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

WATERFOWL

FILE COPY

REFUGE Pea Island

MONTHS OF May 1 TO August 31, 1967

(1) Species	(2) Weeks of reporting period 1	2	3	4	5	6	7	8	9	10
Swans:										
Whistling										
Trumpeter										
Geese:										
Canada	100	100	5	5	5	5	5	5	5	2
Cackling										
Brant										
White-fronted										
Snow	150	50	30	8	4	4	4	4	4	1
Blue										
Other										
Ducks:										
Mallard	50	20	10							
Black	125	300	150	80	60	60	80	100	110	120
Gadwall	185	100	100	60	40	40	60	70	80	100
Baldpate										
Pintail										4
Green-winged teal	30	10	10							
Blue-winged teal		10	4	4	4	4	4	4	4	
Cinnamon teal										
Shoveler	5									
Wood										
Redhead										
Ring-necked										
Canvasback										
Scaup	25	25								
Goldeneye										
Bufflehead	10	10								
Ruddy										
Other										

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

WATERFOWL
(Continuation Sheet)

REFUGE **Pea Island**

MONTHS OF May 1 TO August 31, 1967

(1) Species	(2) Weeks of reporting period 11	12	13	14	15	16	17	18	(3) Estimated waterfowl days use	(4) Production Broods seen	Production Estimated total
Swans:											
Whistling											
Trumpeter											
Geese:											
Canada	2	2			5	5	6	5	1,724		
Cackling											
Brant											
White-fronted											
Snow	4	4			6	5	6	6	1,868		
Blue											
Other											
Ducks:											
Mallard									510		
Black	150	150	150	150	45	60	40	120	15,785	20	100
Gadwall	110	110	110	110	1		5	10	20,172	15	75
Baldpate											
Pintail					10				70		
Green-winged teal									348		
Blue-winged teal						100	300	500	5,566		
Cinnamon teal											
Shoveler									30		
Wood											
Redhead											
Ring-necked											
Canvasback											
Scaup									325		
Goldeneye											
Bufflehead									130		
Ruddy											
Other											
Coot:											

(Over)

	(5) Total Days Use	(6) Peak Number	(7) Total Production
Swans			
Geese	3,592	250	
Ducks	42,936	730	
Coots			

SUMMARY

Principal feeding areas Entire refuge, Pamlico Sound, shoals fresh water impoundments, salt marshes, sand dunes and ryegrass field.

Principal nesting areas

Reported by William C. Sood
William C. Sood, Refuge Manager

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
(Aug. 1952)

MIGRATORY BIRDS
(Other than Waterfowl)

Refuge Pea Island Months of May 1 to August 31 19 67

(1) Species	(2) First Seen		(3) Peak Concentration		(4) Last Seen		(5) Production			(6) Total
Common Name	Number	Date	Number	Inclusive Dates	Number	Date	Number Colonies	Total # Nests	Total Young	Estimated Use
I. Water and Marsh Birds:										
Brown Pelican	15	6-30	15	6-30	2	8-30				1,000
Great Blue Heron	2	5-15	2	5-15	1	8-20				750
Green Heron	3	6-27	3	6-27	2	8-20				300
Little Blue Heron	2	5-30	50	6-2	2	8-30	1	15	22	7,000
Cattle Egret	20	5-15	30	6-27	20	8-30	1	5	8	1,800
Common Egret	20	5-15	100	6-27	26	8-30	1	30	45	13,500
Snowy Egret	30	5-15	80	6-19	27	8-30	1	35	55	12,100
Louisiana Heron	15	5-15	70	6-19	5	8-30	1	20	30	9,800
Black-crowned Night Heron	4	5-15	100	6-27	2	8-30	1	35	50	13,000
American Bittern	1	7-13	1	7-13	1	7-13				50
Glossy Ibis	15	5-15	70	7-13	70	7-13	1	20	35	12,500
II. Shorebirds, Gulls, and Terns:										
Willet	10	5-20	70	6-9	40	8-30				9,500
Gt. Yellowlegs	8	7-13	10	7-30	1	8-30				2,000
Ls. Yellowlegs	6	6-3	6	6-3	6	6-3				2,000
Dowitcher	2	6-2	200	6-24	8	8-30				5,000
Am. Avocet	7	6-22	20	6-27	20	6-27				2,200
Black-necked Stilt	3	6-2	10	6-30	4	8-30				1,000
Great Black-backed Gull	25	8-20	25	8-20	20	8-30				300
Herring Gull	4	6-9	200	8-20	30	8-30				6,000
Laughing Gull	500	5-30	500	5-30	50	8-30				40,000
Common Tern	1	6-2	150	8-20	140	8-30				9,000
Least Tern	5	5-30	30	7-27	25	8-20				1,000
Black Tern	4	7-27	40	8-8	2	8-30				600
Black Skimmer	5	5-30	40	7-11	20	8-30				1,000

(over)

(1)	(2)		(3)		(4)		(5)		(6)
III. Doves and Pigeons:									
Mourning dove	1	5-15	5	7-20	1	8-30			250
White-winged dove									
IV. Predaceous Birds:									
Golden eagle									
Duck hawk									
Horned owl									
Magpie									
Raven									
Crow (Fish)	30	5-2	100	7-30	70	8-30			8,364
Osprey	1	6-15	2	8-15	1	8-30			180
Broad-winged Hawk	1	8-2	1	8-2	1	8-2			7

Reported by W. C. Ford

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

(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 Gruiiformes)
II. Shorebirds, Gulls and Terns (Charadriiformes)
III. Doves and Pigeons (Columbiformes)
IV. Predaceous Birds (Falconiformes, Strigiformes and predaceous Passeriformes)

(2) First Seen: The first migration record for the species for the reporting period.

(3) Peak Numbers: Estimated number and inclusive dates when peak population of the species occurred.

(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 species days use (average population X no. days present) of refuge during the reporting period.

3-1750b
Form NR-1B
(Rev. Nov. 1957)

UNITED STATES
DEPARTMENT OF THE INTERIOR
FISH AND WILDLIFE SERVICE
BUREAU OF SPORT FISHERIES AND WILDLIFE

WATERFOWL UTILIZATION OF REFUGE HABITAT

Refuge **Pea Island** For 12-month period ending August 31, 1967

Reported by **William C. Good** Title **Refuge Manager**

(1) Area or Unit Designation	(2) Habitat Type	(2) Habitat Acreage		(3) Use-days	(4) Breeding Population	(5) Production
Unit 1. South boundry to New Inlet	Crops	0	Ducks	10,115		
	Upland	339	Geese	231,530		
	Marsh	1,216	Swans	49		
	Water	9,700	Coots	19,300		
	Total	11,255	Total	260,994		
Unit 2. New Inlet to North Dike of North Pond (outside)	Crops	0	Ducks	682,625	40	75
	Upland	220	Geese	410,500		
	Marsh	664	Swans	32,302		
	Water	2,000	Coots	65,200		
	Total	2,884	Total	1,190,627		
Unit 3. Pools 1 and 2 and New Field	Crops	320	Ducks	709,353	100	100
	Upland	216	Geese	857,870		
	Marsh	215	Swans	43,200		
	Water	580	Coots	157,065		
	Total	1,331	Total	1,767,488		
Unit 4. North Dike of North Pond to Oregon Inlet	Crops	0	Ducks	16,957		
	Upland	320	Geese	215,840		
	Marsh	2,000	Swans	0		
	Water	13,732	Coots	14,510		
	Total	16,052	Total	247,307		
Sub-totals for the refuge.	Crops	320	Ducks	1,419,950		
	Upland	1,095	Geese	1,715,740		
	Marsh	4,095	Swans	75,551		
	Water	26,012	Coots	256,075		
	Total	31,522	Total	3,466,416		
	Crops		Ducks			
	Upland		Geese			
	Marsh		Swans			
	Water		Coots			
	Total		Total			
	Crops		Ducks			
	Upland		Geese			
	Marsh		Swans			
	Water		Coots			
	Total		Total			

(over)

INSTRUCTIONS

All tabulated information should be based on the best available techniques for obtaining these data. Estimates having no foundation in fact must be omitted. Refuge grand totals for all categories should be provided in the spaces below the last unit tabulation. Additional forms should be used if the number of units reported upon exceeds the capacity of one page. This report embraces the preceding 12-month period, NOT the fiscal or calendar year, and is submitted annually with the May-August Narrative Report.

(1) Area or Unit: A geographical unit which, because of size, terrain characteristics, habitat type and current or anticipated management practices, may be considered an entity apart from other areas in the refuge census pattern. The combined estimated acreages of all units should equal the total refuge area. A detailed map and accompanying verbal description of the habitat types of each unit should be forwarded with the initial report for each refuge, and thereafter need only be submitted to report changes in unit boundaries or their descriptions.

(2) Habitat: Crops include all cultivated croplands such as cereals and green forage, planted food patches and agricultural row crops; upland is all uncultivated terrain lying above the plant communities requiring seasonal submergence or a completely saturated soil condition a part of each year, and includes lands whose temporary marsh extends from the upland community to, but not including, the water type and consists of the relatively stable marginal or shallow-growing emergent vegetation type, including wet meadow and deep marsh; and in the water category are all other water areas inundated most or all of the growing season and extending from the deeper edge of the marsh zone to strictly open-water, embracing such habitat as shallow playa lakes, deep lakes and reservoirs, true shrub and tree swamps, open flowing water and maritime bays, sounds and estuaries. Acreage estimates for all four types should be computed and kept as accurate as possible through reference to available maps supplemented by periodic field observations. The sum of these estimates should equal the area of the entire unit.

(3) Use-days: Use-days is computed by multiplying weekly waterfowl population figures by seven, and should agree with information reported on Form NR-1.

(4) Breeding Population: An estimate of the total breeding population of each category of birds for each area or unit.

(5) Production: Estimated total number of young raised to flight age.

3-1752
Form NR-2
(April 1946)

UPLAND GAME BIRDS

Refuge Pea Island Months of May 1 to August 31, 19 67

(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.
Ring-necked Pheasant	Dikes, wax myrtle growth, uplands and marshes	4.0	5	75	1M - 3F	N	O N	F	300	

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 on 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.

Pea Island National Wildlife Refuge

Narrative Report

January 1 to December 31, 1966

Refuge Personnel

William C. Good	Refuge Manager
Marvin C. Toler	Maintenanceman
Mrs. Helene K. McGinnis	Clerk-Typist (Intermittent)

TABLE OF CONTENTS

I. GENERAL

A. Weather Conditions.

The year 1966 has been one of near normal weather conditions. No severe summer drought conditions developed and no severe storms were encountered. Excessive rains in May and June slowed down development work on the new field dike. A minor drought developed in August and extended through the fall months but did no serious damage.

Temperatures were normal with a high of 95 degrees and a low of 14 degrees reported by the National Park Service Weather Station.

The following data is taken from the National Park Service Weather Station on Bodie Island, 3 miles North of Pea Island and reflects conditions on the refuge.

Month	Precipitation				Temperatures	
	This Mo.	Normal	Dev. from Normal		Max.	Min.
Jan.	6.18	3.26	+2.92		71	14
Feb.	4.90	4.01	+ .89		60	22
Mar.	1.55	4.03	-2.48		72	29
Apr.	1.59	2.29	- .70		80	34
May	11.80	2.91	+8.89		82	44
June	6.54	2.90	+3.64		92	47
July	4.95	4.36	+ .59		95	66
Aug.	6.47	7.21	- .74		95	58
Sept.	6.61	6.96	- .35		91	57
Oct.	2.01	4.80	-2.79		85	44
Nov.	1.04	3.03	-1.99		78	35
Dec.	4.94	3.32	+1.62		73	25
Total	58.58	49.08	+9.50	Extremes	95	14

Rainfall for the year 1965 measured 39.38

B. Habitat Conditions.

1. Water

Two impoundments are maintained for the production of native foods. They are entirely dependant on rainfall. Rainfall was

adequate throughout the year to maintain coverage of the pool floors. Some fluxuation occurred throughout the year but remained within normal limits.

Upon instructions from the Regional Engineer, the staff gauges were adjusted to 0.00 MSL datum as follows:

North pond gauge raised 2.39 ft.
South pond gauge raised 2.17 ft.

Gauge readings are as follows:

Gauge Readings

	North Pond	South Pond
Jan.	3.70	4.10
Feb.	2.10	2.06
Mar.	1.98	1.85
Apr.	1.50	1.72
May	2.20	2.16
June	1.70	2.20
July	1.42	1.72
Aug.	2.00	1.94
Sept.	2.10	2.28
Oct.	2.00	1.67
Nov.	1.54	1.68
Dec.	1.60	1.78

Water levels in Pamlico Sound remained within normal elevations throughout the year. No extended turbulent water conditions developed on the sound shoals.

Salinity tests to evaluate the sea water content of both ponds was carried out throughout the year. The silver nitrate titration method was used to determine the following readings:

Water Salinity Tests During Period
(Readings in % of Sea Strength)

Date	North Pond			South Pond		
	North End	At Gauge	Gauge Reading	North End	On West Side	Gauge Reading
1/20	10.56	10.56	3.34	10.10	9.16	3.64
2/16	6.52	6.68	1.98	5.90	6.52	1.80
3/24	6.05	5.90	2.20	5.12	5.12	1.84
4/28	7.92	8.07	1.66	6.99	6.88	1.72
5/20	8.38	7.76	1.78	6.83	6.99	1.62
6/29	11.02	5.90	1.86	4.19	4.19	2.28
7/15	17.07	9.73	1.96	5.43	5.12	1.74
8/12	24.83	17.07	1.56	5.90	5.43	1.78
9/12	24.42	16.03	1.64	5.90	5.12	1.74
10/18	24.52	13.66	2.00	4.19	4.50	2.00
11/30	22.51	20.65	1.48	5.43	5.28	1.60
12/16	20.18	19.09	1.60	4.81	4.66	1.78

The high readings in the North Pond reflect pumping activities of the contractor with reference to the new dune and nesting bar construction. The area is ringed by a low dike and pumps are operated to draw off water within the area with the discharge going into the pond. Construction was started in June and is still underway.

2. Food and Cover

Ryegrass plantings recovered in early spring and offered adequate food for geese until they departed.

The new field between Pools 1 and 2 was put into operation this fall. Approximately 150 acres was planted to ryegrass. Wet operating conditions prevented additional plantings in this field. Heavy use of this common ryegrass started as soon as the geese arrived and continued to the end of the year.

Both impoundments recovered in the spring from the near eat-out of the winter-early spring season. No serious drought developed during the past growing season and adequate aquatics were produced in both impoundments. The aquatics produced were: Sago pond weed, widgeon grass, redhead grass, wild celery, smartweeds, marsh grass and wild millet.

Heavy stands of American three-square, robust three-square, wild millet and Spartina alterniflora were produced in the marsh areas. Beach Pea stands on higher elevations, were also heavy with rank vines.

No artificial feeding was required.

II. WILDLIFE

A. Migratory Birds

1. Waterfowl

The total use day figures for waterfowl is 2,820,899 for the year 1966, as compaired to 1,585,962 for the year 1965. These figures reflect a better production on the breeding grounds and suitable wintering habitat on the refuge.

Whistling Swan are showing 2 to 6 young per family unit and greater snow geese show 2 to 4 young per family this year.

Production figures for 1966 show 137 ducklings as compared with 95 for 1965. This production reflects adequate water conditions in the impoundments during the summer.

2. Other Birds

There was a decided increase in other bird use of the refuge over 1965. The following chart reflects this estimated use increase:

Marsh and Water Birds		Shorebirds, Gulls and Turns	
1966	1965	1966	1965
212,010	8,598	241,900	31,848

Doves		Predaceous Birds	
1966	1965	1966	1965
690	90	12,170	549

These figures would seem to reflect weather conditions experienced during the year, both on the refuge and along the nearby coastline.

B. Upland Game Birds
The only upland game birds on the refuge are ring-necked pheasants and they are found quite commonly in the area around the impoundments. Their members remain fairly constant.

C. Big-Game Animals
Pea Island Refuge has no big-game animals.

D. Fur Animals, Predators, Rodents and Other Mammals
The refuge fur animal population is composed of Muskrat, Otter, Mink and Nutria. All populations are small in number. No predation has been noted. An occasional feral cat has been observed in the neighborhood of the Coast Guard Station, Pea Island Camp Ground and Pea Island Coast Guard Station.

E. Hawks, Eagles, Owls, Crows, Ravens and Magpies
Hawks are often observed and are mostly cold weather visitors. The Fish Crow is common to the area. No predator pressure by hawks has been observed.

F. Other Birds
The small bird census which is being conducted by Mr. Paul W. Sikes, Jr., graduate student at North Carolina State, Raleigh, under Permit No. 4-64-13 dated September 4, 1964 has not been completed. On completion, his findings will be reported and additions to the refuge bird list will then be made.

G. Fish
No fishing is done on the refuge. The National Park Service supervises surf fishing in Oregon Inlet and along the refuge ocean front. Fishing was heavy during the year and catches reported as good. The Bodie Island Marina operated by the National Park Service, had a very active season and sizable catches of sport fish were reported.

H. Diseases
There is no indication of disease in any refuge population. An occasional Canada goose has been recovered suffering from lead poisoning resulting from hunting on nearby Bodie Island.

Losses to Greater snow geese have resulted by collision with the new 34.5 K.V. high tension line. Wings have been broken or severed from the birds and four young geese were destroyed by Brain Case damage. So far these losses have been light but

there is a potential for greater losses.

III. REFUGE DEVELOPMENT AND MAINTENANCE

A. Physical Development

The 5060 foot dike linking Pools 1 and 2 was completed, the tide gates placed and the dike and berm seeded to C. Bermuda grass during the year. This completes Job No. 6003.

Field renovation under Job No. 6029 consisted of light discing and mowing the 200 acres cut in August 1965. Additional heavy discing will be done when ground conditions permit.

The 34.5 K.V. powerline was completed by Cape Hatteras Electric Membership Corp., Buxton, North Carolina and service to the refuge from the line began July 1.

Eastern Clearing and Grading Co., Norfolk, Virginia, was awarded a National Park Service contract to construct the newly relocated outer dune at Milepost 9 and the associated nesting bars in Pool No. 2. National Park Service engineers reported this project 70-75% complete at the end of the year.

Banding, wildlife census, building maintenance, fireline plowing, cattail spraying, equipment repair, farming and like maintenance rounded out the general development and maintenance program.

B. Plantings

1. Aquatics and Marsh Plants

No plantings made.

2. Trees and Shrubs

No plantings made.

3. Upland Herbaceous Plants

660# C. Bermuda seed to new field dike was applied by helicopter at the rate of 60# per acre. 5½ tons of 10-20-20 fertilizer was also applied by air at the rate of 1000# per acre.

4. Cultivated Crops

Cultivated crops are limited to common ryegrass plantings. Approximately 150 acres of the new field were planted in September. 100# per acre of seed was used with 10-20-20 commercial fertilizer added at planting time.

C. Collections and Receipts

300 bushels of hybrid seed corn was received from Mattamuskeet for use in the trapping program.

D. Control of Vegetation

Spot treatment of typha domingensis and t. angustifolis in both ponds was carried out in July. Ten acres were treated with Dalapon at 18.5 lbs. acid equivalent per acre. Cost was $135.50.

E. Planned Burning

No burning was accomplished. Duff was not heavy enough to support a burning program.

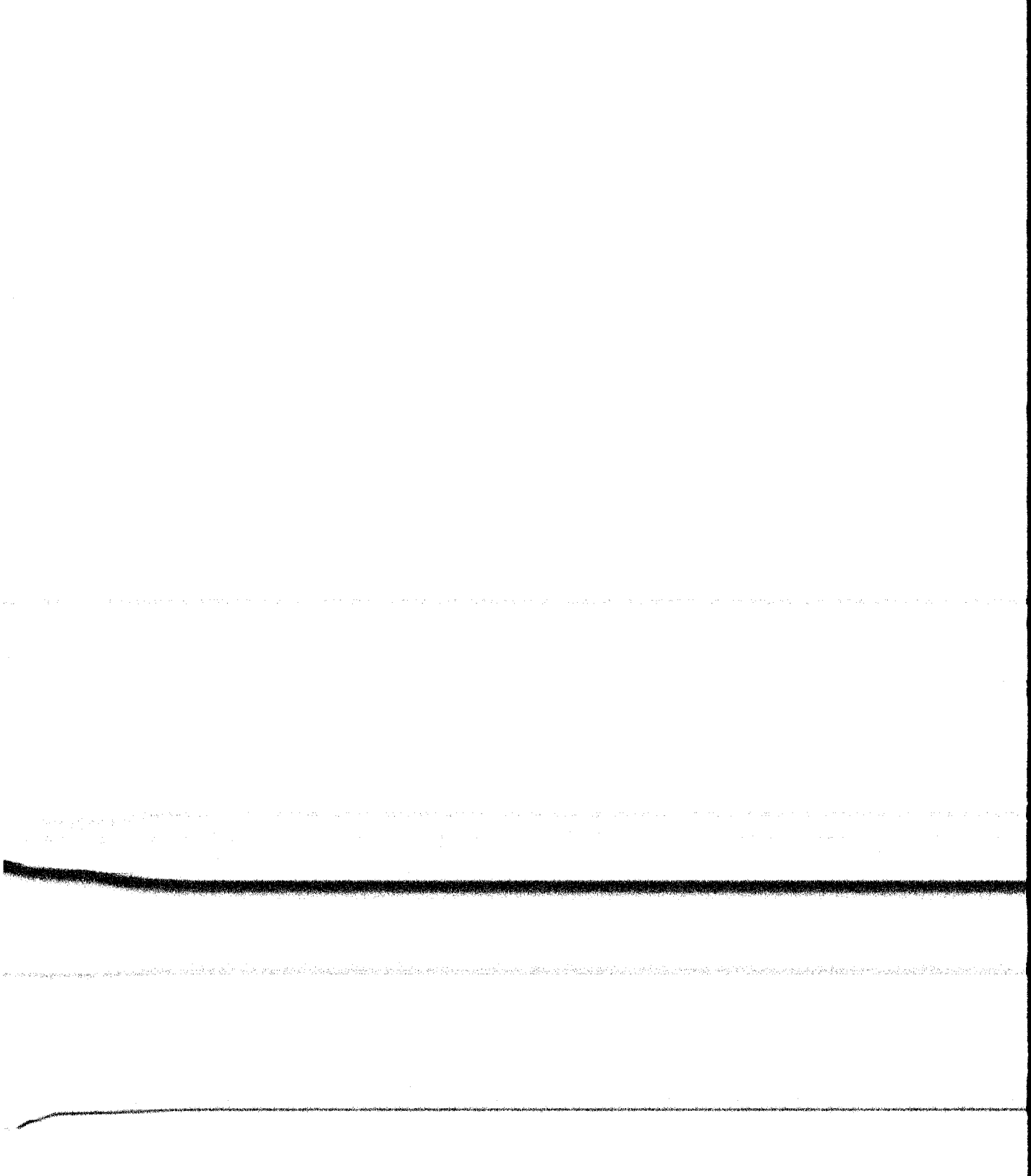
F. Fires

We had no fires on the refuge.

IV. RESOURCES MANAGEMENT

No resources harvesting permits are in force and no income from refuge resources is received. No permit is required for fishing as it is carried out on navigational waters.

Real Property No. 2, Cabin, Tract 3, was sold in accordance with Public Law 152, 81st Congress. The cabin was sold on August 1 to Gerald D. Perry, Kitty Hawk, North Carolina for $15.00.



V. FIELD INVESTIGATION OR APPLIED RESEARCH

Water salinity tests were conducted on both impoundments with relation to sea salting from the March 1962 storm.

Special water salinity tests were also conducted on Pool No. 2 (North Pond) relative to pumping activities connected with the new outer dune and nesting bars construction at Milepost 9. No undue salting of the pools has resulted in this activity.

Clyde S. Sawyer, Work Unit Conservationist, S.C.S., and the Refuge Manager have worked together to formulate a Soil and Water Conservation Plan for the refuge. The agreement covering this plan is between the refuge and the Pamlico Soil and Water Conservation District. The completed plan will be forwarded as soon as the S.C.S. are able to complete needed photographic work. The effective date of the plan is September 23, 1966.

Based on the above Conservation Plan, the S.C.S. have been working with the Refuge Manager in developing a permanent winter graze for geese for use in the new field development. They have also been assisting in developing a nesting cover for the new nesting bars in Pool No. 2. An inspection party consisting of Robert I. Spake, County Agricultural Agent, Otto Florschutz, Waterfowl Biologist, N.C. Wildlife Resources Commission, Clyde S. Sawyer, Work Unit Conservationist, Karl E. Graetz, Plant Materials Specialist and the Refuge Manager inspected the areas involved on August 30.

Ten test plots were established on October 24 in the following combinations, with reference to the field problems as follows:

1. 25# C. ryegrass and 12½# grandiflora vetch (½ ac.)
2. 25# C. ryegrass and 10# yellow vetch (½ ac.)
3. 17½# C. ryegrass and 12½# grandiflora vetch (¼ ac.)
4. 17½# C. ryegrass and 10# yellow vetch (¼ ac.)
5. 12½# grandiflora vetch (¼ ac.)
6. 10# yellow vetch (¼ ac.)
7. 3/4 bu. abruzzi rye and 12½# grandiflora vetch (¼ ac.)
8. 3/4 bu. abruzzi rye and 10# yellow vetch (¼ ac.)
9. ½ bu. abruzzi rye (¼ ac.)
10. 25# field brome (1 ac.)

Vetch and brome seed were supplied by Mr. Graetz for this test.

The refuge collected 6 lbs. 10 oz. of marshhay cordgrass seed heads which were cleaned by the Beltsville Research Center at the request of Mr. Graetz. Testing of the 1½# of seed on the nesting bar on the lower edges is planned for early spring. Switchgrass is also to be test planted above the cordgrass if seed becomes available. We also plan to test plant American beachgrass on these nesting bars.

Canada geese have so heavily browsed the field test plots that readings will have to be delayed until the geese leave, so that an evaluation can be made.

Waterfowl banding was limited to post-season banding and the following reflects this activity:

December
Pre-Banding activity

January
31 Canada geese
171 Black duck
30 Mallard
3 Pintail
8 Ring-necked
14 Coot

February
35 Black duck
23 Mallard
4 Pintail
2 Baldpate
3 Coot

March
39 Canada geese
26 Black duck
3 Mallard
2 Pintail
2 Coot

Our banding goals for the year were:

200 Mallard
500 Black duck
500 Canada geese

We used 1,788 man-hours and our operation cost was $2,297.60. Our populations were down approximately 2/3rds. below normal and we had an extremely open winter season.

Net traps were used for Canada geese and bait traps for ducks. Shelled corn was used for bait.

Sex and age of species trapped are as follows:

Canada goose:	I.M. 8; A.M. 29; I.F. 14; A.F. 19
Black duck:	I.M. 0; A.M. 153; I.F. 1; A.F. 22
Mallard:	I.M. 1;A.M. 27; I.F. 0; A.F. 28
Ringnecked:	I.M. 0; A.M. 8; I.F. 0; A.F. 0
Pintail:	I.M. 0; A.M. 6; I.F. 1; A.F. 3
Am. Coot:	A.U. 19
Baldpate:	I.M. 0; A.M. 1; I.F. 0; A.F. 1

VI. PUBLIC RELATIONS

A. Recreational Uses

Recreational uses included activities such as sightseeing, wildlife observations, photography, surf fishing and beach combing. Camping at Oregon Inlet is under the supervision of the National Park Service. A breakdown of 181,000 refuge visits is as follows;

Use	No. Visitors	Total Hours
Fishing	6,300	25,200
Nature study	8,400	16,800
Driving & Sightseeing	160,765	160,765
Picnicing	1,450	5,800
Swimming	150	150
Tent Camping	690	16,560
Trailer/camper camping	1,280	30,720
Visitor Center	545	545
Shell gathering	650	1,300
Beach walking	850	1,700

The above is based on N.P.S. use figures for Cape Hatteras National Seashore for C.Y. 1966. Total visits to the Seashore were 1,133,003.

There were 545 registered visitors who called at the refuge field office. They came from Alabama, Arkansas, California, Connecticut, Colorada, Delaware, District of Columbia, Florida, Georgia, Illinois, Indiana, Iowa, Maine, Maryland, Massachusetts, Michigan, New Hampshire, New Jersey, New York, North Carolina, Ohio, Oklahoma, Pennsylvania, Rhode Island, South Carolina, Tennessee, Vermont, Virginia, West Virginia and Wisconsin. Foreign visitors came from Canada, England, France, Germany and New Zeland.

B. Refuge Visitors - Official

Date	Purpose	Name and Organization	Address
1/20	C	W.F. Helms, USDA -ARS	Greenville, Miss.
1/20	C	Haywood B. Cox, USDA-ARS-PPCD	Kingston, N.C.
2/2	VT	Rev. T.T. McNulty,OFM, Emory Univ.	Atlanta, Ga.
5/10	CI	Leonard L. Mielke, GSA	Wilson, N.C.
5/10	C	W.J. Davis, N.C. Highway Comm.	Hertford, N.C.
5/11	CCI	T.W. Morse, N.P.S.	Manteo, N.C.
5/11	CCI	J.W. Karban, N.P.S.	Philadelphia, Pa.
5/11	CCI	B.F. Horton, USFWS	Atlanta, Ga.
5/11	CCI	J.A. Taylor, USFWS	Atlanta, Ga.
5/11	CCI	P.L. Mayrose, N.P.S.	Philadelphia, Pa.
5/11	CCI	D.E. McGinnis, N.P.S.	Manteo, N.C.
5/11	CCI	O.P. Houston, N.P.S.	Manteo, N.C.
5/11	CCI	W.H. Hofler, N.C. Highway Comm.	Manteo, N.C.
5/11	CCI	F.M. Collins, N.C. Highway Comm.	Hertford, N.C.
5/11	CCI	D.W. Patrick,N.C. Highway Comm.	Hertford, N.C.
5/11	CCI	W.B. Craddock, N.P.S.	Manteo, N.C.
5/26	I	David Hayes, N.C. State Univ.	Raleigh, N.C.
6/8	VT	Dr. Bruce Burliegh, M.D.	Marietta, Ga.
6/9	VT	Wm. T. Beeson & Fam. Stand.OilCo.	Lima, Ohio
6/10	CI	Caudie E. Denton, USFWS	Atlanta, Ga.
6/15	SMCI	C.S. Sawyer, S.C.S.	Columbia, N.C.
6/15	SMCI	J. Kent Crawford	N. Wilkesboro, N.C.
7/20	C	C.F. Leith, U.N.C.	Raleigh, N.C.
7/20	C	R.L.P. Custer, U.N.C.	Raleigh, N.C.
8/30	SMCI	C.S. Sawyer, S.C.S.	Columbia, N.C.
8/30	SMCI	Karl E. Graetz, S.C.S.	Raleigh, N.C.
8/30	SMCI	Otto Florschutz, N.C. Wildlife Res. Comm.	Washington, N.C.
8/30	SMCI	R.I. Spake, N.C. Extension Serv.	Manteo, N.C.
9/9	V	Dr. Stanley P. Cain, USDI	Washington, D.C.
9/9	V	James B. Meyers, USDI	Washington, D.C.

Date	Purpose	Name and Organization	Address
9/9	V	Karl T. Gilbert, N.P.S.	Manteo, N.C.
11/30	VT	Vern Floyd, Sports Writer	McBane, N.C.

Visitation Code is as follows:

C - Cooperation
I - Information
V - Visitation
VT - Visitation and Tour
CI - Conference and Inspection
CCI - Construction Conference and Inspection
SMCI - Soil and Moisture Conference and Inspection

C. Refuge Participation

The refuge manager and maintenanceman attended the monthly meetings of The Dare County Law Enforcement Officer's Association during the year. This organization is a cooperative association of all law enforcement officers working in Dare County, North Carolina.

Manager Good and Maintenanceman Toler completed a 120 hour course in Basic Peace Officers Training - Series I, sponsored by the College of the Albemarle, Elizabeth City, North Carolina in cooperation with N.C. State Department of Education.

Refuge tours were conducted for four Bird Clubs and two Biology Clubs. All groups were from out of state.

D. Hunting

A managed hunt is operated by the National Park Service on Bodie Island, 3 miles north of the refuge. No hunting is carried out on the refuge.

A summary of the 1965-1966 season on Bodie Island follows:

Hunting	Geese	Ducks	Coot	Total	Killed/Hunter day
1,078	23	400	24	447	0.4

The 1966-1967 season figures are not yet available from the National Park Service.

E. Violations

Nothing to report.

F. Safety

Monthly safety meetings were held through October when the refuge staff dropped to two men employees. Discussion leaders and subjects covered were:

Date	Leader	Subject
1/31	Mr. Toler	Use of seat belts.
No meeting.	Mr. Toler on extended sick leave.	
3/3	Mr. Good	"Whats Wrong Here" from Family Safety magazine.
4/29	Mr. Good	Region 4 "Safety" issue 40.
5/31	Mr. Good	Safe loading of helicopter with seed and fertilizer.
6/10	Mr. Denton	Safe lifting methods and falls.
7/11	Mr. Hines	Basic elements of electricity and safe operation of electrical equipment.
8/19	Mr. Good	Defensive driving.
9/30	Mr. Good	Regional Safety Records from Mr. Gresh's memo of August 8.
10/17	Mr. Good	Safe handling and lifting of bagged fertilizer and see.

There were no accidents during the year. The last lost time accident occurred on January 21, 1956.

Storm suits and boots and gloves were purchased during the year for station personnel.

VII. OTHER ITEMS

A. Items of Interest

The refuge staff assisted the U.S. Coast Guard in coastal alert exercises during the year.

Refuge Manager Good and N.P.S. Supt. Karl T. Gilbert attended a conference in the Regional Directors office on May 3 relative to dune construction and spoil material for relocation of N.C. Highway 12 at the Milepost 9 area. Also in attendance were FWS RO Staff Personnel, N.P.S. RO Staff Personnel and N.P.S. EODC Staff Personnel.

Refuge Manager and Mrs. Good represented the Service at dedication services on July 13 of the new Ft. Raleigh Visitor Center of the National Park Service. Under-Secretary of the Interior John N. Carver Jr., Director of the National Park Service George B. Hartzog, Jr., and Governor of North Carolina Dan K. Moore were principal speakers.

Robert J. Hines, Barco, N.C., was appointed Biological Aid (Wildlife) by the Regional Office on June 2. Mr. Hines, a student at N.C. State University, Raleigh, N.C. filled this position until September 2 at which time he returned to college.

Daniel H. Elliot, Manteo, N.C. was employed as Laborer on S.F. 50 on an intermittant basis from March 2 to August 16.

Mr. Houston C. Phillips, Biological Technician (Wildlife) retired on November 4. He had 20 years plus service time and had passed age 62.

B. Photographs

Photographs for the year follow the signature.

C. Signature

Date Completed January 20, 1967.

Respectfully submitted,

William C. Good

William C. Good, Refuge Manager

Approval:

Acting Lawrence S. Givens

Regional Refuge Supervisor

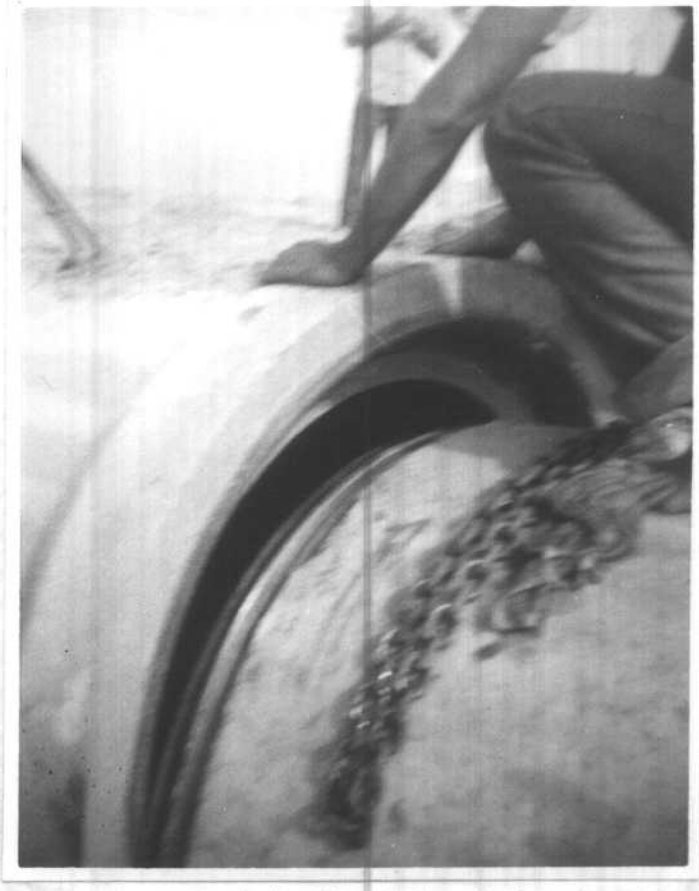
JAN 24 1967

Loading Helicopter for C. Bermuda Seeding to New Field Dike

Old Coast Guard Building Removal Operations

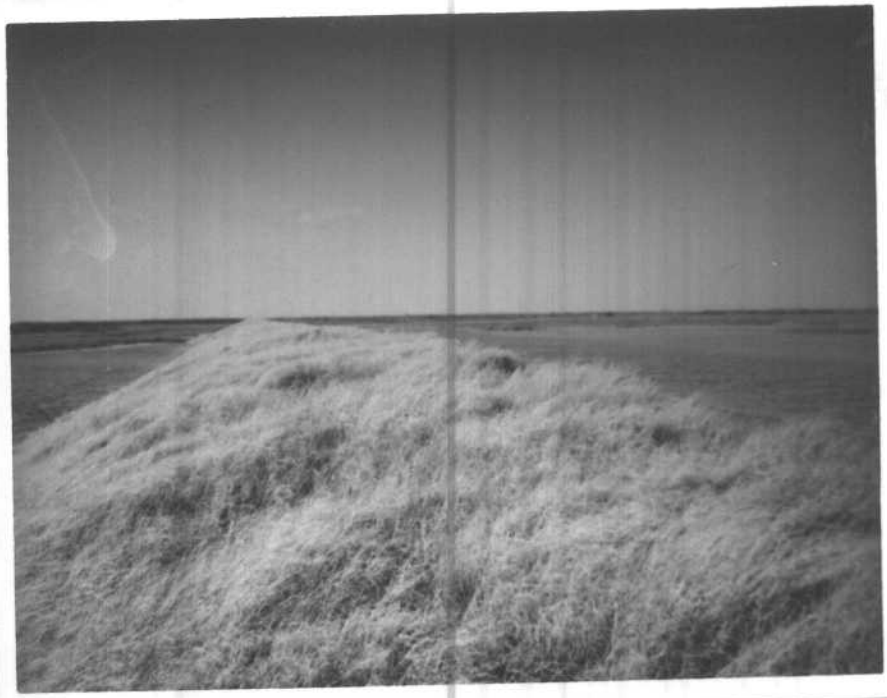
Dragline Moving New Dike Culvert Pipe

Twin Culvert Pipes in Place in New Field Dike



Showing Neoprene Seal in New Culvert Construction

Twin Tide Gates on New Field Dike Culvert



New Dike, Looking North, Showing C. Bermuda Grass Cover

Nesting Bars in North Pond (Pool No. 2)

N.C. Highway 12 Passing Thru New Outer Dune at Milepost 9.
Dune will be Closed with Construction of Relocated Highway

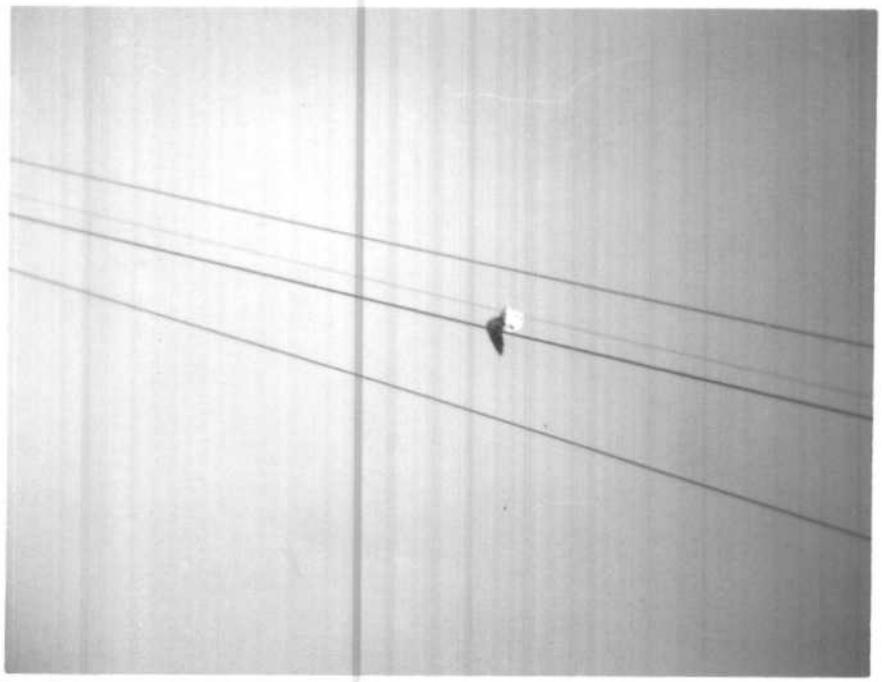
New Outer Dune at Milepost 9 Showing Junction With Pool No. 2 North Dike

Borrow Area With Low Dike, North of North Pond (Pool No. 2)

Service Road to Borrow Site

Take-Off From New 34.5 K.V. Highline Servicing Refuge Field Headquarters

Young Greater Snow Goose With Broken Wing From Contact With New 34.5 K.V. Highline



Young Greater Snow Goose Entangled in New 34.5 K.V. Highline

Maintenanceman Toler With Goose Shipping Crate

Refuge Manager Good Delivering $1,578.83 Check in Accordance With Public Law 88-523 to Dare County Officials Jack W. Cahoon, Lawrence L. Swain and John H. Long

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

WATERFOWL

REFUGE [illegible] MONTHS OF [illegible] TO [illegible], 19[illegible]

(1) Species	(2) Weeks of reporting period 1	2	3	4	5	6	7	8	9	10
Swans:										
Whistling			3	12		1	1			
Trumpeter										
Geese:										
Canada	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Cackling										
Brant										
White-fronted										
Snow	37	[illegible]	26	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	30
Blue			2	2	1	2	2			
Other										
Ducks:										
Mallard	18	10	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Black	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Gadwall	[illegible]									[illegible]
Baldpate			[illegible]					[illegible]		
Pintail	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Green-winged teal	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]
Blue-winged teal										
Cinnamon teal										
Shoveler	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Wood										
Redhead										
Ring-necked	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]
Canvasback	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			[illegible]
Scaup	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
Goldeneye								[illegible]		
Bufflehead	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		
Ruddy	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Other										
Coots	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

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

WATERFOWL
(Continuation Sheet)

REFUGE Sea Island MONTHS OF January 1 TO April 30, 1946

(1) Species	(2) Weeks of reporting period: 11	12	13	14	15	16	17	18	(3) Estimated waterfowl days use	(4) Production: Broods seen	Estimate total
Swans:											
Whistling	55			1	1	1	1		1946		
Trumpeter											
Geese:											
Canada	950	735	420	500	300	250	150		157,438		
Cackling											
Brant											
White-fronted											
Snow	6								4,945		
Blue									127		
Other											
Ducks:											
Mallard	75	29	255						6,909		
Black	320	275		155	125	100	55		27,765		
Gadwall	26	30	50	35	45	40	50		2,072		
Baldpate											
Pintail	100								119,707		
Green-winged teal	160	125	120	35	40	45	50		51,730		
Blue-winged teal	16	20	30	70	50	50	30		2,528		
Cinnamon teal											
Shoveler	35	55	50	45	35	15			3,792		
Wood											
Redhead											
Ring-necked	60	50							5,691		
Canvasback									476		
Scaup									1,337		
Goldeneye									70		
Bufflehead		20	25	4					1,715		
Ruddy		6							5,110		
Other											
Coot: American	100	80	75	120	20	12	75		7,539		

(over)

	(5) Total Days Use	(6) Peak Number	(7) Total Production
Swans	1,946	85	
Geese	272,930	7,201	
Ducks	238,902	10,130	
Coots	7,539	150	

SUMMARY

Principal feeding areas Impoundments, fresh marshes, salt marshes, ryegrass fields and Pamlico Sound Shoals.

Principal nesting areas

Reported by William C. Good

William C. Good, Refuge Manager

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).

Interior Duplicating Section, Washington, D. C. 37944
1953

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

WATERFOWL

REFUGE _____ MONTHS OF _____ TO _____, 19___

(1) Species	(2) Weeks of reporting period									
	1	2	3	4	5	6	7	8	9	10
Swans:										
Whistling										
Trumpeter										
Geese:										
Canada										
Cackling										
Brant										
White-fronted										
Snow										
Blue										
Other										
Ducks:										
Mallard										
Black										
Gadwall										
Baldpate										
Pintail										
Green-winged teal										
Blue-winged teal										
Cinnamon teal										
Shoveler										
Wood										
Redhead										
Ring-necked										
Canvasback										
Scaup										
Goldeneye										
Bufflehead										
Ruddy										
Other										

3 -1750a

Cont. NR-1
(Rev. March 1953)

WATERFOWL
(Continuation Sheet)

REFUGE Sea Island MONTHS OF Aug 1 TO Oct 31, 19 46

(1) Species	(2) Weeks of reporting period: 11	12	13	14	15	16	17	18	(3) Estimated waterfowl days use	(4) Production: Broods seen	Estimate total
Swans:											
Whistling											
Trumpeter											
Geese:											
Canada	1	1	1	1	1	1	1	1	126		
Cackling											
Brant											
White-fronted											
Snow											
Blue											
Other											
Ducks:											
Mallard									280		
Black	36	40	43	60	42	60	80	80	3,392	4	27
Gadwall	135	130	130	140	118	150	150	150	13,289	10	107
Baldpate											
Pintail								50	350		
Green-winged teal											
Blue-winged teal	2	2	2	2	2	2	165	200	1,617		
Cinnamon teal											
Shoveler											
Wood											
Redhead											
Ring-necked											
Canvasback											
Scaup											
Goldeneye											
Bufflehead											
Ruddy											
Other											
Coot:											

(over)

	(5) Total Days Use	(6) Peak Number	(7) Total Production
Swans			
Geese	280	1	
Ducks	19,628	680	134
Coots			

SUMMARY

Principal feeding areas Fresh water impoundments

Principal nesting areas Dikes, marsh and islands within impoundments for Gadwall, entire refuge for Black Ducks.

Reported by William C. Good
William C. Good, Refuge Manager

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).

Interior Duplicating Section, Washington, D. C. 37944
1953

3-1750
Form NR-1
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WATERFOWL

REFUGE Ice Island MONTHS OF 5/3 TO 12/31, 19 56

(1) Species	(2) Weeks of reporting period 1	2	3	4	5	6	7	8	9	10
Swans:										
Whistling							7	20	65	126
Trumpeter										
Geese:										
Canada						810	1312	1600	2365	1757
Cackling										
Brant										
White-fronted										
Snow								60	135	360
Blue									2	2
Other										
Ducks:										
Mallard									50	2
Black	35	10	11	17	18	25	46	60	230	143
Gadwall	10	6	6	10	14		8	10		6600
Baldpate							80	1200	3850	
Pintail	1200	1150	1394	2908	1860	1640	1455	2000	5620	6924
Green-winged teal	375	400	440	325	215	310	320	600	840	1275
Blue-winged teal	1800	2010	2375	2021	1440	356	395	1500	2650	220
Cinnamon teal										
Shoveler										
Wood										
Redhead										306
Ring-necked										
Canvasback										22
Scaup										
Goldeneye										
Bufflehead										18
Ruddy										134
Other										
Am. Coot					35	45	730	600	1100	2800

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

WATERFOWL
(Continuation Sheet)

REFUGE Sea Island MONTHS OF 1/1 TO 12/31, 19 46

(1) Species	(2) Weeks of reporting period: 11	12	13	14	15	16	17	18	(3) Estimated waterfowl days use	(4) Production: Broods seen	Estimate total
Swans:											
Whistling	325	4500	1550	1500	300	250	200	35	63,10[illegible]		
Trumpeter											
Geese:											
Canada	2150	7600	7200	7500	3500	3200	4000	3850	337,208		
Cackling											
Brant											
White-fronted											
Snow	750	15600	12300	14400	10000	9500	12000	11900	610,135		
Blue	10	30	20	20	5		10	12	777		
Other											
Ducks:											
Mallard	75	50	40	50	30	20	20	12	2,112		
Black	150	180	150	200	200	175	200	160	15,400		
Gadwall	35	60	40	50	30	25	25	15	2,575		
Baldpate	7100	7500	5500	5000	1500	1200	1000	1000	244,510		
Pintail	7000	7150	6000	4500	2500	2300	2200	1700	471,207		
Green-winged teal	2500	2200	1500	1000	600	500	600	575	100,035		
Blue-winged teal		100							96,869		
Cinnamon teal											
Shoveler											
Wood			5			5	10	10	210		
Redhead											
Ring-necked	35	750	500	500	100	75	50	30	14,422		
Canvasback											
Scaup	25	25	30	50	25	20	25	25	1,729		
Goldeneye											
Bufflehead		300	500	500	200	200	200	175	14,525		
Ruddy	65	85	65	50	25	15	30	20	2,611		
Other	150		150	200	150	125	150	120	9,463		
Coot: Am.	3400	10500	8000	5000	500	500	500	170	237,580		

(over)

	(5) Total Days Use	(6) Peak Number	(7) Total Production
Swans	~~63,196~~	~~1,500~~	
Geese	~~956,200~~	~~23,030~~	
Ducks	~~1,022,698~~	~~13,400~~	
Coots	~~237,580~~	~~10,500~~	

SUMMARY

Principal feeding areas ~~entire refuge, Pamlico Sound,~~ shoals, fresh water impoundments, salt marshes, sand ~~dunes and eelgrass field.~~

Principal nesting areas ~~None this period.~~

Reported by William C. Good

William C. Good Refuge Manager

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).

Interior Duplicating Section, Washington, D. C. 37944
1953

3-1751
Form NR-1A
(Aug. 1952)

MIGRATORY BIRDS
(Other than Waterfowl)

Refuge Pea Island Months of January 1 to April 30 19 66

(1) Species	(2) First Seen		(3) Peak Concentration		(4) Last Seen		(5) Production			(6) Total
Common Name	Number	Date	Number	Inclusive Dates	Number	Date	Number Colonies	Total # Nests	Total Young	Estimated Use
I. Water and Marsh Birds:										
Great Blue Heron	1	1-28	2	2-25	1	4-19				1,300
Little Blue Heron	7	4-19	7	4-19	7	4-19				2,600
Louisiana Heron	10	4-19	10	4-19	10	4-19				5,200
Black Crowned Night Heron	8	1-28	35	3-29	11	4-19				2,500
Common Egret	5	3-29	12	4-19	12	4-19				3,250
Snowy Egret	2	1-28	22	4-19	22	4-19				2,700
Glossy Ibis	33	4-19	33	4-19	33	4-19				500
Common Loon	6	4-19	6	4-19	6	4-19				500
Double Crested Cormorant	1500	4-19	1500	4-19	1500	4-19				600
Black Skimmer	3	1-28	3	1-28	3	1-28				50
American Bittern	3	1-28	3	1-28	1	3-29				1,300
II. Shorebirds, Gulls, and Terns:										
Royal Tern	27	4-19	27	4-19	27	4-19				6,500
Least Tern	35	4-19	35	4-19	35	4-19				200
Herring Gull	1027	1-28	2000	2-25	129	4-19				86,000
Ring-billed Gull	132	1-28	132	1-28	132	1-28				1,000
Laughing Gull	38	1-28	238	4-19	238	4-19				2,500
Black-backed Gull	79	1-28	79	1-28	2	3-29				9,000
Willet	141	4-19	141	4-19	141	4-19				1,410
Black-necked Stilt	1	4-19	1	4-19	1	4-19				25
American Avocet	30	1-28	40	4-19	40	4-19				13,000
Oyster Catcher	4	4-19	4	4-19	4	4-19				25
Yellowlegs, Greater	6	1-28	6	1-28	6	1-28				3,250
Yellowlegs, Lesser	2	1-28	2	1-28	2	1-28				2,200
Sandpipers, Spotted	500	1-28	600	(over)	300	4-19				5,000

(1)	(2)		(3)		(4)		(5)	(6)
III. Doves and Pigeons:								
Mourning dove	6	1-28	6	1-28	2	3-29		140
White-winged dove								
IV. Predaceous Birds:								
Golden eagle								
Duck hawk	2	1-28	2	1-28	1	3-29		650
Horned owl								
Magpie								
Raven								
Crow (Fish)	20	3-29	41	4-19	41	4-19		13,000
Osprey	3	4-19	3	4-19	3	4-19		650
Sparrow Hawk	1	3-19	1	3-29	1	4-19		650
Marsh Hawk	1	1-28	2	2-25	1	4-19		1,300
Pidgeon Hawk	3	2-25	3	2-25	3	2-25		15

William C. Good

Reported by **William C. Good, Refuge Manager**

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

(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 Gruiiformes)
II. Shorebirds, Gulls and Terns (Charadriiformes)
III. Doves and Pigeons (Columbiformes)
IV. Predaceous Birds (Falconiformes, Strigiformes and predaceous Passeriformes)

(2) First Seen: The first migration record for the species for the reporting period.

(3) ~~Peak Numbers: Estimated number and inclusive dates when peak population of the species occurred.~~

(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 species days use (average population X no. days present) of refuge during the reporting period.

3-1751
Form NR-1A
(Aug. 1952)

MIGRATORY BIRDS
(Other than Waterfowl)

Refuge [illegible] Months of [illegible] to [illegible] 19 46

(1) Species	(2) First Seen		(3) Peak Concentration		(4) Last Seen		(5) Production			(6) Total
Common Name	Number	Date	Number	Inclusive Dates	Number	Date	Number Colonies	Total # Nests	Total Young	Estimated Use
I. Water and Marsh Birds:										
Great Blue Heron	1	5-23	?	7-21	5	5-29				300
Little Blue Heron	6	5-23	100	7-21	43	7-29	1	20	60	3,300
Louisiana Heron	9	5-23	32?	7-21	165	8-29	2	40	120	36,000
Black-crowned Night Heron	13	5-23	291	7-21	135	7-29	2	40	120	27,450
Yellow-crowned Night Heron	2	7-21	2	7-21	2	7-21				1,200
Common Egret	1	5-23	115	7-21	43	8-29	2	40	120	11,700
Cattle Egret	4	5-23	12	7-21	6	8-29				1,200
Snowy Egret	11	5-23	385	7-21	215	7-29	2	55	220	34,500
Black Skimmer	4	5-23	20	6-24	15	7-21				2,500
Glossy Ibis	31	5-23	512	7-21	309	8-29	2	91	312	14,000
Black-bellied Plover	1	5-23	4	5-23	1	5-23				750
II. Shorebirds, Gulls, and Terns:										
Laughing Gull	370	5-23	284	7-21	142	8-29				15,000
Herring Gull	33	5-23	40	7-21	40	7-21				7,200
Black Tern	2	6-24	2	6-24	2	6-24				400
Royal Tern	4	5-23	31	6-24	31	6-24				4,200
Least Tern	2	5-23	20	7-21	10	8-29				2,000
Common Tern	27	7-21	7	7-21	7	7-21				2,500
Willet	49	5-23	49	5-23	36	6-24				3,500
Avocet	4	5-23	35	6-24	30	7-21				4,100
Black-necked Stilt	6	5-23	11	7-21	11	7-21				1,800
Oystercatcher	3	6-24	4	7-21	4	7-21				750
Yellowlegs - Gt.	20	7-21	20	7-21	20	7-21				3,000
Yellowlegs - Less.	40	7-21	40	7-21	40	7-21				7,600
Sandpipers, All	600	7-21	600	7-21	300	8-29				138,600

(over)

(1)	(2)		(3)		(4)		(5)	(6)
III. Doves and Pigeons:								
Mourning dove	3	7-21	3	7-21	3	7-21		500
White-winged dove								
IV. Predaceous Birds:								
Golden eagle								
Duck hawk								
Horned owl								
Magpie								
Raven								
Crow, Fish	37	5-23	44	6-24	28	8-29		6,900
Osprey	1	5-23	2	6-24	1	7-21		250
Night Hawk	2	6-24	2	6-24	2	6-24		375

William C. Good

Reported by William C. Good, Refuge Manager

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

(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 Gruiiformes)
II. Shorebirds, Gulls and Terns (Charadriiformes)
III. Doves and Pigeons (Columbiformes)
IV. Predaceous Birds (Falconiformes, Strigiformes and predaceous Passeriformes)

(2) First Seen: The first migration record for the species for the reporting period.

(3) Peak Numbers: Estimated number and inclusive dates when peak population of the species occurred.

(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 species days use (average population X no. days present) of refuge during the reporting period.

3-1751
Form NR-1A
(Aug. 1952)

MIGRATORY BIRDS
(Other than Waterfowl)

Refuge _____ Months of _____ to _____ 19__

(1) Species	(2) First Seen		(3) Peak Concentration		(4) Last Seen		(5) Production			(6) Total
Common Name	Number	Date	Number	Inclusive Dates	Number	Date	Number Colonies	Total # Nests	Total Young	Estimated Use
I. Water and Marsh Birds:										
[illegible]										
[illegible]										
[illegible]										
[illegible]										
[illegible]										
[illegible]										
[illegible]										
[illegible]										
[illegible]										
II. Shorebirds, Gulls, and Terns:										
Common Tern										
least Tern										
Herring Gull										1,200
Laughing Gull										
American Avocet										
Yellowlegs, Greater										
Yellowlegs, Lesser										
Black-backed Gull										

(over)

(1)	(2)		(3)		(4)		(5)	(6)
III. Doves and Pigeons:								
Mourning dove	6	9/16	23	10/31	2	12/28		50
White-winged dove								
IV. Predaceous Birds:								
Golden eagle								
Duck hawk	1	9/16	3	10/31	1	12/28		5
Horned owl								
Magpie								
Raven								
Crow (fish)	8	9/16	8	9/16	6	10/31		50
Osprey	4	9/16	4	9/16	1	10/31		5
Sparrow Hawk	2	9/16	11	10/31	1	12/28		15
Marsh Hawk	4	10/31	4	10/31	1	12/28		5

Reported by William C. Ford

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

(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 Gruiiformes)
II. Shorebirds, Gulls and Terns (Charadriiformes)
III. Doves and Pigeons (Columbiformes)
IV. Predaceous Birds (Falconiformes, Strigiformes and predaceous Passeriformes)

(2) First Seen: The first migration record for the species for the reporting period.

(3) Peak Numbers: Estimated number and inclusive dates when peak population of the species occurred.

(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 species days use (average population X no. days present) of refuge during the reporting period.

3-1750b
Form NR-1B
(Rev. Nov. 1957)

UNITED STATES
DEPARTMENT OF THE INTERIOR
FISH AND WILDLIFE SERVICE
BUREAU OF SPORT FISHERIES AND WILDLIFE

WATERFOWL UTILIZATION OF REFUGE HABITAT

Refuge Pea Island — For 12-month period ending August 31, 1966

Reported by William C. Wood — Title Refuge Manager

(1) Area or Unit Designation	(2) Habitat Type	(2) Habitat Acreage		(3) Use-days	(4) Breeding Population	(5) Production
Unit 1. All unimpounded area from new Inlet north to Oregon Inlet	Crops	70	Ducks	580,220		
	Upland	922	Geese	11[illegible],350		
	Marsh	[illegible]	Swans			
	Water	[illegible]	Coots			
	Total	12,2[illegible]	Total	[illegible],570		
Unit 2. Pool No. 2 (North Pond) an impoundment	Crops	68	Ducks	105,690	14	27
	Upland	98	Geese	231,311		
	Marsh	70	Swans	[illegible],889		
	Water	400	Coots	5,225		
	Total	[illegible]3	Total	350,105		
Unit 3. Pool No. 1 (South Pond) an impoundment	Crops	12	Ducks	50,240	60	107
	Upland	38	Geese	168,210		
	Marsh	145	Swans	1,9[illegible]		
	Water	180	Coots	2,314		
	Total	375	Total	222,710		
Unit 4. All unimpounded area from new Inlet to the South boundry.	Crops		Ducks	[illegible],507		
	Upland	339	Geese	132,1[illegible]		
	Marsh	1,216	Swans			
	Water	9,700	Coots			
	Total	11,255	Total	220,747		
Sub-totals for the refuge.	Crops	150	Ducks	1,024,503		
	Upland	[illegible]07	Geese	6[illegible],0[illegible]1		
	Marsh	1,09[illegible]	Swans	9,[illegible]35		
	Water	2[illegible],2[illegible]0	Coots	7,539		
Grand Total	Total	31,[illegible]22	Total	1,[illegible],9[illegible]5		
	Crops		Ducks			
	Upland		Geese			
	Marsh		Swans			
	Water		Coots			
	Total		Total			
	Crops		Ducks			
	Upland		Geese			
	Marsh		Swans			
	Water		Coots			
	Total		Total			

(over)

INSTRUCTIONS

All tabulated information should be based on the best available techniques for obtaining these data. Estimates having no foundation in fact must be omitted. Refuge grand totals for all categories should be provided in the spaces below the last unit tabulation. Additional forms should be used if the number of units reported upon exceeds the capacity of one page. This report embraces the preceding 12-month period, NOT the fiscal or calendar year, and is submitted annually with the May-August Narrative Report.

(1) Area or Unit: A geographical unit which, because of size, terrain characteristics, habitat type and current or anticipated management practices, may be considered an entity apart from other areas in the refuge census pattern. The combined estimated acreages of all units should equal the total refuge area. A detailed map and accompanying verbal description of the habitat types of each unit should be forwarded with the initial report for each refuge, and thereafter need only be submitted to report changes in unit boundaries or their descriptions.

(2) Habitat: Crops include all cultivated croplands such as cereals and green forage, planted food patches and agricultural row crops; upland is all uncultivated terrain lying above the plant communities requiring seasonal submergence or a completely saturated soil condition a part of each year, and includes lands whose temporary marsh extends from the upland community to, but not including, the water type and consists of the relatively stable marginal or shallow-growing emergent vegetation type, including wet meadow and deep marsh; and in the water category are all other water areas inundated most or all of the growing season and extending from the deeper edge of the marsh zone to strictly open-water, embracing such habitat as shallow playa lakes, deep lakes and reservoirs, true shrub and tree swamps, open flowing water and maritime bays, sounds and estuaries. Acreage estimates for all four types should be computed and kept as accurate as possible through reference to available maps supplemented by periodic field observations. The sum of these estimates should equal the area of the entire unit.

(3) Use-days: Use-days is computed by multiplying weekly waterfowl population figures by seven, and should agree with information reported on Form NR-1.

(4) Breeding Population: An estimate of the total breeding population of each category of birds for each area or unit.

(5) Production: Estimated total number of young raised to flight age.

3-1752
Form NR-2
(April 1946)

UPLAND GAME BIRDS

Refuge [illegible] Months of January 1 to April 30, 19[illegible]

(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.
[illegible]-necked Pheasant	[illegible]kes, [illegible] [illegible]rtle thickets, uplands marshes (1125 acres)	11.2							100	[illegible]ace from New Inlet to [illegible] Inlet and well established

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.

3-1752
Form NR-2
(April 1946)

UPLAND GAME BIRDS

Refuge Red Island Refuge Months of May 1 to August 31, 1946

(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	No. broods obs'v'd.	Estimated Total	Percentage	Hunting	For Restocking	For Research	Estimated number using Refuge	Pertinent information not specifically requested. List introductions here.
Ring-necked Pheasant	Lilies, wax myrtle growth, highlands and marshes 300	10	120	1m - 1f			X		100	

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.

3-1752
Form NR-2
(April 1946)

UPLAND GAME BIRDS

Refuge _____ Months of _____ to _____, 19__

(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.
[illegible]	[illegible]				[illegible]		[illegible]			

INSTRUCTIONS

Form NR-2 - UPLAND GAME BIRDS.*

(1) SPECIES: Use correct common name.

(2) DENSITY: Applies particularly to those species considered in removal programs (public hunts, etc.). Detailed data may be omitted for species occurring in limited numbers. Density to be expressed in acres per animal by cover types. This information is to be prefaced by a statement from the refuge manager as to the number of acres in each cover type found on the refuge; once submitted, this information need not be repeated except as significant changes occur in the area of cover types. Cover types should be detailed enough to furnish the desired information but not so much as to obscure the general picture. Examples: spruce swamp, upland hardwoods, reverting agriculture land, bottomland hardwoods, short grass prairie, etc. Standard type symbols listed in Wildlife Management Series No. 7 should be used where possible. Figures submitted should be based on actual observations and counts on representative sample areas. Survey method used and size of sample area or areas should be indicated under Remarks.

(3) YOUNG PRODUCED: Estimated number of young produced, based upon observations and actual counts in representative breeding habitat.

(4) SEX RATIO: This column applies primarily to wild turkey, pheasants, etc. Include data on other species if available.

(5) REMOVALS: Indicate total number in each category removed during the report period.

(6) TOTAL: Estimated total number using the refuge during the report period. This may include resident birds plus those migrating into the refuge during certain seasons.

(7) REMARKS: Indicate method used to determine population and area covered in survey. Also include other pertinent information not specifically requested.

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

3-1753
Form NR-3
(June 1945)

BIG GAME

Refuge Pea Island Calendar Year 1966

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

Remarks:

William C. Good

Reported by William C. Good, Refuge Manager

INSTRUCTIONS

Form NR-3 - BIG GAME

(1) SPECIES: Use correct common name; i.e., Mule deer, black-tailed deer, white-tailed deer. It is unnecessary to indicate sub-species such as northern or Louisiana white-tailed deer.

(2) DENSITY: Detailed data may be omitted for species occurring in limited numbers. Density to be expressed in acres per animal by cover types. This information is to be prefaced by a statement from the refuge manager as to the number of acres in each cover type found on the refuge; once submitted, this information need not be repeated except as significant changes occur in the area of cover types. Cover types should be detailed enough to furnish the desired information but not so much as to obscure the general picture. Examples: spruce swamp, upland hardwoods, reverting agriculture land, bottomland hardwoods, short grass prairie, etc. Standard type symbols listed in Wildlife Management Series No. 7 should be used where possible. Figures submitted should be based on actual observations and counts on representative sample areas. Survey method used and size of sample area or areas should be indicated under Remarks.

(3) YOUNG PRODUCED: Estimated total number of young produced on refuge.

(4) REMOVALS: Indicate total number in each category removed during the year.

(5) LOSSES: On the basis of known records or reliable estimates indicate total losses in each category during the year.

(6) INTRODUCTIONS: Indicate the number and refuge or agency from which stock was secured.

(7) TOTAL REFUGE POPULATION: Give the estimated population of each species on the refuge at period of its greatest abundance and also as of Dec. 31.

(8) SEX RATIO: Indicate the percentage of males and females of each species as determined from field observations or through removals.

116008

3-1754
Form NR-4
(June 1945)

SMALL MAMMALS

Refuge [illegible] Year ending April 30, [illegible]

(1) Species	(2) Density		(3) Removals					(4) Disposition of Furs						(5) Total Population
								Share Trapping						
Common Name	Cover Types & Total Acreage of Habitat	Acres Per Animal	Hunting	Fur Harvest	Predator Control *	For Re-stocking	For Re-search	Permit Number	Trappers Share	Refuge share	Total Refuge Furs Shipped	Furs Donated	Furs Destroyed	
Muskrat	Impoundments and adjacent marsh areas (1500 acres)	1												1500
Otter	Same over all of the land and tidal creeks (5000 acres)	500												10
Nutria	Same as muskrat area listed above (1500 acres)	20												75
Mink	Entire refuge (5000 acres)	500												10

* List removals by Predator Animal Hunter

REMARKS:

Reported by William C. Hood, Refuge Manager

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 headingslisted.

(4) DISPOSITION OF FUR: On share-trapped furs list the permit number, trapper's share, and refuge share. Indicate the number of pelts shipped to market, including furs taken by Service personnel. Total number of pelts of each species destroyed because of unprimeness or damaged condition, and furs donated to institutions or other agencies should be shown in the column provided.

(5) TOTAL POPULATION: Estimated total population of each species reported on as of April 30.

REMARKS: Indicate inventory method(s) used, size of sample area(s), introductions, and any other pertinent information not specifically requested.

32715

Refuge Sea Island Year 1966

Botulism

Period of outbreak _____

Period of heaviest losses _____

Losses:

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

Number Hospitalized	No. Recovered	% Recovered
(a) Waterfowl		
(b) Shorebirds		
(c) Other		

Areas affected (location and approximate acreage) _____

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

Condition of vegetation and invertebrate life _____

Remarks _____

Lead Poisoning or other Disease

Kind of disease Power kill and lead poisoning

Species affected Snow and Canada geese

Number Affected

Species	Actual Count	Estimated
~~Snow geese~~		~~10~~ 20
~~Canada geese~~	3	

Number Recovered _____

Number lost 10

Source of infection _____

Water conditions Adequate

Food conditions Spartina fields heavily browsed. Native foods adequate on wild pastures and in Pamlico Sound.

Remarks Some snow goose loss due to impact with power line. Estimated loss 20.

NR-6 Bureau of Sport Fisheries and Wildlife

PUBLIC RELATIONS

(See Instructions on Reverse Side)

Refuge Pea Island Calendar Year 1966

1. Visits

a. Hunting 0 b. Fishing [illegible] c. Miscellaneous [illegible] d. TOTAL VISITS [illegible]

1a. Hunting (on refuge lands) ONE

TYPE	HUNTERS	ACRES	MANAGED BY
Waterfowl			
Upland Game			
Big Game			
Other			

Number of permanent blinds _____

Man-days of bow hunting included above _____

Estimated man-days of hunting on lands adjacent to refuge _____

1b. Fishing (area open to fishing on refuge lands)

TYPE OF AREA	ACRES	MILES
Ponds or Lakes		
Streams and Shores		13-ocean

1c. Miscellaneous Visits

Recreation 101,030 Official 35

Economic Use _____ Industrial _____

2. Refuge Participation (groups)

TYPE OF ORGANIZATION	On Refuge NO. OF GROUPS	On Refuge NUMBER IN GROUPS	Off Refuge NO. OF GROUPS	Off Refuge NUMBER IN GROUPS
Sportsmen Clubs				
Bird and Garden Clubs	1	30		
Schools	2	55		
Service Clubs			12	35
Youth Groups				
Professional-Scientific				
Religious Groups				
State or Federal Govt.	3	10		
Other				

3. Other Activities

TYPE	NUMBER	TYPE	NUMBER
Press Releases		Radio Presentations	
Newspapers (P.R.'s sent to)		Exhibits	
TV Presentations		Est. Exhibit Viewers	

3-1756
(Rev. 4/63)

INSTRUCTIONS

Item 1: Total of a, b, and c, equal d.

"Visit" - definition. Any person who is on refuge lands or waters during a day or part thereof for the purpose of: hunting, fishing, bird-watching, recreation, business or economic use, official visit, or similar interest. INCLUDE - those who stop within the refuge while traveling on a public highway because of an interest in the area. EXCLUDE - persons engaged in oil or other industry not directly related to the refuge, persons using refuge as most direct route or principal avenue of traffic, and those boating on navigable rivers or the Intercoastal Canal, unless they stop to observe wildlife on the refuge.

Computing visits. Where actual counts are impractical, "sampling" is used with midweek and weekend samples varied by season or weather. A conversion factor of 3.5 (of passengers per car) is used when accurate figures are not available. Each refuge will develop a conversion factor for boats based on range of usage. Count a camper once for each 24-hour period or fraction thereof.

Item 1a: Acres - of refuge open for each type of hunting.

Managed hunts require check in and out of hunters, issuance of permits, or assignment of blinds.

Other - INCLUDE crow, fox, and similar hunting.

Lands adjacent to refuge. Normally considered within 1 mile or less of boundary, unless established sampling procedures cover a wider area. For big game hunting, the distance may be greater.

Item 1b: Acres of streams open to fishing, if practical; otherwise just miles open. Information on "shores" is primarily for coastal fishing.

Item 1c: Recreation. INCLUDE photography, observing wildlife, picnicking, swimming, boating, camping, visitor center use, tours, etc. TOTAL Recreation, Official, and Economic Use visits under Item 1.

Industrial. INCLUDE persons engaged in industry, i.e., oil industry or factories. EXCLUDE these from Item 1.

Item 2: INCLUDE the "On Refuge" groups in Items 1c and 1. In "Off Refuge" column include only those group meetings in which refuge employees actually participate. EXCLUDE these from Items 1c and 1.

Item 3: Exhibits - INCLUDE displays, fairs, parades, and exhibits OFF the refuge; EXCLUDE those ON.

3-1757
Form NR-7
(Rev. June 1960)

(1)

NONAGRICULTURAL COLLECTIONS, RECEIPTS, AND PLANTINGS

Refuge [illegible] Year 19[illegible]

	Collections and Receipts (Seeds, rootstocks, trees, shrubs)						Plantings (Marsh - Aquatic - Upland)						
Species	Amount (Lbs., bus., etc.)	(2) C or R	Date	Method or Source	Cost	(3) Total Amount on Hand	Location of Area Planted	Rate of Seeding or Planting	Amount Planted (Acres or Yards of Shoreline)	Amount and Nature of Propagules	Date	Survival	Cause of Los
[illegible] Abruzzi	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			[illegible]	Sand
rye	2 [illegible]		10/[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			10/24		
V. vetch	[illegible]	[illegible]	11/3	[illegible]	[illegible]	[illegible]	Test plots	See remarks			10/22		
[illegible]. vetch	50	[illegible]	10/3	[illegible]	[illegible]	[illegible]	Test plots	See remarks			10/21		
[illegible]. brome	25[illegible]	[illegible]	10/3	[illegible]	[illegible]	[illegible]	Test plots	See remarks			10/22		
[illegible]. patens	12[illegible]	C	9/30	[illegible]	0	0 (SCS has seed)		See remarks					

(1) Report agronomic farm crops on Form NR-8
(2) C = Collections and R = Receipts
(3) Use "S" to denote surplus

Total acreage planted:
Marsh and aquatic
Hedgerows, cover patches [illegible] + test plots
Food strips, food patches
Forest plantings

Remarks: Abruzzi rye, V. vetch, [illegible]. vetch and field brome used in test plot work as described in U. Field Investigations - Applied Research of WR Report-1956.

[illegible]. patens to be used in spring in nesting bar test cover work.

[illegible]th projects in conjunction with Soil Conservation Service.

76148

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

Fish and Wildlife Service Branch of Wildlife Refuges

CULTIVATED CROPS - HAYING - GRAZING

Refuge _____ County _____ State _____

Cultivated Crops Grown	Permittee's Share Harvested		Government's Share or Return				Total Acreage Planted	Green Manure, Cover and Waterfowl Browsing Crops Type and Kind	Total Acreage
			Harvested		Unharvested				
	Acres	Bu./Tons	Acres	Bu./Tons	Acres	Bu./Tons			
								Fallow Ag. Land	

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

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

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

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

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

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

Permittee's Share - Only the number of acres utilized by the permittee for his own benefit should be shown under the Acres column, and only the number of bushels of farm crops harvested by the permittee for himself should be shown under the Bushels Harvested column. Report all crops harvested in bushels or fractions thereof except such crops as silage, watermelons, cotton, tobacco, and hay, which should be reported in tons or fractions thereof.

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

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

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

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

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

3-1570
NE-8a

(AY)

REFUGE GRAIN REPORT

Refuge Pea Island Months of January through December, 1966

(1) Variety*	(2) On Hand Beginning of Period	(3) Received During Period	(4) Total	(5) Grain Disposed of				(6) On Hand End of Period	(7) Proposed or Suitable Use*		
				Transferred	Seeded	Fed	Total		Seed	Feed	Surplus
Yellow hybrid corn	160 bu.	300 bu.	460 bu.			160 bu.	160 bu.	300 bu.		300 bu.	

(8) Indicate shipping or collection points from Mattamuskeet N. W. Refuge

(9) Grain is stored at Pea Island field headquarters

(10) Remarks for training purposes

*See instructions on back.

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

(1) List each type of grain separately and specifically, as flint corn, yellow dent corn, square deal ~~hybrid corn, garnet wheat, red May wheat, durum wheat, spring wheat, proso millet, combine~~ milo, new era cowpeas, mikado soy beans, etc. Mere listing as corn, wheat, and soybeans will not suffice, as specific details are necessary in considering transfer of seed supplies to other refuges. Include only domestic grains; aquatic and other seeds will be listed on NR–9.

(3) Report all grain received during period from all sources, such as transfer, share cropping, or harvest from food patches.

(4) A total of columns 2 and 3.

(6) Column 4 less column 5.

(7) This is a proposed break-down by varieties of grain listed in column 6. Indicate if grain is suitable for seeding new crops.

(8) Nearest railroad station for shipping and receiving.

(9) Where stored on refuge: "Headquarters granary," etc.

(10) Indicate here the source of grain shipped in, destination of grain transferred, data on condition of grain, unusual uses proposed.

3-1761
Form NR-11
(2/46)

TIMBER REMOVAL

Refuge Pea Island Year 1956

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
Nothing to report.								

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

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

INT.-DUP. SEC., WASH., D.C.

M17266

3-1979 (NR-12)
(9/63)

Bureau of Sport Fisheries and Wildlife

ANNUAL REPORT OF PERSTICIDE APPLICATION

Refuge	
Proposal Number	Reporting Year

INSTRUCTIONS: Wildlife Refuges Manual, secs. 3252d, 3394b and 3395.

Date(s) of Application	List of Target Pest(s)	Location of Area Treated	Total Acres Treated	Chemical(s) Used	Total Amount of Chemical Applied	Application Rate	Carrier and Rate	Method of Application
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

10. Summary of results (continue on reverse side, if necessary)

(2) 6/17 First rainfall of 2.66. (2) [illegible]/20 first observation. (3) [illegible]/20 first effect noted. (4) leaf spot and stem twisting noted. (5) 7/1) [illegible]% apparent kill. (6) 8/20 [illegible]% apparent kill with no regrowth noted. (8) chemical cost $135.50, Labor $21.12, equipment $8.70, Total $[illegible].70, per acre cost $[illegible].77.