period.

4. Fur Bearing Animals

Fur bearers on the refuge are limited to Otter and muskrats, Both seem to be thriving but show no marked increase from year to year, former and present estimates are about 800 rats, with 30 to 40 Otter and it is thought that perhaps they have reached a saturation point.

III Refuge Development and Maint.

A. Physical Developments

No actual new Developments have been undertaken for this period.

B. Maintenance

This phase of activities goes on on the project whether we have any new developments or not, In fact it is the one never ending tasks on any refuge, This periods Maint. Jobs are so many and ~~XXX~~ Varied that it is not practical to list them individually, But to list a few that are included are Buildings, Roads, Dykes, Boats, Tractors, Trucks Etc. Refuge personnel expended a total of 84 man days on Preventive Maint. and 103 day on all other including Posting and several others

E

C. Fires

None for the period

D. Farming and other plantings

No farming was carried on this period, But App. 2000 Scirpus Acutes Plants was dug out and hauled to Pea Island From Mattamuskeet Refuge and transplanted out along the East side of the south pond last inspection ~~xxxx~~ showed about 75% survival.

IV

Economic Uses

None for the period.

V.

Field Investigations

Throughout the period numerous surveys have been carried on to determine the Status of nesting birds of all Species, Also factors relating to the production of food, Inland on the Island, Also off Shore in the waters of the sound covering the entire shore line for a distance of three miles.

During the third week of July refuge personnel expended seven man days catching and banding Laughing Gulls, Herons, and Egrets, In company with Mr. Harry T. Davis and party from Raleigh, N. C. who it seems have been engaged in this activity for some 9 or 10 years on Pea Island with the exceptions of 1950, a total of 345 birds was banded, It is in doubt if this project can be classified as Field Investigations ? (Refer to XV May-Sept. Issue North Carolina Bird Club Bulletin the Chat) Copys not available from this Station.

XIX VI, Public Relations

A, Recreational Uses

For years gone by Pea Island have had the reputation of having some of the best surf fishing anywhere along the N. C. Coast Line, and has had its share of visitors in connection with this sport, But since the completion of the paved road from Nags Head to Oregon Inlet it seems to be a mecca for all the Surf fisherman within a radius of several hundred miles, Average days there are anywhere from 30 to 40 individuals fishing, and on week ends, (for the last few week ends) there has been from 75 to 100 people a day taking advantage of the opportunity offered, It is impossible to keep an accurate check on the numbers or pounds of fish actually taken as it varies with seasons and involves too much time on the part of the personnel, In the future public relations and public use will become an important factor in the management of this refuge.

B, Violations

No Violations of a serious nature have occurred this period, on two occasions small dogs have been found running at large, and steps were taken to have them confined to the automobiles belonging to their owners.

VI, Public Relations, Cont.

C, Visitors

Official

Congressman, August H. Bernier

Mr. Claude Lawrence

Mr. Robert Halstead

Mr. Howard A. Miller

Mr. W. P. Baldwin

Dr. and Mrs. Linduska and family

Mr. Lawrence S. Glavin

Mr. James Silver

Unofficial

Mr. Mrs. P. W. Preston

Mr. Harry I. Davis

Dr. John Gray

Mr. William Palmer

Mr. W. E. Joyner

Mr. Sandy McCullion

Miss Heather E. Thorpe

6/1/51 Washington, D. C.

6/1/51 " D. C.

6/1/51 Little Wash, N. C.

6/15/51 Atlanta, Ga.

6/15/51 P. Wentworth Ga.

6/15-22/51 Washington, D. C.

7/19/51 Atlanta, Ga.

7/30/51 Atlanta, Ga.

6/21/51 ~~Butler~~

6/16-22/51 Raleigh, N. C.

6/16/51 Williamsburg, N. C.

6/16-22/51 Raleigh, N. C.

6/16-22/51 Rocky Mount, N. C.

6/16-22/51 Raleigh, N. C.

8/21/51 Buffalo, N. Y.

WATERFOWL

Refuge Pea Island

Months of May 1, to Aug. 31 to

19 51

(1) Species	(2) First Seen		(3) Peak Concentration		(4) Last Seen		(5) Young Produced		(6) Total
	Number	Date	Number	Date	Number	Date	Broods Seen	Estimated Total	Estimated for period
I. <u>Swans:</u> Whistling swan									
II. <u>Geese:</u> Canada goose Cackling goose Brant White-fronted goose Snow goose Blue goose	185	May 11	185	May 1,	14	Aug. 28			
III. <u>Ducks:</u> Mallard Black duck Cadwall 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								Actual Count	
			225	May 14,	Nesting		18	128	200
			430	" 14,	Nesting		77	619	800
			22	" 14,	2	July 2,	1	6	6
	(Also seen 38 on July 30, Thought to be Migrating)								
IV. <u>Coot:</u>			28	May 11,	28	May 11			28

SUMMARIES

Dates waterfowl counts made 6/15-7/15-8/2

Total waterfowl usage during period 1028

Percent of waterfowl area covered 80%

Peak waterfowl numbers 1200

Dates brood counts made 6/15-7/15-8/2

Areas used by concentrations Two Pond Areas

Percent of area covered in brood counts 90%

Total production:

Principal nesting areas this season North and south Ponds

Geese _____

Ducks 747

Coots _____

Reported by Lewis B. Turner

INSTRUCTIONS

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

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

3-1751

Form NR-1A

(Nov. 1945)

MIGRATORY BIRDS
(other than waterfowl)Refuge Pea IslandMonths of May 1, to Aug. 31, 1951

(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>										
Herons, American	5	5/4/51	56	6/18/51	23	8/21/51				
" Snowy	16	5/4/51	81	6/18/51	56	8/21/51				
Pelicans, Brown	4	5/8/51	26	6/1/51	6	7/8/51				
Grebes, Piedbill	2	7/30/51	16	8/23/51	16	8/23/51				
Rails, Clapper	Seen Throughout the Season									
Herons, Great Blue	5	5/4/51	9	6/1/51	2	8/23/51				
Herons, Louisiana	12	5/8/51	62	6/18/51	31	8/23/51	1	8	20	85
Herons, Little Blue	9	5/8/51	50	6/18/51	23	8/23/51	1	12	30	75
Herons, Black Crowned	Seen throughout the season						1	20	56	100
Herons, & Yellow crowned	Seen throughout the season						1	18	40	80
II. <u>Shorebirds, Gulls and Terns:</u>										
Plover, Black belly	43	5/20/51	300	6/5/51	75	8/23/51				1200
" Semi-palmated	160	5/4/51	1000	6/5/51	600	7/20/51				2500
Turnstones, dusky	140	5/4/51	1200	6/5/51	650	7/23/51				3000
Willetts	18	5/4/51	84	6/5/51	32	7/23/51				150
Yellowlegs	65	5/4/51	1000	6/5/51	200	8/23/51				1250
Dowitchers	8	5/20/51	750	6/5/51	120	8/23/51				1000
Sandpipers, (All Species)	300	5/4/51	3500	6/5/51	800	8/23/51				6000
Gulls, Herring	1000	5/4/51	3000	5/20/51	200	8/23/51	X2	1500X	2500X	3500
" Laughing	400	5/4/51	3500	6/5/51	400	8/32/51	2	1500	2000	4000
Gulls, Bonaparties	85	5/4/51	400	5/20/51	22	8/23/51				
Terns, Royal	15	5/4/51	500	5/20/51	80	8/23/51				800
" Common	20	5/4/51	450	6/5/51	35	8/23/51				
" Least	50	5/4/51	800	6/5/51	200	8/23/51				
Skimmers, Black	2	5/4/51	300	7/30/51	280	8/23/51				500

(over)

(1)	(2)	(3)	(4)	(5)	(6)
III. <u>Doves and Pigeons:</u> Mourning dove White-winged dove	Occasional Visitors, seen in small numbers thru the fall months				
IV. <u>Predaceous Birds:</u> Golden eagle Duck hawk Horned owl Magpie Raven Crow	Seen in small numbers throughout the winter months, (lto 3) Fish crows in small numbers during winter months.				
				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 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.

Refuge Poa Island Months of May 1. to Aug 31, 1947 SI

(1) Species	(2) Density		(3) Young Produced		(4) Sex Ratio	(5) Removals			(6) Total	(7) Remarks
Common Name	Cover types, total acreage of habitat	Acres per Bird	Number broods obs'v'd.	Estimated Total	Percentage	Hunting	For Re- stocking	For Research	Estimated number using Refuge	Pertinent information not specifically requested. List introductions here.
<p>Does not apply to Poa Island Refuge. Only Upland Game birds prevalent on the Refuge is an occasional Dove, mostly migrating.</p>										

INSTRUCTIONS

Form NR-2 - UPLAND GAME BIRDS.*

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

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

3-1570
NR-8a

REFUGE GRAIN REPORT

Refuge Pea Island.....

Months of May 1. thru Aug. 31. 1945l.

(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.
No Grain on Hand.											
Rye Grass, (Italian)	0	500 Lbs.	500Lbs					500Lbs	Seed		

(8) Indicate shipping or collection points Sandhills Refuge, McGee, S. C......

(9) Grain is stored at H. Q. Pea Island Refuge.....

(10) Remarks.....

NR-8a

REFUGE GRAIN REPORT

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

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

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

PLANTINGS
(Marsh - Aquatic - Upland)

Refuge Pea Island

Year 1951

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
Scirpus Acutes	South Pond	4' Square	2000 Plants	Root Stock	5/17/51	75%	Unknown	

TOTAL ACREAGE PLANTED:

Marsh and aquatic Strip App. 400 Yrds long
 Hedgerows, cover patches _____
 Food strips, food patches _____
 Forest plantings _____





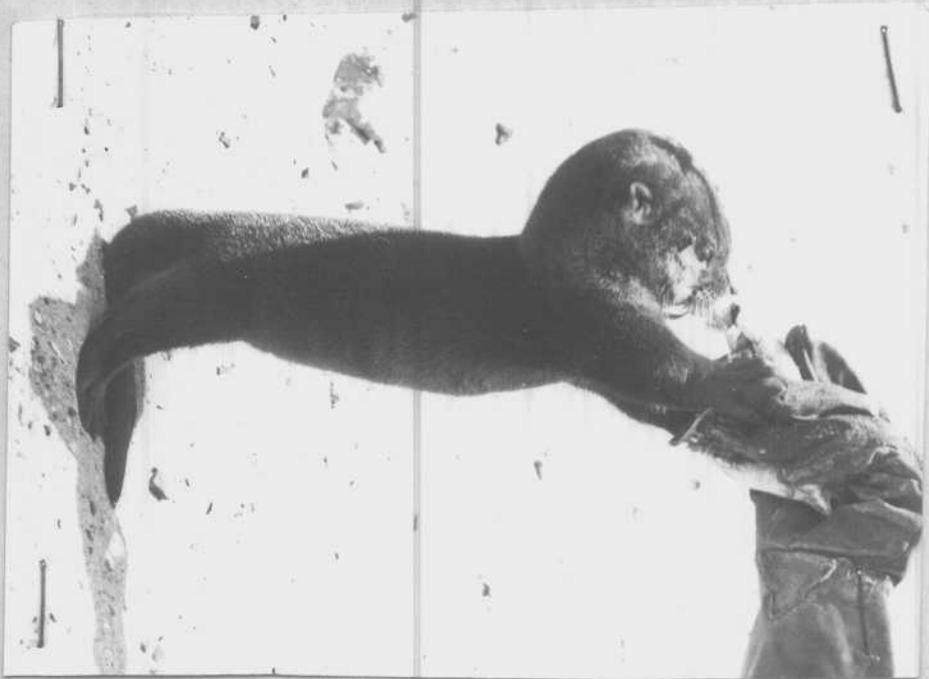
Rank Growth of Beach Pea (Stenostyles Helvola) Increased about 10 fold by discing. This picture was taken on the area, farmed last year.



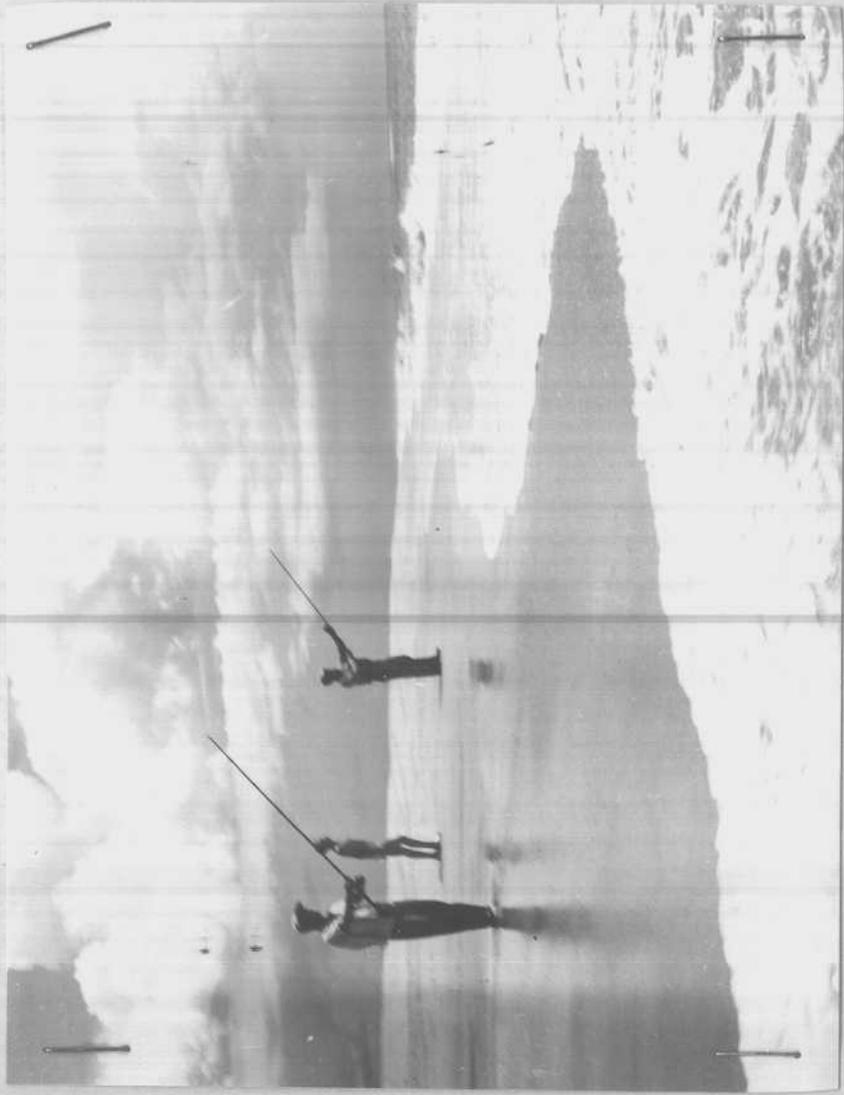
Beach Pea, Climbing upon Sea Oats, Nurse crop for harvesting purposes should be pretreated for this species.



Rank Growth of Bocopa Monnsira, South Pond Area used very extensively by waterfowl for food and somewhat by muskrats



One of the pair of Otter that was collected and shipped to Mr. Borden, Boston Mass.



Random Shots of some of the Surf Fishermans
who come to Pea Island, for Recreation

Regional Director, Atlanta, Ga.

5/6/61

Refuge Manager, Pea Island

Narrative Report

Find transmitted herewith Narrative report covering all activities carried out upon the Pea Island Refuge for the Period, January 1, to April 30, 1951.

It will be found that the information contained therein has been condensed down to pertinent facts rather than in unimportant lengthy details, which it is thought is of useless value in such reports, and only serves to show a bulky and tiresome Narrative, that no one appreciates.

Louis B. ...

PEA ISLAND NATIONAL WILDLIFE REFUGE
NARRATIVE REPORT
January 1, to April 30, 1951

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PEA ISLAND NATIONAL WILDLIFE REFUGE
NARRATIVE REPORT

January 1, To April 30, 1951

I. GENERAL

A. Weather Conditions

Compared to the same period last year, This period was somewhat frigid, With temperatures ranging from 18 on Feb. 5, to up around the middle 30, mark for Jan. and Feb. becoming much warmer thru the month of march, April has been about normal as to temperatures.

Rainfall was 9.96 for the four month period or 8.48 with the pools reflecting the lack of rain, Had one extreme high sound tide (Mar. 15,) that covered most of the marshy parts of the Island, Did no damage except litter up the roads with a lot of Drift requiring about three man days to clear off.

The data listed in the table below was furnished thru the courtesy of Mrs. Rosa Drinkwater, Mgr. of the Coop. Weather Bureau Station, In Manteo, N.C. and does not necessarily reflect the actual Precipitation or Temperatures that prevail on the Refuge which is locate some 17, Miled south.

	Precipitation		Temperatures	
	Actual	Dep. from normal	Max.	Min.
Jan.	1.28	-3.22	71	23
Feb.	1.86	-2.54	77	18
Mar.	3.76	- .74	74	32
April	<u>3.00</u>	<u>-1.50</u>	<u>86</u>	<u>37</u>
Totals	9.96	8.48	86	18

B. Water Conditions

Water levels in both of the Pools have remained almost constant for the entire four months period, Starting off Jan.1, with guages reading, North Pool 4.00, South Pool 4.10 never going any lower than these figures and ranging up to 4.20 and 4.38, April 30, No salinity tests have been run on the waters of the pools or Sound this period (Usually by Mr. Baldwin) and no information is available concerning salt content of either, Levels in both Pools are considered to low for maximum Aquatic growth during the coming summer, But is hoped this condition will improve within the next few weeks

II WILDLIFE

A. MIGRATORY BIRDS1. Population and Behavior

Populations in general did not show much change from the same period a year ago with the exceptions of a few species, Canada geese remained at about the same number, 12000 to 14000, the peak for the period being during the first week in Jan. after the hunting season closed some 25% of the Geese scattered out to other feeding grounds and a decline was noted up until Feb. 1, After this date the Population remained about constant at 8000 to 10,000 until March 21, when the main Migration started, By April 1, there were not over 3000 present, At the close of the period there was only about 200 on the refuge.

Greater Snow Geese as reported in the Dec. Narrative at 12000 Stayed until Jan. 6-7 when the entire flock with the exceptions of 3, took off in Mass, they were located in upper currituck sound on Jan. 11, According to the reports of the State Game agents that covered that Area on the annual census, It is interesting to note that their departure was on the same date last year and weather seems to have nothing to do with when they leave any given area.

Swan showed a decrease from a high of last year of 112, to a high this year of 82, By Feb. 15, this number had dribbled down to only about 25, or 30, remaining on the refuge these stayed until March 12, when only 8, could be seen for the last time.

Black ducks showed the most pronounced increase of any specie for the season, 25, to 30, Percent, With a peak Jan. 15-20 of 6800, Pintails was about the same as for the period last year, With a Population of 4000, to 6000, Gadwalls, Teal, Shovelers, Ring Neck, Ruddys and Mallards were present in about their usual numbers Ranging in numbers from 12, to 800 per Specie, Scaup showed a decrease of about 30% from last year with a peak of 3800 for the period, all the ducks migrated along with the Canadas except Teal and Shovelers which stayed about two weeks later with a few Teal still on the area at the close of April, Canvas Backs and Red Heads was at an all time low with only about 15 NK Canvas Backs, and no Redheads, Mergansers was very Scarce throughout the period until March 5, when about 2000 were observed near Oregon Inlet but was gone within two days, Probably migrating.

Herring and Ring Bill Gulls Remained on the refuge in large number thru the first three months of this period having counted over 3000 on two occasions in Jan. Feb. Thru April these numbers decreased somewhat, Black back NK Gulls was just about on a par with last season, With a Count of 196 on Jan. 20, Laughing Gulls, Royal and Common Terns, Willets, Turnstones, and Sandpipers of all Species, Began to arrive April 12, and by the close of the month were present in large numbers, No Complete Counts are available for these Species to Date.

Gannets showed a slight increase over the previous period, Thru the last week and the first two weeks of Feb. an Estimated number of 4500 could be Seen feeding along the Ocean side of the Refuge, None have been observed since March 4, when they moved on northward.

2. Food and Cover

Food Conditions as a whole was about average but was not as favorable as last season, The two Pools started off the season with low water levels and as a results Growths was far below last years supply, On the other hand Aquatics in the waters of the sound were in much better Condition and more plentiful.

Both Pools were ~~completely~~^{partly} fed out by the middle of Feb. Except the marginal edges which still some Three Square, Smartweed and Millet and a few other Species Available, Very cold and foul weather prevented the water Fowl from feeding upon the sound as they normally do all thru the months of Jan-Feb and where there were still good stands of food available.

The acreage planted to Grain last fall and killed out by Salt Spray and High tides never did recover to any extent and was discounted as a Food supply this period, An attempt was made to carry out the marsh burning program on schedule, But was delayed by Storm tides and unfavorable burning weather until after the 15th of Dec. From then until Jan 16, Five units were burned off totaling App. 320 Acres, 20 Acres in the south end of the south pond was sown to Rye Grass but due to extreme cold weather germination was delayed and in contrast to last winter the burns was very slow greening up, as a result it was about feb 1, before any green browse became available from this source, from that date on all the burns were utilized by the Geese, and Black and Pin-tail ducks inlarge numbers, The Rye Grass mentioned above showed a rapid growth until the Geese started using on it and it was kept browsed down to the ground until the Migration was over and at times over 600 Geese could be counted feeding on this small area alone.

A better crop of Beach Pea was produced last fall than the year before on most of the Islands higher flats and the dunes, and during the foul spells of weather Geese and black ducks could be seen over most of the Areas it is thought that Beach Pea has more importance as a food factor than heretofore thought, As a whole the food situation was not as favorable as for the same period last year.

Cover is not an important factor on Pea Island as there is adequate cover for all Species needing it, Consisting mostly of Cord Grass Spartina Patens Wax myrtle, Iva and other brush types, The nesting Black and Gadwall ducks show a preference for the Spartina type bordering the two Pools.

3. Botulism

None

4. Other diseases

Records show a total of 168 Canada geese affected thsi season by the mysterious disease prevelant on Pea Island in past years, This subject is covered more thonoughly under V, Field research

B, Big Game Animals

None on the Refuge

C, Fur Bearing Animals

Muskrat Population on the Refuge seems to remain about Static with about 700 to 800 Rats, This is perhaps a saturation Point or some factor involved that is holding down an increase of which we are not ~~familiar~~ familiar, None were harvested or Collected this period.

Otter seems to be scattering to parts of the refuge not heretofore used by them, Otters themselves or their sign can be found in both of the Pool Areas and in all the tide water creeks along the Sound side of the Island, their range is extensive and it is most difficult to estimate the Population with any degree of Accuracy, But a good Guess would be from 30 to 40 Animals.

Nutria, which have been mentioned in previous reports, Are thought to be getting a foot hold on the Refuge Area, During the month of Dec. sign of them have been observed on several occasions and sighted on two different occasions, Reports indicate that they are becoming numerous around the Buxton Area some 25, Miles south of the Refuge.

III, Refuge Development and Maint.

A, Physical Development

No Actual new development projects were undertaken or accomplished this period.

B, Maintenance

This phase of work accounted for most of the Available time that was not needed in the trapping program by the refuge personnel, 405 Pieces of pierced plank landing mats were transported from White River refuge and hauled into the refuge which in itself developed into a major undertaking, all the old mats was removed from the dike crossing and the new ones laid into place, All crossings are completed and now in good condition, This project required a total of 59 man days.

16 Squares of white asbestos siding was purchased hauled in and attached to the C. G. Bldgs. Now occupied by Mr. Phillips, This project is completed with the exceptions of attaching corner strips to four corners, this project required 33, Man days.

Household furniture transfered in from Kentucky Woodlands have been sanded down and revarnished and set up.

Numerous repairs were made to the Equipment, The 1½ ton stake body truck was cleaned, Sanded and painted with rust preventive paint.

C, Fires, Other than controlled

None

D, Farming and other plantings

None

IV, ECONOMIC USES

None for this period.

V, FIELD INVESTIGATIONS

In connection with the Goose disease study being carried on at Patuxant, Refuge personnel expended 49 man day this period, assisting Mr. John Steenis, and otherwise carrying on the trapping, Banding, Weighing, and blood smearing Canada Geese. Also the collection of several types of materials including Vegetative samples, and snails. An extra page is appended showing tabulations of all phases of the work and total results obtained, with the mass of data and specimens collected and made available to the research Division at Patuxant. Some highly valuable information should result.

VI, Public Relations

A, Recreational Uses

Due to such frigid weather and the foul conditions of the Roads thru the months of Jan-Feb, visitors were at a minimum during these two months, but with warmer weather and better roads starting the last two weeks of march Surf Fishing became popular again and several partys have been seen along the surf line trying their luck. Poor success was prevalent during march, but luck picked up during April, and several catches were made not so many in number but some of the Drum Caught weighed up to 40, lbs each. Due to the time factor involved it almost impossible to keep a constant check on this activity and no accurate information is available as to numbers of partys or the actual amount of fish taken.

With the Road from Nags Head to Oregon Inlet now in the process of being paved, We can expect recreational uses of Pea Island to increase by leaps and bounds in the very near future. Possibly by the middle of August this year.

B, Law Violations

None this period.

C, Visitors

	Official	
Dr. Carlton E. Herman	1/23-25/51	Laurel, Md.
Dr. E. E. Wehr	1/23-25/51	" "
Mr. William Good	1/23-25/51	" "
Mr. L. S. Givens	2/5/51	Atlanta, Ga
Dr. (Buzz) Morley	2/5/51	Wash, D. C.
Mr. Carl C. Fermanich	3/13/51	Atlanta, Ga
Mr. R. O. Gustafson	3/12/51	Wash, D. C.
	Unofficial	

None

CANADA GOOSE TABULATIONS, Pea Island Refuge.

Estimates of Canada geese use of the refuge:

At least 10,000 geese wintered on the refuge until January 7 (the last day of hunting). After January 7, 2,000 - 4,000 birds began ranging off the refuge area.

Influx of migrating Canada geese, flocking of local birds, and migration off Pea Island occurred in March; the period of peak migration was in the third week.

Sick bird status:

107 Canada geese found dead.

51 sick Canada geese were caught and autopsied or brought to Patuxent.

168 total for dead geese or sick birds that probably would have died from sickness

Normal acting birds shot:

34 for autopsy and food habit studies including 5 birds selectively shot for checking on feeding habits for Stophostyles helvola.

Trapping results:

413 geese trapped (including repeats)

16 birds lost or that got away

33 live birds brought to Patuxent

267 birds banded, sexed, aged, weighed, blood smeared, etc.

71 birds retrapped a 2nd time that were weighed and blood smeared.

17 " " " 3rd time " " " " " "

3 " " " 4th " " " " " "

WATERFOWL

Refuge Pea Island Months of Jan. 1. to March 30. 19 51

(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			82	1/10/51	8	3/10			82
II. <u>Geese:</u>									
Canada goose			12000	1/5	200	4/20			14000
Cackling goose									
Brant									
White-fronted goose									
Snow goose			10000	1/5	3	4/10			12000
Blue goose									
III. <u>Ducks:</u>									
Mallard			70	1/10	2	4/10			100
Black duck			6800	1/15	80	4/20			7000
Gadwall			400	1/10	100	4/20			400
Baldpate			50	1/10	5	4/20			75
Pintail			4000	1/10	17	4/20			4500
Green-winged teal			174	1/10	30	4/20			300
Blue-winged teal			650	1/10	40	4/20			800
Cinnamon teal									
Shoveller			350	1/10	8	4/20			500
Wood duck									
Redhead									
Ring-necked duck			400	1/10	12	4/20			700
Canvas-back			8	1/10	3	3/27			25
Scaup			3800	1/10	26	3/21			4000
Golden-eye									
Buffle-head			50	1/10	2	3/21			150
Ruddy duck			800	1/10	12	3/21			1000
IV. <u>Coot:</u>			4000	1/10	22	4/20			5000

SUMMARIES

Dates waterfowl counts made _____
Percent of waterfowl area covered _____
Dates brood counts made _____
Percent of area covered in brood counts _____
Total production;
 Geese _____
 Ducks _____
 Coots _____

Total waterfowl usage during period 50,550
Peak waterfowl numbers 45,555
Areas used by concentrations Shoal Waters of the Sound.
Two Fresh Pools, Salt Flats, Sand Dunes.
Principal nesting areas this season _____

Reported by Laurie E. Turner

INSTRUCTIONS

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

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

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

MIGRATORY BIRDS
(other than waterfowl)

Refuge Pea Island Months of Jan. 1, to April 30, 1945

(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:										
Comorants,	550	4/16	700	4/20						1000
Herons, Great Blue	Res.		17	4/20						30
" Louisiana	Res.		25	4/20						40
" Black Crowned	Res.		120	4/20						200
Egrets, American	9	3/20	35	4/20						60
" Snowy	10	3/20	25	4/20						40
Loons, Common	Seen all	Period	235	4/20	285	4/20				300
Grebes, Horned	" "	"	30	1/20	8	4/20				50
" Piebill	" "	"	40	1/20	6	4/20				100
II. Shorebirds, Gulls and Terns:										
Gulls, Great Black back			196	1/20	4	4/20				225
" Herring	Seen all	Period	2000	1/20	600	4/20				2000
" Ring Bill	" "	"	1000	1/20	85	4/20				1500
" Laughing	125	4/12	400	4/20						600
" Bonapartes	3	4/12	24	4/20						100
Terns, Royal	28	4/12	140	4/20						400
" Common	8	4/12	100	4/20						500
Willetts	12	3/28	85	4/20						300
Yellow Legs, Greater	55	3/28	240	4/20						600
Sandpipers, Red Backed	Seen all	Period	1500	4/20						2500
Sandpipers all Species other than Red Backed	800	3/28	3000	4/20						5500

(over)

(1)	(2)	(3)	(4)	(5)	(6)
III. <u>Doves and Pigeons</u> : Mourning dove White-winged dove	One or two seen occasionally				
IV. <u>Predaceous Birds</u> : Golden eagle Duck hawk Horned owl Magpie Raven Crow	about 10 observed on the refuge for the period				
Fish	Not over a dozen seen this period				
					Reported by <u>Lewis B. Turner</u>

INSTRUCTIONS

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

3-1754
Form NR-4
(June 1945)

SMALL MAMMALS

Refuge Pea Island

Year ending April 30, 1951

(1) Species Common Name	(2) Density Cover Types & Total Acreage of Habitat Acres Per Animal		(3) Removals					(4) Disposition of Furs					(5) Total Popula- tion
			Hunting	Fur Harvest	Predator Control *	For Re- stocking	For Re- search	Share Trapping			Total Refuge Furs Shipped	Furs Donated	
						Permit Number	Trappers Share	Refuge share					
Muskrat	Cattail, Three Square Acreage Unknown												Est. 700
Otter	Fresh Water Ponds Tide Water Creeks												Est. 35

* List removals by Predator Animal Hunter

REMARKS:

Reported by 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 Year 1941

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>One</u>	<u>100</u>	<u>200</u>
_____	_____	_____
_____	_____	_____

Number Recovered None

Number lost Unknown

Source of infection Unknown

Water conditions Good

Food conditions Fair

Remarks Since there was one full time man assigned to this project and part of the time Two and Three it is thought that the figures listed above accounts for over 80% of the birds affected on the Area, as it was combed almost daily for affected birds.

3-1570
NR-8a

REFUGE GRAIN REPORT

Refuge Poa Island.....

Months of Jan. 1. thru April 30. 1951

(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.
Corn, Shelled Yellow	100	None				Trapping	75. Bu.	25 Bu.			
<p>"Note" the 25 Bu. listed as on hand is still located at Mattamuskeet Refuge, and with the R. O. approval will be used by Mr. Cahoon in the Carp Removal Program now under way at that Station and is surplus to our needs before next Waterfowl season</p>											

- (8) Indicate shipping or collection points.....
- (9) Grain is stored at.....
- (10) Remarks.....

NR-8a

REFUGE GRAIN REPORT

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

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

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

PEA ISLAND NATIONAL WILDLIFE REFUGE

NARRATIVE REPORT

JANUARY 1, TO APRIL 30, 1961

Completed and submitted May 6, 1961

Louis B. Turner
Louis B. Turner
Refuge Manager

Approved _____
Title _____



First Step in the Banding Program and
other activities Connected therewith



Second Step, Weighing the Geese



Third Step, Banding The Geese



Fourth Step, Free Again



Burning 320 Acres of Marsh, In High



Tired out, Roaring Fire in the Background



Olinex, Sowing Rye Grass (Italian) On Burned over Marsh