

PEA ISLAND NATIONAL WILDLIFE REFUGE
NARRATIVE REPORT
SEPTEMBER 1, TO DECEMBER 31, 1955

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PEA ISLAND NATIONAL WILDLIFE REFUGE
NARRATIVE REPORT

SEPTEMBER 1, TO DECEMBER 31, 1955

I, GENERAL

A, Weather Conditions

Existing conditions for the period ran parallel with that for the same period last year, Having two Hurricanes just before this period started and another one (Ione) Sept. 17-18 which passed just west of Pea Island with attending winds up to app 80 MPH and accompanied by heavy Rain fall, Since that date Weather has been seasonal with no extreme freeze ups to date.

Temperatures ranging from 87 on Sept. 11 to a low of 26 on Dec. 22, or about average with former years

Three seasonal North Easters have occurred with wind up to 45 MPH generally lasting about two days and nights these are very disagreeable to work in not to mention sanding up everything that is not sealed up and plays havoc with the trapping program at times.

Data contained in the table below was furnished by the National Park Service who maintain a weather Station at Bodie Island Station just three miles north of the Refuge and is far more accurate than that contained in other reports which was furnished by the U. S. Weather Bureau located at Hatteras N. C. 40 miles south of the Refuge.

	Precipitation		Temperatures	
	Actual	Dep. From Nor.	Max.	Min.
Sept.	10.33	X 5.83	87	65
Oct.	2.25	- 2.25	84	42
Nov.	2.20	- 2.30	73	27
Dec.	.83	- 3.47	73	26
	<u>Tot. 15.61</u>	<u>13.85</u>	<u>Max 87</u>	<u>Min. 26</u>

II, WILDLIFE

A, Migratory Birds

1, Populations and Behavior

Late summer and fall residents were present in about the usual numbers at the start of the period, with migration well under way by the last of Sept. by Oct 20 most of the Gulls, Terns and shore birds had left, The exception to this being some laughing gulls and a goodly number of Skimmers which is the last to leave for the winter months, A few Snowy Egrets and little blue herons remained up until Nov. 20.

Fall migration of Herring, Great Black Backed and ringbill gulls started app. 10 days earlier than last year with the first arriving Sept. 18 these counted only a few in number but they continued to increase for the next three weeks until there were several thousand present, this population has remained about constant throughout the season and are still present.

The first of the migrating Waterfowl was blue wing Teal and Piedbilled Grebes, Arriving Sept. 12 where they were observed in the North Pond area numbering about 120, Blue wing Teal does not as a rule remain on Pea Island for any length of time usually being gone within a week but there is a steady migration of them for the last three weeks of Sept. Pintail, Widgeon, and Mallards were the next on the list of arrivals with a few Canada Geese arriving Oct. 3 and by the 15 there were several thousand of these also, they continued to increase until we had an above average population of Ducks numbering app. 26,000 on Nov. 10 compared with about 17,000 for the same period last year.

Population of Canada Geese on this same date numbered app. 11,000 or just about the same as last year, This number increased slightly after the hunting season opened but scattered out again within a few days, With the remaining population as of this date being app. 10,000

The first Greater Snow Geese in any numbers arrived Nov. 18-19 and on the 23rd the population of Snows had reached over 12,000 most of these remained on the Refuge area until Dec. 28 when about half of the flock moved back northward and at the present date there remains app. 5500 snows on the Refuge Area.

The population of Swan on Pea Island has shown a steady increase for the last several years, The first to arrive this season was on Oct. 7, numbering 7, in the South Pond the peak count up to date was taken on Nov. 27 when there were 273 present on the North Pond these birds show a tendency to move about a great deal and on some days when counts are taken the number will have decreased to less than 100 and within three days will be back up to over 200

2, Water Conditions

Water conditions have been more favorable for period than for the last two years, During the summer months both ponds went dry, but with the two hurricanes passing thru during August with attendant rains, The north pond Guage reading at the start was 4.20 and the South Pond was 4.60, Ending with readings of 4.40 and 4.38 on Dec. 31 ranging up to above 5.00 during the period, Water conditions in Pamblico Sound remain about constant with salinity of app.55 to 65 percent Sea strength with very little turbulence at any time except during hurricanes, Considered as a whole the conditions as they existed throughout the period could be called average.

3, Food and Cover

Food conditions cannot by any stretch of the Imagination be considered good, The two Hurricanes passing thru during the month of August caused some damage to the Aquatic growths in the sound waters, But surveys made during the week of Sept, 18-24 disclosed that damage was not as severe as was expected, Most of the damage caused by the Hurricane was the total destruction of the Native beach Pea Crop on the entire area with the exceptions of those inclosed within the two ponds, To off set this the usual 62 Acre field was planted to Ryegrass during the last week in Sept. and has to date been the best crop produced since the field has been in cultivation with over 1100 Geese having been counted feeding on the field on one occasion and with a constant flock of 400 or more.

Our marsh burning program has been advanced from former years and to date two units totaling app.533 acres have been burned off with another scheduled to burn within the next 10 days with an acreage of 177, The 102 acres of Marginal edge of the south pond that was under treatment for cattail control produced an excellent crop of wild Millet and Smartweed and at the present time there is upward of 4000 ducks and Geese using the area, The critical time of food shortage on Pea Island is the last two weeks of Feb. and all of March, We expect to have a severe shortage during this period.

4, Botulism and Lead Poisoning

None for the period

5, Other Diseases

The disease that causes dieoff among the wintering flock of Canada Geese at pea island has to date been almost non-existent only having observed three know to be effected, But it is far to early to make any commitments on what will be the final results since most of these out breaks happen during the last 10 weeks of the season,

5, Other Diseases Cont.

The division of Research is continuing their program of investigation on this disease and there is hope that they may come up with the solution to the problem at an early date, More will be found concerning this subject under Research and investigation.

B, Upland Game Birds

Does not apply to Pea Island Refuge with the exception of an occasional dove seen during early fall.

C, Big Game Animals

Does not apply to Pea Island Refuge.

D, Fur bearing Animals

There is no noticable change in the status of fur bearer on the Refuge for the last two or three years, our best estimates on the Population of muskrat is 1500-2000 and no increase to mention,

Otter range over the entire Refuge area and is estimated to number around 45, some young were observed during the spring in the North Pond at least three having been seen but this Species also show no increase within the last several years.

Two years ago some mink sign was found along the east side of the north pond but no recent activity or sign on these have been seen for several months and it is thought that they must have moved to some other locality.

III, REFUGE DEVELOPMENT AND MAINTENANCEA, Physical Developments

No new Physical developments has been accomplished during the period.

B, Maintenance

Maintenance for the period has been heavier than usual for the reporting period, Due mainly to severe damage to the 12 miles of fence to be maintained caused by hurricanes, the entire 12 miles was serviced up once during the period only to be struck by another one about a week later, Damage suffered by the last storm has not been completely repaired even as yet, All trapping blinds had to be completely rebuilt and covered and the road around the south pond was cleared of drift and other matter two times, Maintenance schedules on all Equipment have been kept up to date including Tractor which was cleaned sanded down and two coats of Derusto paint sprayed on, All farm machinery was given a heavy coat of hot Crater compound after farming operations was completed to prevent rusting out,

B, Maintenance Cont.

All Trapping nets were completely overhauled and new bridle lines spliced in with new projectiles where needed.

Some maint work was accomplished on the buildings, Mostly trim poarch floors and window frames, All Recognitions signs were touched up on lettering and support hinges painted, some posting work was done mainly replacing defaced signs along the road right of way and straightening up post that was dislocated by storms.

C. Farming

Our usual farming program was started during the last week in Sept. consisting of app 52 acres of Domestic Ryegrass, Some changes were carried out this season, In former years 40 lbs of seed had been planted to the acre, This year 80 lbs were planted, a very good stand resulted and this was treated with 100 lbs of ammonium Nitrate three weeks later, This proved to be a good investment since we have produced more browse per acre than at any time in former years since agriculture was started, Present plans are to increase the acreage next season to app. 70 acres which is the limit on land suitable for farming that is not subject to tidal action.

D, Fires Wild and otherwise

No wild fires ocured on the refuge during the reporting period, Some controlled burning has been accomplished but since the program is not completed this will not be discussed but will be thoroghly covered in controlled burning report due in the next Narrative at the end of April.

IV, ECONOMIC USES

A, Commercial

Since the J. B. Tillett Concession has been took over by the National Park Services there has been no Economic use on the Refuge.

V, FIELD INVESTIGATION AND APPLIED RESEARCH

A,

Trapping, Goose disease Study

This is the sixth year that the Division of research has been carrying on an investigation of the disease that is responsible for the periodic die-off of Canada Geese that occur on Pea Island, and altho our trapping program is not directly tied in with the project this Season as to collections of sample feces and other data it is assumed that all information collected will be used as in former years along with the five Geese that we trap for their use each month.

to date our trapping program has not been to successful although we have five trapping sites baited and three nets in use, As was the case last season we are being plagued with an unusual population of mallard ducks which interfere with Goose trapping to a great extent.

A. Trapping, Goose disease Study Cont.

In addition to leg banding this season, Under instructions from the Regional Office we are attaching White neck bands to all Canada Geese released in an attempt to trace local movements of the Pea Island Flock to other localities especially Mattamuskeet and Back Bay Refuges and although we have released nearly a hundred bearing the Collars we have not received a single observation report to date.

In connection with the Research project we have the responsibility of feeding and watering a captive flock of about 50 Geese that was brought in from Patuxent, Some of these have been liberated but still have to be attended to since they persist in hanging around the holding pens where the others are confined and show no inclination to get out and rustle for themselves, ~~inasmuch~~ this incidentally takes a big out of our corn used in trapping operations, To date only three Geese have been found that was suspected as victims of the Disease altho a very thorough canvas was made of the entire Refuge area by Refuge personnel on Dec. 21 on foot covering all the salt flats, Tide Water Creeks and other places where they can usually be picked up when they are effected in any numbers, It is hoped that this will continue for the rest of the season but since the critical period still lays ahead, Final results is probmatical.

VI, PUBLIC RELATIONSA, Publicity

Number of Visitors to the Refuge fell off app. 50 % from the last four month reporting period which showed 157 registered visitors to Pea Island Station, This four month period show 103 Registered visitors, This is to be expected since we never have as many during the winter months as summer, There is a difference in the objectives of the Visitors as a whole, Most of the summer visitors are interested in Recreational activities while the winter visitors are primarily interested in Wildlife observation and photography.

Hundreds of Refuge leaflets and bird list have been distributed to the public, from our own Office and other places along the Beach that we keep supplied at regular intervals.

During the Week Dec. 11-17 Refuge Personnel expended considerable time in assisting Movie making Photographer associated with the Outdoor Film Corp. of Palm Beach Fla, in making advantageous setup for the purpose of making Movies of the Flock of Greater Snow Geese that is wintering on Pea Island, Also a complete sequence of Net Trapping activities including the technique used from the first birds to appear at the trapping site until the Shot is made and all birds banded and released.

It is understood that this movie is one of three that the Company has contracted to make for the National Park Service and it is assumed that the film will be released under Park Service heading

A, Publicity Cont.

perhaps without any official recognition to our service unless some arrangements can be worked out at Regional Office or Central Office levels to the contrary with Park Service Officials.

B, Recreational

Use of the Refuge Area for recreational purposes continued heavy thru Sept. and Oct. With fishing being the major activity, Surf fishing was fair to good during these two months and up until about Nov. 10, Most all parties caught some fish, Some more than others but considered as a whole the season was satisfactory, During the months of Nov-Dec. there was a radical decline in Visitors interested in this sport due mostly to the fact no one could stand the low temperatures along the surf line in comfort with the prevailing winds that is common for this time of year.

Sight seers were more numerous especially after the arrival of the Snow Geese which annually attract a great number of Visitors, and can almost always be seen from the highway on the feeding grounds and resting on the salt flats, Two parties came in for the purpose of making movies of the Snows in addition to those mentioned under publicity, Dr. Shaftesbury From Goldsborough and another party of three from southern N. J. Who neglected to Register and their names are not available.

Estimates made from periodic checks throughout the season indicate that Recreational activities fell off slightly from the same period last year with.

Man days of Fishing	1900
---------------------	------

Man days Sightseeing and other	3180
--------------------------------	------

Compared with the following figures for the same period last year

Man days of fishing	2100
---------------------	------

Man days of Sighting and other	3400
--------------------------------	------

C, Violations

Two Violators was apprehended during the period by Houston C. Phillips and Hugh V. Hines Maintenance man and Game agent on the Refuge Area, one John D. O. Neal and Celestial Scarborough from Avon N. C. were picked up while in the act of Shooting ducks in the Borrow pit of the North Pond from the highway, The U. S. Commissioner in Elizabet City Assesst fines of \$75.00 and cost in each case.

No other Violations are known to have occurred with the exception of an occasional dog that get out of motor vehicles on the area at times.

D, Visitors ScheduleOFFICIAL

Ernest F. Holland	10/5	Santee Refuge
W. G. Cahoon	10/5	Mattamuskeet Refuge
Allyn F. Hanks, Park Supt.	10/30	Manteo, N. C.
Lawrence S. Givens	11/15	Atlanta, Ga

Unofficial

Visitors under this heading will not be listed by name and address.

There was 103 registered Visitors to Pea Island during the reporting period, Most of whom were out of state residents.

Traffic across Oregon Inlet Ferries, One Way

Vehicles	Passengers
16.368	43.955

Submitted By Lewis B. James

Approved By

C. Y. Fermanich

Date 1/6/56

Date

JAN 13 1956

Asst Regional Refuge Supervisor

1955

PUBLIC USE - C. Y. _____

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

A. _____ National Wildlife Refuge. 17,630

B. Estimated total use of all types _____ visitor-days.

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

Estimate visitor-days 7,050

2. Fishing use.

Estimated visitor-days _____

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

10,580

Estimate visitor-days _____

C. Remarks.

Jan 5, 1956

Kevin B. Turner

Date

Refuge Manager

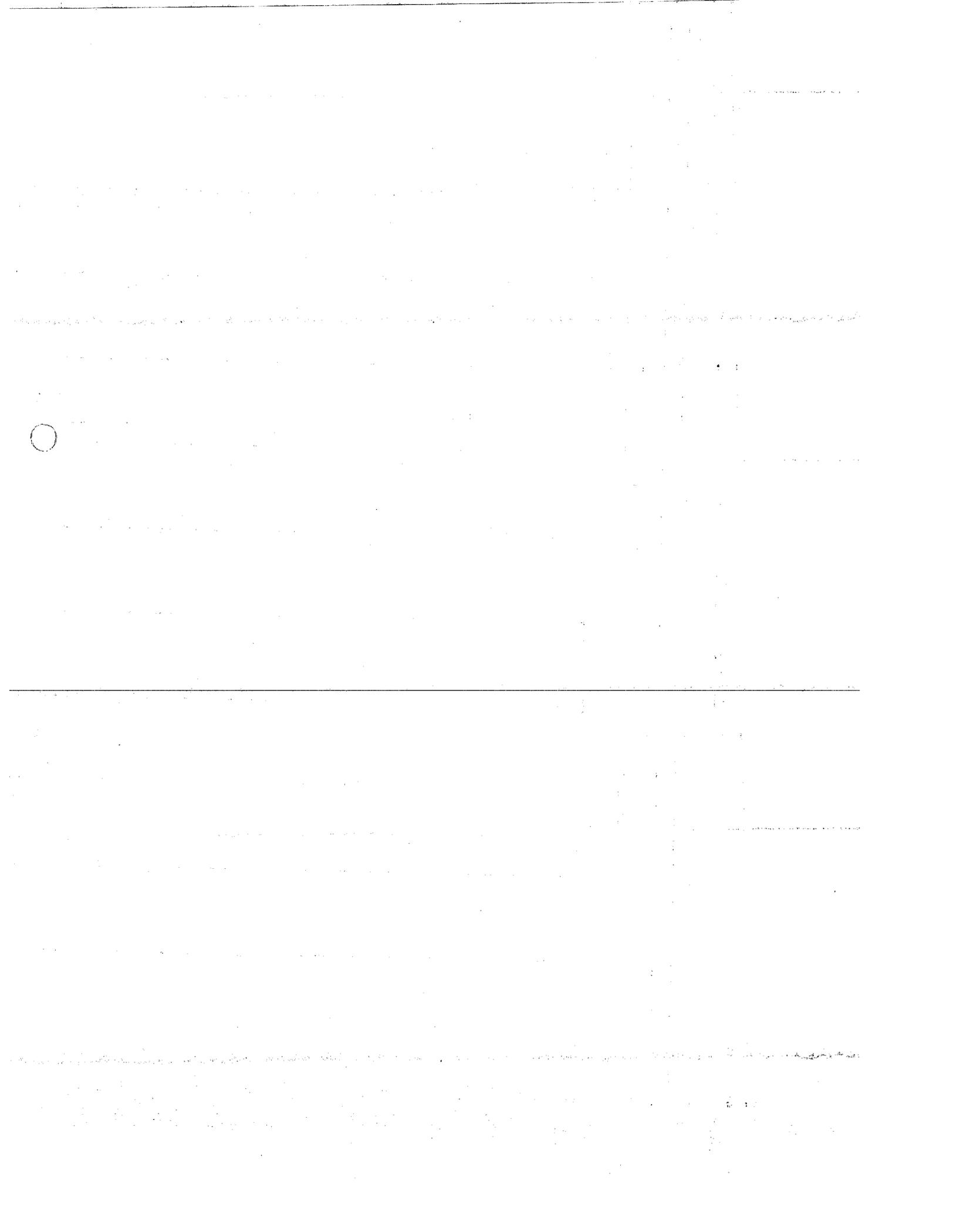
3-1750
Form NR-1
(Rev. March 1953)

W A T E R F O W L

REFUGE Pea Island National Wildlife Refuge

MONTHS OF Sept 1. TO Dec. 30, 1955, 1955

(1) Species	(2) Weeks of reporting period									
	1	2	3	4	5	6	7	8	9	10
<u>Swans:</u>										
Whistling					7	7	7	11	22	84
Trumpeter										
<u>Geese:</u>										
Canada	9	9	9	9	38	900	3500	6000	8500	10,000
Cackling										
Brant										
White-fronted										
Snow								17	22	22
Blue									1	1
Other										
<u>Ducks:</u>										
Mallard					8	30	70	200	150	200
Black	350	350	350	425	400	550	700	1600	1400	1480
Gadwall	400	350	200	400	400	600	800	2200	2400	2500
Baldpate					550	1000	3000	4500	6000	6000
Pintail		550	600	900	850	900	2200	2800	2400	3000
Green-winged teal								50	700	900
Blue-winged teal	300	300	550	300	165	500	400	450	300	500
Cinnamon teal										
Shoveler										100
Wood										
Redhead										
Ring-necked								85	70	600
Canvasback										
Scaup								30	40	30
Goldeneye										
Bufflehead									3	4
Ruddy								125	400	700
Other Unidentified	12	30	30	65	65	100		1500	2000	1900
<u>Coot:</u>				30	75	200	800	800	2500	2800



3-1750a
 Cont. NR-1
 (Rev. March 1953)

WATERFOWL
 (Continuation Sheet)

REFUGE Pea Island National Wildlife Refuge

MONTHS OF Sept. 1,

TO Dec. 31, 1955, 19

(1) Species	(2) Weeks of reporting period								(3) Estimated waterfowl days use	(4) Production Foods: Estimated seen total		
	11	12	13	14	15	16	17	18				
Swans:												
Whistling	198	273	146	234	270	248	240		11.991	0	0	
Trumpeter												
Geese:												
Canada	11000	11000	11000	10500	11000	10500	11000		740.418	0	0	
Cackling												
Brant												
White-fronted												
Snow	600	4000	11500	9000	11000	8500	8000		388.627	0	00	
Blue	1	4	28	14000	23	7	2		553	0	0	
Other												
Ducks:												
Mallard	240	300	450	600	600	600	600		28.916	0	0	
Black	1465	1500	1400	1400	1300	1400	1400		122.260	0	0	
Gadwall	4000	6500	5400	4800	4500	4000	4000		504.150	0	0	
Baldpate	5500	4000	5500	2200	2400	2600	2800		322.350	0	0	
Pintail	2800	3000	2800	2150	2000	2100	2000		217.350	0	0	
Green-winged teal	950	2000	3800	4000	4000	2500	3000		153.300	0	0	
Blue-winged teal	400	200	40	200	150	85	60		32.800	0	0	
Cinnamon teal												
Shoveler	8	45	400	600	600	750	900		23.821	0	0	
Wood												
Redhead	1	4	6	3500	4500	5500	6000		136.577	0	0	
Ring-necked	600	2800	3800	2200	2000	1800	2600		115.855	0	0	
Canvasback			6	10	8	3	7		238	0	0	
Scaup	500	450	450	600	500	600	800		26.250	0	0	
Goldeneye												
Bufflehead	4	4	4	4	4	3	1		217	0	0	
Ruddy	650	900	1100	950	1100	900	850		54.075	0	0	
Other Unidentified	2500	2100	2800	3500	3500	2000	3800		181.294	0	0	
Coot:	2500	2800	00	2600	2600	2200	2800		189.035	0	0	

	(5)	(6)	(7)
	Total Days Use	Peak Number	Total Production
Swans	<u>11,991</u>	<u>273</u>	<u>0</u>
Geese	<u>1,109,588</u>	<u>22,500</u>	<u>0</u>
Ducks	<u>1,719,465</u>	<u>27,500</u>	<u>0</u>
Coots	<u>189,035</u>	<u>2,500</u>	<u>0</u>

SUMMARY

Principal feeding areas Water Areas of Pamlico Sound and late
in the winter all over Pea Island also

Principal nesting areas None this period

Reported by Lewis B. Turner

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 Island Refuge Months of Sept. 1 to Dec. 30, 1955

(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:										
Herons, Great Blue	Res.		22	10/13	2	12/23				22
" Little Blue	Sum Res.		64	9/16	4	11/7				110
" Louisiana	" "		41	9/16	2	12/23				65
" Yellow Crowned	" "		163	9/16	5	12/23				265
" Black Crowned	" "		171	9/16	12	11/7				200
Commons	4	9/26	317	10/16	21	11/7				450
Egrets, American	Sum Res.		263	9/16	4	11/7				326
" Snowy	" "		308	9/16	9	11/7				400
Loons, Common	16	10/16	28	10/16	20	12/23				26
Grebes, Piedbilled	Res.		385	10/16	161	12/23				500
" Horned	2	9/26	5	10/16	2	11/7				10
Bittern, American	1	9/26	4	10/16	1	11/7				10
Rails, Clapper	Res	No data on	Rails, Est. Population							600
II. Shorebirds, Gulls and Terns:										
Plovers Wilson	Sum Res.		204	9/16	4	11/7				350
" Black Bellied	8	9/26	41	10/16	1	12/23				85
Sand Piper, All Species	Sum Res.		9,500	9/26	650	11/7				12,000
Willetts	" "		285	9/16	4	11/7				300
Yellow Legs, Great-Less	" "		640	9/16	16	11/7				900
Terns, Royal	" "		145	9/16	4	11/7				200
" Common	" "		975	9/16	18	11/7				1100
" Black	155	10/16	1200	11/7	4	11/7				2000
Gulls, Laughing	Sum Res.		4200	9/16	140	12/23				5000
" Herring	Res.		3800	10/16	Still present					5500
" Ring Bill	Res		900	10/16	" "					1400
" Black Backed	3	9/26	430	11/7	" "					500
Gannets,	180	10/16	1800	11/7	200	12/23				5000

(over)

(1)	(2)	(3)	(4)	(5)	(6)
III. <u>Doves and Pigeons:</u> Mourning dove White-winged dove	Does not apply to Pea Island, Only an occasional one seen				
IV. <u>Predaceous Birds:</u> Golden eagle Duck hawk Horned owl Magpie Raven Crow	An average of about four use the refuge area during the winter months				
Reported by <u>Lewis B. Turner</u>					

INSTRUCTIONS

- (1) Species: Use the correct names as found in the A.O.U. Checklist, 1931 Edition, and list group in A.O.U. order. Avoid general terms as "seagull", "tern", etc. In addition to the birds listed on form, other species occurring on refuge during the reporting period should be added in appropriate spaces. Special attention should be given to those species of local and National significance. Groups: I. Water and Marsh Birds (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.

UPLAND GAME BIRDS

Refuge Pea Island Refuge Months of Sept. 1. to Dec. 31, 1956, ~~1954~~

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

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 Refuge

Calendar Year 1955

(1) Species	(2) Density	(3) Young Produced	(4) Removals					(5) Losses			(6) Introductions	(7) Estimated Total Refuge Population		(8) Sex Ratio	
			Hunting	For Re- stocking	Sold	For Research	Predation	Disease	Winter Loss	Number		Source	At period of Greatest use		As of Dec. 31
Common Name	Cover types, total Acreage of Habitat	Number													
	Does not apply to Pea Island 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.

Refuge Pea Island RefugeYear 19455

Botulism

Lead Poisoning or other Disease

Period of outbreak None

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 UnknownSpecies affected Canada Geese

Number Affected Species	Actual Count	Estimated
<u>1</u>	<u>127</u>	<u>130</u>
_____	_____	_____
_____	_____	_____

Number Recovered NoneNumber lost 127Source of infection UnknownWater conditions GoodFood conditions Food conditions Poor

"Note"

This is the Disease that affects the Canada Geese wintering on Pea Island some winters, all but three of the number listed above was lost during the last part of last winter, Only three have been observed up to Dec. 31, this season

Remarks _____



3-1756
 Form NR-6
 (April 1946)

FISH

Refuge... Pea Island Refuge 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 Blue Fish Flounder Speckled Trout	Fair	7.050	Unknown	0	0	0	0	0
<p>Figures listed above was all Surf casting along the 12 Miles of beach front, We have found it impossible to keep an accurate check on this activity with our limited personnel, and quantity taken is high at times when a good run of fish is present, but total number of pounds is unknown</p>								

REMARKS:

3-1757
 Form NR-7
 (April 1946)

PLANTINGS
 (Marsh - Aquatic - Upland)

Refuge Pea Island Refuge Year 1945.....

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
<p>No plantings was accomplished at Pea Island during the calander year except cultivated crops which is covered on NR-8</p>								

TOTAL ACREAGE PLANTED:

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



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3-1570
NR-8a

REFUGE GRAIN REPORT

Refuge Pea Island Refuge

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

(1) VARIETY	(2) ON HAND BEGINNING OF PERIOD	(3) RECEIVED DURING PERIOD	(4) TOTAL	(5) GRAIN DISPOSED OF				(6) ON HAND END OF PERIOD	(7) PROPOSED USE		
				TRANS- FERRED	SEEDED	FED	TOTAL		SEED	FEED	SURP.
Shelled Corn	None	190 Bu.	190. Bu	0	0	Trapping 75	75	115		Trapping	0

(8) Indicate shipping or collection points 65 Bushel from Mattamuskeet Refuge 125 Bu. frm Black Water
Refuge

(9) Grain is stored at Refuge Headquarters, Pea Island Station

(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.

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.

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

Refuge Pea Island Refuge

Year 1955

Species	Collections				Receipts		Total Amounts on Hand	Amount Surplus
	Amount	Date or Period or Collection	Method	Unit Cost	Amount	Source		
	None Collected or received for this calendar year							

3-1760
 Form NR-10
 (April 1946)

HAYING AND GRAZING

Refuge Pea Island Refuge Year 1955.....

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.....

TIMBER REMOVAL

Refuge Pea Island Refuge Year 1955..

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
Does not apply to Pea Island Refuge, No timber on the Area								

Total acreage cut over..... Total income.....

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

Cords.....

Ties.....

.....

Regional Director, Atlanta, Ga

8/5/55

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

Narrative Report, Pea Island- May 1 to Aug. 31, 1955

Find herewith Narrative Report covering all activities carried out during the period mentioned above on Pea Island Refuge. It is thought, to cover about all items worth reporting on work programs and wildlife Management.

Amis B. Turner

PEA ISLAND NATIONAL WILDLIFE REFUGE

NARRATIVE REPORT

MAY 1, TO AUGUST 31, 1955

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PEA ISLAND NATIONAL WILDLIFE REFUGE

NARRATIVE REPORT

MAY 1, TO AUGUST 31, 1955

I, GENERAL

A, Weather Conditions

Taken as a whole the period just past was another like last years, Severe drought thru the first three months, with only .92" of rain during the month of July, Temperatures was normal for the season ranging up to a high of 93 on August 3, which was the maximum for the period, Hurricane Connie passed just west of the Refuge Area during the night of Aug. 12 with winds up to app.60 miles per hour bringing 3.50" of rain, Hurricane Diane passed a little futher west of the Refuge on Aug. 17 with winds of 55 MPH. with attending rain fall of App. 5.00" this broke up the drought condition somewhat with Temperatures also lower, no severe damage ocured from the two storms but High sound tides covered up the Refuge except for the Dune areas.

Data listed in the table below was furnished by the National Park Service which maintains a Cooprative Weather Station at Bodie Island just three miles north of the Refuge and is far more accurate than data secured from Hatteras Station last year.

	Precipitation Actual	Dept. from Normal	Temperatures	
			Max.	Min.
May	4.37	XE -.13	85	49
June	2.91	- 1.59	86	55
July	.92	- 3.58	92	70
August	9.04	X 4.54	92	70

B, Water Conditions

Water conditions this period leaves a lot to be desired as stated under weathersevere drought conditions prevailed during the first part of the season and both ponds went completly dry as they did last year, There remained enough water tos support the nesting population of Black and Gadwall ducks in the Borrow pits but aquatic growths in the main body of the two ponds suffered from lack of water

B, Water Conditions Cont.

Sound water conditions were very much better remaining calm and clear up until the Hurricanes passed thru, luckily winds were not high enough to cause much damage, Salinity test have/ ^{not} been run this period but it is believed that it is about normal at 65 % Sea Strength.

II, Wildlife

A, Migratory Birds

1, Population and Behavior

Populations of summer resident species were about complete at the start of the period with the exception of black skimmers which continued to arrive up until the middle of may, At the peak of the season these birds numbered about 700 but no nesting colonies was found on the Refuge itself, these birds have moved their nesting grounds to the series of spoil banks along the channel running from Oregon Inlet to Manteo.

Gulls, Herons and Terns remained in about the same status as last summer as for numbers present, Egrets showed an increase of app. 15 %, Laughing Gulls nested in the two island colonies they have been using for the last several years, Estimates were app. 1200 nests with some 1900 or 2000 young, Royal and common Terns nested in about the same numbers as last summer, Least Terns showed an increase of app. 40 % over last years count, The cause for this increase is believed to be due to the fact we found two additional areas where they were ~~not~~ nesting which was not known in former years.

Shore birds started off at the first of the period in about the usual yearly numbers, But increased greatly during the last week in june and all thru July when the two ponds were going dry and was an ideal feeding area, Thousands of Sandpipers of all species could be observed during the period mentioned in the pond areas, Of all the shore birds native to Pea Island, Only Willets is known to nest and their nesting habits are so widely scattered that no accurate data is available as to numbers but we estimate at least 100 pair.

At the start of the period only 33 Canada Geese remained on the Refuge area these remained up until july when only 7 were present and at the close of august 9 was counted, Black and Gadwall ducks during the period numbered from 400 to 800 for each Specie, with nesting being somewhat higher than for last year, Blacks at the peak count showed 41 Broods with 287 young compared with last summers figure of 31 Broods and 241 young,

Population and Behavior Cont.

Gadwalls showed an even greater increase with a peak count of 93 broods and 681 young compared with last summers 71 Broods and 542 young.

Blue wing Teal was in the same Status as last summer with only two Broods and 9 young, No nesting Piebill grebes was observed this summer, 5 Broods were counted last summer with 15 young.

The only fall migrants of the waterfowl family to be seen so far this season was 13 blue wing teal observed on August 24, and 53 on August 28, in the north pond area, Piebilled Grebes stay over all summer in small numbers, But 55 were counted on August 28 and some of this number is believed to be new arrivals.

The only rare species observed for the period was 5 Glossy Ibis seen during the third week of July in the south pond, They stayed only four days and moved on.

one Audubon Shearwater was picked up on the beach on Aug. 22, by Miss Judy Ruettger of Miami Fla. who was visiting Pea Island at the time, The bird was in very bad condition but after being sheltered for one day and night recovered and was released, This was no doubt a Storm blown Bird.

2. Food and Cover

Sufficient food during the winter months on Pea Island is a serious problem but during the summer months when the Waterfowl population consist of mostly nesting ducks there is ample food supplies available altho the ponds went dry, There was no mortality noted due to short food supply in ducks hatched out during the summer, Conditions were perfect for all species of shore birds and waders for feeding purposes with low water in the impoundments, High sound tides destroyed most if not all of the crop of native Beach Pea growing out side of the ponds, and while the main body of the ponds are not expected to produce much winter food, the marginal edges has an abundant stand of three square and Smartweed and looks very promising for the coming winter if water levels remain favorable, Pamlico sound which produces most of the winter foods, has been surveyed on June 27-28 from one end of the Refuge to the other and was found to have good to better than average stand of Vegative growths consisting of all Species native to the area with the exception of EEL grass which remain very spoty, It is reported that this Spece is rapidly coming baek in the upper currituck region but no noticable increase can be noted along the Pea Island Area in the last two or three years.

3, Botulism and Other Diseases

No known diseases have occurred on the Refuge during the reporting period

4, Fur Bearing Animals

The population of muskrats within the impoundment areas have had tough going during the first three months of the period when water levels were so low, Most of the rats moved out of the areas and to the tide water creeks that make out from the sound side, This Condition also occurred last year during the summer, But with normal water levels occurring during August they have again returned to their old habitat and no decrease in numbers can be noted, Total population of Rats for the entire Refuge has been estimated at from 1500 to 2000 at least 70 % of this number remain within the two ponds at all times when conditions are normal, With the other 30% being mostly along the sound side south of New Inlet.

Otter numbering 35-40 are permanent residents of the Refuge and range over the entire area, Five young Otter were observed during April in the north pond and it was thought that an increase would be noted this summer but if so they have scattered out southward of the Refuge and no change can be noted in numbers from last year, It is known that several Otters were trapped during the season last winter app. 5 miles south of the Refuge boundary line and this may account for no increase on the Refuge itself, These Animals range over long distances even within one day sometimes as much as five miles

III, REFUGE DEVELOPMENT AND MAINT.

A, Physical Developments

No new physical developments has been accomplished during the reporting period.

B. Maintenance

This phase of activity is one that keeps Refuge Personnel busy most of the time, during this period all old recognition signs were restained and lettered four new one was erected near field head quarters, Maintenance schedules was kept up on all trucks, Tractors, farming equipment, Light plants, One new T-9 Tractor was transported from Kentuckywoodlands Refuge to Pea Island by Refuge personnel and put in operation, New brass hangers were installed on all building gutters and fresh water cystems repainted, Two coats of Bonmax paint was applied to the outside of the concrete basement walls on the outside of both the residence and office building

Maintenance Cont.

102 acres of cattail marsh was treated mechanically with the Tractor and heavy duty outter, during the month of July, this operation will be more fully covered later in the report under cattail control program, The two Hurricanes mentioned under weather conditions, Brought in an immense amount of drift which in places completely covered up the fence along the highway and clogged up the road around the south pond Sound tides reached 5 to 6 feet above normal, To date 17 man days have been expended in the removal of drift and repair of fence and clearing off roads there is still several day work left to get it all cleared up.

C, Farming and other plantings

No farming or other planting operations have been carried out this period.

D, Fires Wild and otherwise

No wild fire occurred on the Refuge area and no controlled burning was done

IV, ECONOMIC USES

A, Commercial

Pea Island has only one commercial Economic use project that is the former J. B. Tillet Concession located at the North end of the Island, In the past \$100.00 have been collected annually, but Mr. Tillet has sold this Concession to the National Park Service and they have not had it in operation since the date of purchase and since there was no revenue coming there has been no deposit to the account of our service'as per their Memorandum agreement.

V, FIELD INVESTIGATION AND APPLIED RESEARCH

A, Field Research

About the only activity to be reported under this Item was the Weekly breed counts during the duck nesting season, Investigation of all the nesting colonies of Herons, Egrets, Gulls, and Terns,

Also complete Surveys were made during June of all the Pamlico sound waters adjacent to the Refuge for distance of app. 4 miles off shore checking on the abundance of aquatic growths and general conditions

VI, PUBLIC RELATIONS

A, Recreational Uses

For the first time since the new paved highway was completed thru the Refuge, The N. C. State Highway Commission put into operation enough Ferries to handle all the summer traffic desiring to cross Oregon Inlet, This has been a bottle neck for the last two summers.

With Ferries running at about 30 minute intervals the Visitor schedule has been at an all time high for the first three months of the period, The two Hurricanes passing thru during August cut this number down 50 % or more during the last three weeks of August, But the period ran up a record since the establishment of Pea Island even with the hurricanes.

Random checks was made about two or three times a week along the beach area, Fishing was the predominant past time with beach bathing, Shell hunting, Bird watching and sight seers running a close second, From information collected from the random checks a very conservative Estimate is App.7800 man day of recreational use, this includes all camping at the Oregon Inlet Recreational Area now under the administration of the Park Service some nights there would be up to 18 camping parties, Most of these are interested in night fishing for Drum, This particular activity would be much greater if it was not for the Mosquito problem which prohibits night fishing except when there is a brisk off shore breeze blowing, The problem of checking all fishermen day and night rules out an estimate of the fish taken on a per pound basis but the ~~quantity~~ quantity is known to be heavy even the fishing was not at its best, Some parties caught fish and other did not.

B, Publicity

Since the establishment of the publicity office at Pea Island Station last april it has been possible to carry out public relation activities with increased efficiency, Public parking facilities which is at a premium on the outer banks was the best investment of any made in connection with the publicity program, Since it is now possible for persons interested in the Refuge program and activities to pull into the area without the danger of getting stuck off the highway in the deep sand along the beach area, Also free drinking water and toilet facilities are in great demand, Our office has all these plus leaflets, Birds lists, Aerial photos and a few photographic displays, (This last item is not ~~yet~~ complete as yet) a total of 157 persons registered during the four month period, all of these were in search of information concerning the Refuge and can be considered as bonafide visitors and not just out for recreation, Highest states represented is listed in representation order

Publicity Cont.

North Carolina, Virginia, Pennsylvania, Maryland, Florida, W. Virginia, Ohio, New Jersey, Washington D. C. New Mexico, Canada and a few scattering from other States.

In addition to Information and Literature furnished thru the office, All Tourist centers from Point Harbor south to Hatteras have been furnished a constant supply of Refuge Leaflet No. 6 and Bird lists for distribution to the public.

Listed in the table below is a record of one way traffic across Oregon Inlet, Furnished by the National Park Service which has an automatic counter located at Oregon Inlet

Month	Vehicles	Passengers
May	13,128	45,948
June	12,653	44,285
July	24,957	87,349
Aug.	21,800	76,300
	Tot. 72,556	Tot. 253,922

Figures listed above compare with the following for the same period last year

Period	Vehicles	Passengers
4 Months	43,005	150,527

C. Violations

No Violations of a serious nature has occurred ~~since~~ during the period, Some dumping still goes on around Oregon Inlet, But since the park service installed trash drums at this location this has been cut to a minimum, Several dog owners was instructed to keep their Animals confined to Motor Vehicles, and several four wheel drive Vehicles drivers warned off the sand fence dunes along the two Ponds, No charges were made.

D, Visitors Schedule

Official

Mr. Lawrence S. Givens	5/2/55	Atlanta, Ga.
Mr. Carl R. Eklung	8/2/55	" "
Mr. Allyn Hanks, Park Supt.	8/12/55	Manteo, N. C.
Mr. Howard A. Miller	8/22/55	Atlanta, Ga.
Mr. Ted Ball	8/22/55	" "
Mr. Kenneth Wilson	8/24/55	Currituck, N. C.

Unofficial

Names and dates of Unofficial Visitors will not be submitted since the list has grown to large to be practical, 157 Visitors Registered at Pea Island Station during the four months period.

Date Submitted

8/5/55

Submitted by

Levin B. Turner

Approved by

Levin B. Turner

PEST PLANT CONTROL, PEA ISLAND

Mechanical Treatment of Cattail , 1955

This report covers work accomplished this summer in a continuing program of Cattail Control started 1952 by Mechanical means, Equipment used consist of a T-9 Tractor and a heavy duty John Deere Stalk cutter Mod. 207, Modified so that it will not mire down in soft ground.

Due to the old Tractor which had been in service for many years broke down and cost of repairs prohibitive we were delayed on this job for a month pending delivery of a new T-9 Tractor, Actual work was performed from July 20 to 29, The stand of cattail Typha Domingensis that was cut consisted of 102 Acres that was cut over two times during last summer during june and july, Last years operation reduced the density from 90-100 % down to app. 35 % This years operation killed all standing growth 100 % with a come back from root stock of about 10 % as of this date.

We have found that the Mechanical operation alone will not eradicate Cattail but if done earleir enough in the summer dense stands of Smartweed and wild millet comes in and matures in time for waterfowl use during the winter, It has also been noted that succession of other plants that the Cutter has no effect on has been able to take over some of the area completly, In places on the area 2-4 acres in size that had a 100 % of solid Cattail three years ago now has no Cattail at all but has Giant Smartweed and Millet.

This is the first year since this project has been in effect that we have been able to cut the stands over for two summers running as some of the years Water level remain to high to Operate in, And effects will be closely checked to determine if final eradication would be possible if water levels could be controlled.

Costs of this years operation increased from \$1.12 per acre to \$1.39 per acre ever last year, This is accounted for by the different Tractor in use since it will not stand up in the soft places as did the old one and the Machine was badly mired down several times with a loss of operating time to get it out, If this Phase of management work is to be continued we will need an extra set of tracks with 20 inch plates since it is not possible to treat the entire area with the one now in use even with very low Water levels.

PEST PLANT CONTROL BY ~~2,4-D~~ COMPOUNDS

MECHANICAL TREATMENT

Application Data

To be filled out and submitted to the Central and Regional Offices at the time of herbicidal application.

- (1) Date of application July 28-29, 1955 (2) Time of application All day Schedule
- (3) Name of refuge Pea Island Refuge, Manteo, N. C.
- (4) Location of control area East and South side of the South Ford
- (5) Acres in control area 102 (6) Plant species Typha Domingensis
Average height of _____ Stage of leaf _____
- (7) vegetation 7-8 ft (8) development Mature
- (9) Stage of floral development Seed pods fully formed but still green and hard
Density of over- _____
- (10) Overtopping species None (11) topping species None
- (12) Soil type Sandy (13) Soil pH 8.8 (14) Water pH Sal. 3 %
- (15) Wind velocity 10-12 (16) Wind direction SW (17) Air temperature 90-94
- (18) Relative humidity ^{MPH} Unknown (19) Degree of overcast None
- (20) Name of chemical used Mechanical Treatment, T-9 Tractor and Stalk cutter
- (21) Dilution with _____ (22) Degree of dilution _____
- (23) Rate of application in lbs. per acre of acid-equivalent _____
- (24) Treatment No. One (25) Ground guides used None
- (26) Effectiveness of ground guides _____
- (27) Flight time for one treatment _____ (28) Total aircraft time for one
treatment _____ (29) Total ground time for one treatment _____
Total cost for _____
- (30) Cost of chemical used _____ (31) one treatment ~~\$\$\$~~ \$1.56 Tot. \$156.70
- (32) Type of equipment used T-9 Tractor, Mod. 207 John-Deere heavy duty Stalk cutter
with 800 lbs of weight added
- (33) Remarks See Cattail control report in body of report

Submitted by Lewis B. Turner

	(5)	(6)	(7)
	Total Days Use	Peak Number	Total Production
Swans			
Geese	1.971	33	0
Ducks	96.800	1600	977
Coots			

SUMMARY

Principal feeding areas North and South Ponds, During nesting
Scattering out over all the refuge, upon young flying

Principal nesting areas North and South Ponds

Reported by Lewis B. Turner

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 Island, Manteo, N. C. Month of May 1, to Aug. 31, 1955

(1) Species	(2) First Seen		(3) Peak Numbers		(4) Last Seen		(5) Production			(6) Total	
	Number	Date	Number	Date	Number	Date	Number Colonies	Total # Nests	Total Young	Estimated Number	
I. Water and Marsh Birds:											
Herons, Great blue	Res.	XXXXX/14	6	6/14						10	
" Little Blue	Res.		55	6/14			1	30	90	200	
" Yellow Crowned	"		90	6/14			1	40	120	250	
" Black Crowned	"		65	6/14			1	28	85	200	
" Louisiana	"		60	6/14			1	17	55	130	
Egrets, American			250	6/14						300	
" Snowy			360	6/14			2	34	100	400	
Rails, Clapper	Res.		No Data available on these, except estimates								600
Grebes, Piebilled	Res		72	8/28						100	
Pelicans Brown			23	8/14						50	
Gannets					900	5/14				2000	
II. Shorebirds, Gulls and Terns:											
Plovers, Wilson			400	6/14						700	
" Black Bellied			128	6/14						200	
" Semipalmated			270	6/14						450	
Willetts			113	6/14						200	
Turnstones, Rudy			600	6/14						900	
Terns, Royal			300	6/14			1	22	50	500	
" Common			600	6/14			1	140	200	950	
" Least			700	6/14			6	150	375	1000	
" Black			1000	8/28						1500	
Gulls, Herring	Res.		1200	5/10						2000	
" Ringbilled	Res.		400	5/10						600	
" Laughing	Res.		3800	6/14			2	1200	2000	4500	
Yellow Legs, Great & Less	Res		530	6/14						1000	
Dowitchers		22	60	5/10						100	
Sandpipers, All Species			15000	6/14						15000	
Skimmers, Black			700	8/28						700	

(1)	(2)	(3)	(4)	(5)	(6)
III. <u>Doves and Pigeons:</u> Mourning dove White-winged dove	Does not apply to Pea Island except for an occasional few passing thru				
IV. <u>Predaceous Birds:</u> Golden eagle Duck hawk Horned owl Magpie Raven Crow	2 Have been present thru the first six week of this period Residence Species in small numbers, App. a dozen nest on the dikes				
					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)
 II. Shorebirds, Gulls and Terns & Gruiformes)
 Charadriiformes)
 III. Doves and Pigeons (Columbiformes)
 IV. Predaceous Birds (Falconiformes, Strigiformes and predaceous Passeriformes)
- (2) First Seen: The first refuge record for the species for the season concerned.
- (3) Peak Numbers: The greatest number of the species present in a limited interval of time.
- (4) Last Seen: The last refuge record for the species during the season concerned.
- (5) Production: Estimated number of young produced based on observations and actual counts.
- (6) Total: Estimated total number of the species using the refuge during the period concerned.

UPLAND GAME BIRDS

Refuge Pea Island, Manteo, N. C. Months of May 1 to Aug. 31, 1945

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

INSTRUCTIONS

Form NR-2 - UPLAND GAME BIRDS.*

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

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

3-1570
NR-8a

REFUGE GRAIN REPORT

Refuge Pea Island, Manteo, N. C.

Months of May 1 thru Aug. 31 1945

(1) VARIETY	(2) ON HAND BEGINNING OF PERIOD	(3) RECEIVED DURING PERIOD	(4) TOTAL	(5) GRAIN DISPOSED OF			(6) ON HAND END OF PERIOD	(7) PROPOSED USE		
				TRANS- FERRED	SEEDED	FED		TOTAL	SEED	FEED
None carried over thru this period, And none on hand at present										

- (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.

Regional Director, Atlanta, Ga.

5/8/55

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

Narrative Report

Find Submitted herewith Narrative report covering all activities carried on at this Station for the Period, Jan.1, thru April 30, 1955, With other data needed to round out the report and is believed to cover about every thing worth reporting.

Leeis B. Turner

PEA ISLAND NATIONAL WILDLIFE REFUGE
NARRATIVE REPORT

JANUARY 1, TO APRIL 30, 1955

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PEA ISLAND NATIONAL WILDLIFE REFUGE

NARRATIVE REPORT

JANUARY 1 TO APRIL 30, 1955

I, GENERAL

A, Weather Conditions

Generally speaking weather for the four months past covered by this report have been seasonal and about normal for this locality the average severe north easterly winds have occurred with not as much damage to the sand fences as usual and also allowing Waterfowl to have more access to feeding in the sound waters than for the same period last year, Rain fall was almost the same for each month except for march which had slightly more than for that month last year.

Temperatures was slightly higher on the average with the exceptions of March which was lower with a low reading of 21 above on the 27th, This is the late freezeup that caused all the damage to fruit crops in several of the southern States but caused very little damage in this area.

Data listed in the table below was furnished thru the courtesy of the National Park Service which has recently established a Weather Station at their Bodie Island Head Quarters, App. 3 Miles north of the Refuge Area, Weather Data in the future should reflect conditions as they exist, Better than formerly.

	Precipitation		Temperatures	
	Actual	Dep. from Normal	Max.	Min.
Jan.	3.64	- .86	65	29
Feb.	2.63	-1.87	67	18
Mar.	3.43	-1.07	73	21
April	1.63	-2.87	81	39
	<u>Tot 11.33</u>	<u>Tot -6.67</u>	<u>Max 81</u>	<u>Min 18</u>

B, Water Conditions

Water Conditions for the period has remained fair to good with plenty of water in the two impoundments during the first three months of the year with a gradual fall of levels during April, This is not suprising since the Rainfall for that particular month being - 2.87 inches from normal, Water conditions in the Sound areas have been above average as far as turbulance and silted conditions exist with salinity being about normal as far as can be determined, No tests have been made this period but salinity in the sound adjacent to the Refuge generally average from 61 to 69 ‰ Sea strength.

Table below shows the monthly Water levels in the ponds during the last four months

	North Pond	South Pond
Jan. 30	4.68	4.72
Feb. 28	4.44	4.60
Mar. 31	4.30	4.40
April 30	4.00	4.08

II, WILDLIFE

A, Migratory Birds

1, Populations and Behavior

Some difference could be noted in the numbers of wintering Waterfowl this period compared with last same period, Canada Geese Counts for the first part of the period showed an increase of App. 8 % above last year with an actual count of 7800 and an estimated constant population of over 10,000.

Greater Snow Geese was up to about Normal with an estimated number of App. 11,000 for the first week of Jan. but the greater portion of these left the Refuge area during Jan 7-10 and only about 3,000 came back at all, these remained on the Refuge from Jan. 20 until Feb. 12 when they also left for good with the exceptions of some 65 which stayed on for about another ten days.

Ducks of all Species were off considerable from last years counts Pintails which came in during the first migrating period stayed fairly constant until about the middle of Dec. and by the first of Jan. The population of these and other Species were down to app. 14,000 compared with 17,000 last year. Green wing Teal was about the only Species that was average with last year.

Migration of Geese and ducks started about a week ahead of time this year the first flocks were observed on Feb. 26, and by March 15 counts had dropped about 45 % and by April 10 most of the Ducks were absent with about 600 Canada Geese still present, at the close of the period 44 Geese were known to be still present, the only Species of ducks remaining were Black and Gadwalls which nest and it is assumed that the spring migration is now complete.

Due to less severe wind conditions than usual the feeding habits of all the Waterfowl was better than for the last several years it was noted that most of the Canada Geese and a large portion of the tipping Ducks fed to a greater degree than in former years in the open Sound waters with a corresponding drop of the use of the salt marshes which is considered as favorable during the last two months of winter as this would indicate that the feed supply in the open sound waters are still abundant

Spring migration of all the Terns, Gulls, egrets and Herons also started app. 10 days ahead of schedule, Herring Gulls Great Black Back and Ring Bills started moving north on March 2 and by March 10 were in full swing at one time over 7000 of the three species were counted in two flocks around the north end of the Island four days later there was only a few hundred left

Population and Behavior Cont.

Laughing Gulls, Terns, Snowy Egrets and herons started arriving on march 12, in small numbers and increased all thru march and the first two weeks of april at the end of the period Laughing Gulls numbered in the thousands with a normal population of all the other Species also on hand

Shore Birds first began to arrive during the second week of March also, These include Yellow Legs Willets, Sandpipers aof all Species and sanderlings, Ruddy Turnstones were late in arriving and only a few have been seen to date, Red backed Sandpipers comprise the largest in number of the last group mentioned with the Smaller Species next in order, The feeding habits of all these birds make it all most Impossible to make a fair estimate of Total populations since they are so widely scattered over the entire area and are not visible except at close range.

2, Food and Cover

We are glad to report that food conditions on the Pea Island area was by far better than was expected last fall, With drought conditions that prevailed all thru last summer prospects at that time did not look to bright and we did not have a normal crop of Aquatics in the open waters of the two Impoundments, But other factors more than balanced this out, The 52 Acres of Ryegrass planted out during the fall months produced the best crop of Green browse of any crop we have yet planted on the Island and was used through out the entire season as a matter of fact the only small Block of Geese left at this time are still on the field every day, 390 Acres of Spartina Marsh was burned off on Schedule during the season which furnished a considerable amount of supplemental food during the late winter and spring, and the most important Item was one of the best crops of native Grasses in Pamlico sound that has existed for the last several years this coupled with favorable weather for feeding this area we think accounts for the population of Waterfowl coming thru the late winter months in such good condition.

In this respect it is thought worth noting that the total number of Geese trapped this Season Weighed on average 8.2 pounds compared with an average weight for last seasons trapped birds of 6.9 pounds, This years birds weighing 1.3 pounds more per bird than last year, We think this is all the proof necessary as to the food situation and a more careful check will be maintained on this angle in the future as a reference and food index.

3, Botulism and Laed poisoning

None for this period..

4, Other Diseases

The unknown Disease that effects the wintering population of Canada Geese at this Station in varying degrees from year to year was prevalent in about the same Status as of last year, The known sick

Other Diseases Cont.

and dead birds for the entire season was 111 compared with 76 for last year, At first glance this would indicate that the Disease increased this Season, But it is thought that the increase shown is the results of three full time men on the job from Patuxent throughout the season with an exhaustive canvass of the entire Refuge area being made weekly in addition to those made by Refuge Personnel which would naturally make the number found, greater than last years count.

The number quoted above include the combined effort of all making counts, and there is a possibility of some small duplication in counts especially on sick birds, This subject will be more fully reported under field investigation.

B, Upland Game Birds

Does not apply to Pea Island except for a few doves present during certain periods.

C, Big Game Animals

Does not apply to Pea Island

D, Fur Bearing Animals

There has been no changes worth reporting on the status of fur bearing animals existing on the refuge since the last report, Muskrats seem to remain at about the same number constantly, Estimated population being some 1500 to 2000, Otter range to such an extent that it is hard to arrive at an accurate number but is believed to be about 40, At least five young have been seen in the last two weeks which would indicate a small increase over last years.

Predators

The only predators that could be classed as troublesome is an unknown number of wild house cats that is seen occasionally prowling around the marshes, During the winter months there is an occasional duck Hawk and at times two or three bald Eagles are seen on the Refuge which disturb the Waterfowl but to date we have no record of predation on Geese or ducks from Bald Eagles

III, REFUGE DEVELOPMENT AND MAINT.

A, Physical Developments.

The only new Developments accomplished for the reporting Period was the Construction of a small parking area of five car capacity consisting of 220 Sq. Yards of peured concrete adjacent to the new sub-Head Quarters Office for Visitor use in our publicity program.

B, Maintenance

The major part of time expended by refuge personnel this period was on the Buildings Especially the new office building, the Interior rehabilitation job started last fall was completed and the office was officially opened for public use on April 1, To do this required some changes in the Interior, such as removing Pantry shelves, Grease traps, racks, and other Items, Then the installation of bath room facilities removing all the old worn out floor covering and laying new tile, Complete sanding down and repainting all the walls and ceiling, Refinishing all the old office furniture installation of fire fighting Equipment, This job turned out to be quite an undertaking.

Maintenance schedules were kept up on all the trucks, tractor, and farming Equipment, Two new light plants were installed complete with under ground fuel tanks, and all house wiring circuits inspected for safety, All the old paint was removed from one of the large outside Water Cystersns and repainted, The 12 miles of fence has required some maintenance after severe north Easters but not as much as was required last Winter, The Boat was hauled out and cleaned and painted inside and out, A new lube oil rack was constructed for oil drums and placed in the service building, Guard post was erected around the new parking area and Yucca plants set out, Directional signs was given a coat of stain on the back ground but the lettering on this job is not complete, neither is the two new directional signs that was pcked up at Sand-hills been set up in place as yet, We expect to complete this job within the next ten days or less

C, Farming.

No farming operations was carried out during the period.

D, Fires, Wild and otherwise

No wild fires occurred on the Refuge area during this period, Controlled marsh burning will be reported under controlled burning program later in the report.

IV, ECONOMIC USES

A, Commercial

The only continuing commercial use of the Refuge has been the J. B. Tillett Concession located on the north end of the Island this Concession is now in the process of being acquired by the National Park Service and will be under their administration in the future.

V, FIELD INVESTIGATION AND APPLIED RESEARCH

A, Goose Disease Study.

Refuge Personnel at this Station have been assisting the branch of Research for the last five years, In the Collection of Sick and dead Geese, Trapping, Banding and weighing and collecting data off all kinds needed in their research program.

This work was continued through out the season past from Oct 8 when Trapping operations started, until the last of April when they collected most of the Captive Geese released during the fall, The Items listed below show the results of the work involved.

Geese Trapped	234
Sick Birds picked up and sent to Patuxent	32
Dead birds found, and left	79
Birds Released from Patuxent	36
Birds recovered at Pea Island	16
Trapped healthy Birds sent to Patuxent	16

Of the 234 Geese trapped 187 was transferred to other Refuges and State project, These Geese were not banded, But was weighed and sexed and age determined, The rest was banded and released. 47

On Dec 2-3 last year Refuge Personnel made an individual count of 4200 Greater snow Geese upon request of the Regional office to determine the ratio of Juviniles present in the this Species, It was found that the juviniles comprised app.4 % of the flock counted this particular Item was omitted from the Dec. Narrative report.

VI, PUBLIC RELATIONS

A, Publicity

This phase of activity have been confined to the distribution of pamphlets and leaflets to all the Hotels, Tourist resorts and eating places from powell's point southward to Hatteras, No public appearances, Talks etc. have been given, The new publicity office was opened to public use as of april 1, But so far we have had a minimum of Visitors only having regestered some 21 persons, Of course the busy summer season has not began as yet, And we expect to have many times this many at the peak of the summer season.

B, Recreational

The first two months of the period there was very little use made of the Refuge for recreational purposes due to the seasonal weather, Some fishing, Oystering, and Cāaming was done, But with the coming of warm weather things are picking up considerable and at the end of April Estimates for Recreational uses were 950 Man days of fishing and 1400 man days for sighseeing and other purposes.

C, Violations

No known cases of Violations ocured on the Refuge area, With the exceptions of ~~xxx~~ some unsightly dumping along the highway, This is something hard to control and will increase no doubt as time goes on and traffic increases.

D, Unknown Quantities

Vehicular Traffice across Oregon Inlet is listed in the table below compiled from records furnished by the N. C. Highway Commission who operates the ferry across the Inlet, The unknown quanity angle involved in this is we do not have a measuring stick or rule to determine what percent can be listed as Visitors.

	Vehicles	Passengers
Jan.	4,339	15,261
Feb.	4,399	15,397
Mar.	4,999	17,500
April	7,840	29,240
Tot. for the Period	<u>21,577</u>	<u>77,398</u>

E, Visitors.

Official

Mr. Edwards Burns	2/8	Savannah, Ga
Mr. Allyn Hanks, Park Supt.	2/9	Manteo, N. C.
Mr. Howard A. Miller	2/17	Atlanta, Ga.
Mr. Ted Ball	2/17	" "
Mr. R. C. Pearce	2/26	Culbreth Ga.
Mr. Ralf Lemaire	3/6	Santee, Refuge
Mr. H. V. Hines, Game Agent	3/30	Nags Head, N. C.
Mr. A. P. Noltemeier, Gm. Agent	3/30	Washington, N. C.
Mr. E. C. Watson	4/5	Buxton, N. C.

Unofficial

Total Registrations for the period was 21 persons and this number was all recorded during the month of April.

Submitted By, Levin B. Turner Approved By, (sgs) Howard C. Miller

Date May 8, 1955

Date MAY 17 1955

CONTROLLED BURNING PROGRAM
PEA ISLAND REFUGE
WINTER, 1954-55

This report covers this Winters operations in a continuation of the controlled burning program that has been in effect at this Station for the last five years, Three units were burned off this Winter, The first one described, No. 5, was burned off on Nov. 10, 1954 and was omitted from Dec. Narrative since it is desirable to Report the seasons program rather than split it up.

Unit No. 5, Consisting of App. 160 acres lays between the two ponds along the east side of the Salt Flats, Dominant vegetative growths Were, Spartina Patens, App.80 % Scirpus Am. and other mixed matter 20 % with some Wax Myrtle mixed in the south end of the unit, Burned off Nov. 10, 1954 with a due east wind app. 15 miles MPH, We obtained a 100 % coverage burn close to the ground, This Unit was burned off especially for Snow Geese use and for three weeks the entire flock estimated at 11-12000 utilized this tract, Later Canada Geese also used this Area in large numbers and kept it browsed down clean until they migrated.

Unit No. 8, Consisting of app. 138 Acres situated just south of the south pond and extending to New Inlet was burned Jan. 6 This Tract is of a mixed nature containing several small dune type patches with one large tide water ~~81225~~ dissecting it, This tract was burned with a North East wind app. 25 MPH and obtained a very good burn on all that had enough matter to carry fire even burning down into the Juncus marsh in places, Parts of this Unit had a rank stand of Wax Mirtle which was burned for the first time, Canada Geese and pintail Ducks used this area to good advantage during the late winter months, Up to 900 Geese was counted on this tract during the last two months of the Season.

Unit No. 9 Having app. 100 acres and situated about 3, miles north of the South Boundary and laying along the Sound side was burned Jan. 8 with a due East wind app. 12 Miles per hour, This tract has a mixed stand of Vegetation Spartina Patens 60 % Broom Sedge and other matter 40% only Canada Geese utilized this particular area, The Rodanthe trapping site is located in the middle of this burn and proved to be quite a help in attracting Geese into the trap Site in addition to the supplemental food produced, at times 4-600 Geese were using this area.

All three of the units described was burned over for the second time in the three year cycle burning program, Which was changed over four years ago from a two year cycle.

3-1750
Form NR-1
(Rev. March 1953)

W A T E R F O W L

REFUGE PEA ISLAND

MONTHS OF Jan. 1, TO April 30, 1955

(1) Species	(2) Weeks of reporting period									
	1	2	3	4	5	6	7	8	9	10
Swans:										
Whistling	27	23	23	23	13	10	18	13	26	53
Trumpeter										
Geese:										
Canada	7800	7900	6900	7000	6500	6500	4300	3800	950	600
Cackling										
Brant										
White-fronted										
Snow	650	3	9	340	400	650				
Blue										
Other										
Ducks:										
Mallard	200	480	220	300	230	200	170	45	28	4
Black	970	1100	840	800	600	550	500	550	430	400
Gadwall	700	680	530	600	600	400	400	400	400	400
Baldpate	2000	2100	1200	985	900	870	350	300	300	75
Pintail	3000	3500	2800	2200	1600	1200	580	400	170	85
Green-winged teal	1000	850	700	1100	875	800	740	700	900	950
Blue-winged teal	780	800	550	480	300	270	560	300	850	875
Cinnamon teal										
Shoveler	265	400	400	370	300	300	278	270	200	200
Wood										
Redhead										
Ring-necked	560	680	750	1000	2000	2500	1700	800	575	300
Canvasback										
Scaup	1500	1700	960	800	400	450	400	300	185	125
Goldeneye										
Bufflehead	4	7	3	1			4	4	2	1
Ruddy	650	700	963	565	500	250	200	125	85	70
Other Unidentified	2800	2300	1785	1900	1300	900	600	500	200	100
Coot:	1050	975	600	570	200	60	72	50	21	12

3-7150a- 3-1750a
 Cont. NR-1
 (Rev. March 1953)

WATERFOWL
 (Continuation Sheet)

REFUGE PEA ISLAND MONTHS OF Jan. 1, TO April 30, 1955

(1) Species	(2) Weeks of reporting period								(3) Estimated	(4) Production	
	11	12	13	14	15	16	17	18	waterfowl days use	Broods: seen	Estimated total
Swans:											
Whistling Trumpeter	50	21	20	13	7				2,349		
Geese:											
Canada	430	300	280	90	90	44			369,186		
Cackling Brant											
White-fronted Snow									14,115		
Blue Other											
Ducks:											
Mallard	4								43,329		
Black	470	450	500	500	400	550			67,280		
Gadwall	550	400	400	470	500	500			55,510		
Baldpate	60	75	20	20	10				64,445		
Pintail	90	12	55	45	8				109,295		
Green-winged teal	900	700	65	100	20				72,068		
Blue-winged teal	800	900	850	75	20				51,660		
Cinnamon teal											
Shoveler	200	100	450	60	10				26,481		
Wood											
Redhead											
Ring-necked	70	300	208	40	7				79,339		
Canvasback											
Scaup	20	12	35	4					49,137		
Goldeneye									182		
Bufflehead									30,203		
Ruddy	60	35	90	20	8	4			89,026		
Other	125	60	48	90	10						
Coot:											
	12	100	170	30	12				27,538		

(over)

	(5)	(6)	(7)
Total Days Use :	Peak Number :	Total Production	
Swans	2,349	53	0
Geese	383,303	8,550	0
Ducks	744,472	16,000	0
Coots	27,538	1,050	0

SUMMARY

Principal feeding areas _____

The entire Refuge Area

Principal nesting areas None this period

Reported by Lewis B. Turner

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 ISLAND

Months of Jan. 1,

to April 30,

1945

(1) Species	(2) First Seen		(3) Peak Numbers		(4) Last Seen		(5) Production			(6) Total
	Number	Date	Number	Date	Number	Date	Number Colonies	Total # Nests	Total Young	Estimated Number
I. Water and Marsh Birds:										
Hérons, Great Blue	Res.		4	4/15						6
" Little Blue	4	3/11	28	4/8						35
" Louisiana	Res.		19	4/15						30
" Yellow Crowned	Res.		46	4/15						65
" Black Crowned	2	3/11	61	4/11						75
Egrets, American	5	3/11	44	4/15						50
" Snowy	2	3/11	53	4/15						75
Loons, Common	All winter		140	1/14	8	4/15				175
Grebes, Piedbilled	Res.		125	1/14						150
" Horned			8	1/14	1	3/11				10
Pelicans	17	3/11	17	3/11	4	4/15				25
Gannets,	All Winter		7,000	3/18	600	4/15				10,000
Commorants	23	3/11	750	4/15		Still here				1,000
II. Shorebirds, Gulls and Terns:										
Gulls, Black Backed	All winter		300	1/14	12	3/18				350
" Herring	Res.		6000	3/11	65	4/15				6000
" Ring Bill	All Winter		600	3/11	23	4/15				1000
" Laughing	Res.		2800	4/15		Still here, Now nesting				4000
Terns, Royal	8	3/11	110	4/15		" "				225
" Common	18	3/11	175	4/15		" "				400
" Least	9	3/11	200	4/15		" "				400
Willetts,	17	3/11	55	4/15		" "	Now nesting			140
Yellow Legs	Res.		400	4/15		" "				600
Plevers, Wilson	26	3/11	63	4/15		" "				250
" Black Bellied	1	3/11	9	4/15		" "				30
Sandpipers, All Species	Res.		3800	4/15		" "				6000

(1)	(2)	(3)	(4)	(5)	(6)
III. <u>Doves and Pigeons:</u> Mourning dove White-winged dove	A very few doves seen again during the latter parts of march passing thru				
IV. <u>Predaceous Birds:</u> Golden eagle Duck hawk Horned owl Magpie Raven Crow	No Golden Eagles this period But three Bald Eagles has been present thru the period an average of two to four thru the period, None seen lately				
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.

Refuge PEA ISLAND

Months of Jan. 1, to April 30, 1945

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

INSTRUCTIONS

Form NR-2 - UPLAND GAME BIRDS.*

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

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

3-1754
Form NR-4
(June 1945)

SMALL MAMMALS

Refuge PEA ISLAND

Year ending April 30, 1955

(1) Species Common Name	(2) Density Cover Types & Total Acreage of Habitat Acres Per Animal		(3) Removals					(4) Disposition of Furs					(5) Total Popula- tion	
			Hunting	Fur Harvest	Predator Control *	For Re- stocking	For Re- search	Share Trapping			Total Refuge Furs Shipped	Furs Donated		Furs Destroyed
								Permit Number	Trappers Share	Refuge share				
Muskrat	Cattail & Scirpus Am. App. 900 Acres within the two fresh water ponds		0	0	0	0	0							Est. 1600
Otter	Ranges all over the Refuge even the beach line													Est. 40

* 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.

3-1570
NR-8a

REFUGE GRAIN REPORT

Refuge PEA ISLAND

Months of Jan. 1 thru April 30, 1945

(1) VARIETY	(2) ON HAND BEGINNING OF PERIOD	(3) RECEIVED DURING PERIOD	(4) TOTAL	(5) GRAIN DISPOSED OF				(6) ON HAND END OF PERIOD	(7) PROPOSED USE		
				TRANS- FERRED	SEEDED	FED	TOTAL		SEED	FEED	SURP.
Shelled Yellow Corn	15 Bu.	70 Bu.	85 Bu.	0	0	Trapping Operation	85 Bu.	None			

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

NR-8a

REFUGE GRAIN REPORT

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

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

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