

Pea Island National Wildlife Refuge

Narrative Report

January 1 to December 31, 1965

Refuge Personnel

William C. Good
Houston C. Phillips
Marvin G. Toler
Mrs. Helene K. McGinnis

Refuge Manager
Biological Technician
Maintenanceman
Clerk-Typist (Intermittent)

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I. GENERAL

A. Weather Conditions.

The year 1965 has been one of severe drought. The Norfolk, Virginia, Weather Bureau reports the lack of rainfall to be the greatest for any year of record for this coastal area. The year started with a drought period that extended through May. Rainfall for June and July was excessive. A second drought period developed in August and extended through the end of the year. Rainfall for the year measured 39.38 inches and was 9.70 inches below normal.

There were no abnormal storms during the year. The area was subject to a number of Northeasters and Southwesters but no damage to the refuge resulted from these storms. The hurricane season passed with the threat of only one storm reaching the area.

Temperatures were normal with a high of 97 degrees and a low of 20 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	<u>Precipitation</u>			<u>Temperatures</u>	
	<u>This Mo.</u>	<u>Normal</u>	<u>Dev. from Normal</u>	<u>Max.</u>	<u>Min.</u>
Jan.	1.76	3.26	-1.50	64	20
Feb.	3.93	4.01	- .08	70	20
Mar.	2.26	4.03	-1.77	69	29
Apr.	2.57	2.29	+ .28	78	38
May	2.18	2.91	- .73	89	53
June	4.26	2.90	+1.36	91	54
July	9.40	4.36	+5.04	91	62
Aug.	5.66	7.21	-1.55	95	62
Sept.	3.11	6.96	-3.85	97	50
Oct.	2.27	4.80	-2.53	85	34
Nov.	.83	3.03	-2.20	72	36
Dec.	1.15	3.32	-2.17	69	27
Total	39.38	49.08	-9.70	Extremes 97	20

Rainfall for the year 1964 measured 55.94 inches.

B. Habitat Conditions.

1. Water

Pea Island contains two impoundments for the production of native foods. These ponds are dependant on rainfall for water and are maintained at or near a reading of 4.50 above sea level. We were able to maintain water within the ponds to support plant life until late August in spite of the spring drought. In late August portions of the pond floors became exposed and from September to year end the pond floors have had no water covering due to severe and extended drought conditions.

This severe lack of water has also hampered pumping of the new well at the headquarters site.

Staff gauge readings for both ponds follow with 1964 readings for comparative purposes:

Gauge Readings

	<u>North Pond</u>		<u>South Pond</u>	
	<u>1964</u>	<u>1965</u>	<u>1964</u>	<u>1965</u>
Jan.	4.14	4.20	4.42	4.46
Feb.	4.54	4.40	4.58	4.96
Mar.	4.42	4.50	4.50	4.56
Apr.	4.50	4.22	4.44	4.30
May	3.84	3.88	3.80	3.92
June	3.60	3.74	3.38	3.89
July	3.60	4.00	3.56	4.28
Aug.	3.40	3.66	3.74	3.58
Sept.	4.18	3.44	4.48	3.50
Oct.	4.52	3.54	4.62	3.28
Nov.	4.20	3.10	4.22	3.32
Dec.	4.46	3.24	4.28	3.36

Normal fluxuations of water levels in Pamlico Sound existed throughout the year and no extended turbulent water conditions developed on the sound shoals.

Water salinity tests to evaluate the sea water content of both ponds were 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	<u>North Pond</u>			<u>South Pond</u>		
	<u>North</u> <u>End</u>	<u>At Gauge</u>	<u>Gauge</u> <u>Reading</u>	<u>North</u> <u>End</u>	<u>On West</u> <u>Side</u>	<u>Gauge</u> <u>Reading</u>
1/15	4.97	5.12	4.18	4.81	4.46	4.16
2/5	4.66	4.81	4.32	5.43	5.28	4.40
3/11	4.66	3.88	5.74	3.88	4.60	4.58
4/9	4.81	4.38	4.44	4.19	4.38	4.40
5/12	4.81	4.66	4.20	4.50	4.35	4.08
6/18	5.43	5.12	3.98	5.28	4.66	3.86
7/22	6.21	4.66	3.74	4.97	3.88	3.92
8/26	6.68	6.21	3.68	5.12	4.66	3.68
9/22	9.73	8.69	3.24	8.69	6.99	3.30
10/21	9.94	10.25	3.52	8.23	6.83	3.28
11/15	12.42	10.72	3.18	10.56	10.10	3.22
12/13	12.42	11.18	2.88	11.65	11.35	3.36

These readings reflect severe drought conditions and the effect of concentrating water in the borrow ditches. Samples were taken from the borrow ditches for all tests.

2. Food and Cover

Heavy feeding and severe drought conditions prevented approximately 140 acres of common ryegrass from recovering for spring feeding needs. Principal feeding during this period was on shoal and widgeon grass in Pamlico Sound.

This fall approximately 240 acres were planted to common ryegrass but drought conditions prevented growth of a heavy stand. Heavy feeding on the ryegrass which was produced has reduced this food to only scattered clumps at the end of the year. Shoal grasses and widgeon grasses were undamaged by drought conditions and principal goose feeding is in Pamlico Sound on these grasses.

The impoundments produced good stands of aquatics even under spring drought conditions due to the fact that enough moisture remained in the pond floors to support growth. The second drought was so severe that much of this spring growth was lost by mid-September. Heavy feeding on the remaining vegetation has resulted in a near eat-out at the end of the year. The aquatics produced in these impoundments are sago pondweed, widgeon grass, redhead grass, wild celery, smart weed, marsh grass and wild millet.

The marsh areas produced light to moderate stands of American three-square, robust three-square, *Spartina alterniflora* and wild millet this season.

Beach Pea stands were light in production and were produced on the sand dunes and higher elevations in the wild pastures.

No artificial feeding has been required.

II. WILDLIFE

A. Migratory Birds.

1. Waterfowl

The total use day figures for waterfowl is 1,585,962 for the year 1965 as compared with 2,130,640 for the year 1964. This drop in use days reflects the severe drought conditions of 1965. The 1964 figure reflects use during a year with excess rainfall.

Production figures for 1965 show 95 young ducklings as compared to 171 for 1964. This reduction reflects the summer drought conditions as well.

Associated with the drought was an open fall for 1965, and a lowered population resulting from failure of the birds to winter-over in the refuge and neighboring areas.

2. Other Birds

There was a slight drop in marsh and water bird use for 1965 with an estimated 8,598 birds compared to 9,675 for 1964. Shore birds, gulls and terns show a three-fold increase with 31,848 for 1965 as compared to 10,100 for 1964. Use by doves was down with an estimated 90 for 1965 as compared to 250 for 1964. The predaceous bird use was up with an estimated use by 549 birds for 1965 as compared to 239 for 1964.

Marsh and water bird production figures were slightly down with a figure of 312 young produced for 1965 as compared to 400 for the year 1964. Pond elevations remained high enough during the nesting period to support this activity.

Use figures for these classes show the effects of the drought periods and the lack of severe storms.

B. Upland Game Birds

Ring-necked pheasants are the only resident upland game birds found on the refuge and are quite common to the area around both impoundments and along N. C. State Highway 12. These numbers remain fairly constant.

C. Big-Game Animals

Pea Island Refuge has no big game animals.

D. Fur Animals, Predators, Rodents and other Mammals

Muskrat, Otter, Mink and Nutria compose the refuge fur animal populations and all are small in number. No predation has been observed. An occasional feral cat has been seen in the neighborhood of the Coast Guard Station.

E. Hawks, Eagles, Owls, Crows, Ravens and Magpies

Hawks are often observed and are cold weather visitors. The Fish Crow is quite common to the area. We have observed no Eagles over the refuge. No predator pressure by hawks has been noted.

F. Other Birds

Paul W. Sykes Jr., graduate student at North Carolina State College, Raleigh, conducted frequent censuses of small birds on the refuge. He has added several new birds not shown on the refuge bird list but has not reported his findings since his study is not complete. Mr. Sykes is conducting this study under Permit No. 4-64-13 dated September 4, 1964.

G. Fish

No fishing is done on the refuge. Surf fishing at Oregon Inlet and along the Ocean front is carried out under the supervision of the National Park Service. Activity was heavy and good results were reported for the year. Sport fishing from the Marina at Bodie Island was very active with fair to good catches being reported.

H. Diseases

There is no indication of any diseases in any refuge population. An occasional Canada Goose has been recovered suffering from

lead poisoning. These birds use the Bodie Island hunting area and then return to the refuge.

III. REFUGE DEVELOPMENT & MAINTENANCE

A. Physical Development

The shop-office building, oil storage building, fertilizer storage building, residence and water system were completed by H. A. Hodgkin & Sons, Greensboro, N.C. and turned over to the refuge on July 1.

Dike construction under Job No. 6003 was started on October 13 with establishment of the center line. Dragline rental under contract No. 14-16-0004-14, provided for the rental of two 3/4 cu. yd. draglines and a D7 tractor with operators for construction of the dike. This equipment started operating on October 21 and completed 200 ft. of new dike by December 31 with additional work at the 2000 ft. mark.

Field renovation work under Job No. 6029 consisted of double cutting 200 acres of brush and marsh land. This work was done by a four man team from Mattamuskeet Refuge using 10 ft. bush and bog plows with suitable tractor units. Work was started on August 16 and stopped on September 3. Upon completion of the dike system, this discing operation will be resumed. Information on tide gates, culvert material and installation was obtained and installation will be completed upon receipt of drawings from the Branch of Engineering, Atlanta.

A survey for a 34.5 K. V. W. powerline was completed by Cape Hatteras Electric Membership Corp., Buxton, N.C. relative to a new highline. The membership has made application to E. L. M. for the necessary right-of-way.

Plans for dune relocation work at Mile Post 9 were submitted by the Eastern Office of Design & Construction, National Park Service, Philadelphia, to the Regional Office, Atlanta, for review and have now been returned to E.C.D.C. relative to minor changes in the plans.

Banding, building maintenance, fire line plowing, equipment repairs, cattail spraying, farming and dike maintenance rounded out the development and maintenance program.

B. Plantings

1. Aquatics and Marsh Plants

No plantings were made.

2. Trees and Shrubs

No plantings made.

3. Upland Herbaceous Plants

No plantings made.

4. Cultivated Crops

Cultivated crops are limited to common ryegrass plantings. Approximately 240 acres were planted in September on old fields and a newly plowed marsh area in the field re-conversion area. 10-20-20 fertilizer was applied at planting time and granular ammonium nitrate was used to top dress these pastures. Drought and heavy usage prevented a heavy growth of these pastures.

C. Collections and Receipts

180 bushels of hybrid corn was received from Mattamuskeet Refuge for use in the trapping program.

D. Control of Vegetation

Spot treatment of typha domingensis and t. angustifolia in both ponds was carried out in mid-July. Ten acres were treated at 18.5 lbs. acid equivalent per acre at a cost of \$128.10. Dalapon was used for this purpose.

E. Planned Burning

No burning accomplished. Duff was removed by previous year's activities and new growth was not heavy enough to support a burning program.

F. Fires

A Class A (approximately 50 ft. by 50 ft.) grass fire on the shoulder of the south dike of the North Pond in the vicinity of the over-look was controlled by National Park

Service Rangers on October 30. The fire was reported by the National Park Service. The cause was reported to be smoking by visitors to the over-look.

Severe drought conditions have created serious fire hazard conditions throughout most of the year on much of the refuge. We are fortunate to have had only one small fire for this reporting period in view of the severe drought conditions.

IV. RESOURCES MANAGEMENT

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

Real Property No. 8, Residence, and Real Property No. 9, Kitchen and Mess Hall, Tract No. 24, were sold in accordance with Public Law 152, 81st Congress. The residence was sold for \$750.00 and the kitchen and mess hall for \$150.00 on September 15 to W. W. Harvey, Jr., M.D., Wanteo, N.C.

V. FIELD INVESTIGATION ON APPLIED RESEARCH

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

Two clutches of 19 gadwall eggs were collected and shipped to Biologist John Lynch, Lafayette, La. for investigative purposes.

Five wire enclosures were constructed and placed in both ponds, on the goose pasture, in the marsh used by geese and on Beach Pea used by geese. The purpose of the enclosures is to determine the degree of utilization of specific plants and limiting factors to vegetation production.

Inspections of both impoundments were made by Regional Office personnel with reference to food production, sea salting the other factors.

VI. PUBLIC RELATIONS

A. Recreational Uses

Recreational uses include sightseeing, wildlife observation, photography, surf fishing and beach combing.

There were 826 registered visitors who called at the refuge field office. They came from Alabama, California, Colorado, Connecticut, Delaware, District of Columbia, Florida, Georgia, Illinois, Indiana, Iowa, Kansas, Kentucky, Maryland, Massachusetts, Michigan, Minnesota, New Jersey, New York, North Carolina, Ohio, Oklahoma, Pennsylvania, Rhode Island, South Carolina, South Dakota, Tennessee, Vermont, Virginia, Washington, West Virginia and Wisconsin. Foreign visitors came from Canada, Scotland, England and Italy.

The Public Use Report for Cape Hatteras National Seashore shows 1,089,263 total visits and 1,459,031 total visitor days for the year 1965. The report for 1964 shows 1,070,535 total visits and 1,390,321 total visitor days.

B. Refuge Visitors - Official

<u>Date</u>	<u>Purpose</u>	<u>Name and Organization</u>	<u>Address</u>
1/5	VT	James H. Roberts, USFWS	Hopewell, Va.
	VT	Raymond P. McFarland, USFWS	Hopewell, Va.
1/25	I	John McKinney, The Progressive Farmer	Birmingham, Ala.
3/5	VT	W.A. Morris, Dept. of Lands & Forests	Toronto, Ont.
3/18	SM	R.E. Hanes, N.C. State College	Manteo, N.C.
3/26	V	Vernon D. Cunningham, USFWS	Raleigh, N.C.
4/6	Cl	Carl W. Fermanich, USFWS	Washington, D.C.
	Cl	Robert Ballou, USFWS	Washington, D.C.
4/13	VT	Eugene Shelar, So. Conn. State College	New Haven, Conn.
	VT	Chester J. Bosworth, "	New Haven, Conn.
	VT	Charles Steinmetz, Jr., "	New Haven, Conn.
4/21	VT	John A. Gustafson, State Univ. of New York	Cortland, N.Y.
	VT	John Songdahl, "	Cortland, N.Y.
	VT	Peter Usefer, "	Cortland, N.Y.
5/7	VT	Mr. & Mrs. H. Lee Ferguson, Natl. Audubon Society	Fisher's Island, N.Y.

<u>Date</u>	<u>Purpose</u>	<u>Name and Organization</u>	<u>Address</u>
5/7	VT	Mr. & Mrs. Edward A. Mathieson, Natl. Audubon Society	Stamford, Conn.
5/17-19	CI	Donald R. Ambrosen, USFWS	Virginia Beach, Va.
	CI	Preston W. Lane, USFWS	Hardeeville, S.C.
	CI	Charles F. Noble, USFWS	Chincoteague, Va.
	CI	Earl F. Johnson, USFWS	McClellanville, S.C.
	CI	Robert Prescott, USFWS	New Holland, N.C.
5/24	CI	C. J. Lanford, USFWS	Atlanta, Ga.
	CI	R. R. Rudolph, USFWS	Atlanta, Ga.
6/9	BC	H. R. Lawson, USFWS	Atlanta, Ga.
	BC	Billy F. Horton, USFWS	Atlanta, Ga.
6/16	VT	Mr. & Mrs. Wm. T. Beeson, Standard Oil Co.	Lima, Ohio
6/21-30	VT	Rev. Roch C. Raible, St. Fidelis College	Herman, Penna.
6/25	V	Dr. & Mrs. H. M. H. Kimball	Melfa, Va.
6/25	VT	Dr. John Burger, Columbia Univ.	New York, N.Y.
6/25	V	Dr. & Mrs. James Sansing, Hercules Powder Co.	Hopewell, Va.
6/28	V	Mr. & Mrs. Allan F. Goldsmith, N.J. School of Conserv.	Brandsville, N.J.
7/22	CI	C. J. Lanford, USFWS	Atlanta, Ga.
	CI	E. M. Smith, USFWS	Atlanta, Ga.
7/29	CI	L. S. Givens, USFWS	Atlanta, Ga.
8/1	CI	Sumner Dow, USFWS	Hardeeville, S.C.
8/17	SM	Charles F. Noble, USFWS	Chincoteague, Va.
	SM	Harry Weßsell, USFWS	Chincoteague, Va.
10/13	CI	E. M. Smith, USFWS	Atlanta, Ga.
	CI	Wm. R. Taft, USFWS	Atlanta, Ga.
10/21	CI	Victor W. Kay, USFWS	Atlanta, Ga.
	C	Granville G. Wyrick, USGS	Raleigh, N.C.
	C	O. Bruce Lloyd, Jr., USGS	Raleigh, N.C.
	C	Alfred Vick, III, N.P.S.	Richmond, Va.
11/24	C	Ed Nash, N.P.S.	Philadelphia, Pa.
12/8	CI	Robert W. Young, USFWS	Atlanta, Ga.

Visitation Coding is as follows:

- I - Information
- SM - Soil & Moisture
- BC - Building Construction
- VT - Visitation and Tour of Refuge
- V - Visitation
- CI - Conference and Inspection
- C - Cooperation

C. Refuge Participation

The refuge manager accompanied by Superintendent Gilbert, N.P.S. conducted a tour of the refuge on April 16 for public land officials from Columbia, Turkey, England, Bolivia, Argentina, Peru, Guatemala, Zambia, Canada, Australia, Ecuador, Haiti, Costa Rica and Kenya. These people were guests of the National Park Service and were taking part in a short course relative to establishment, management and operation of National Parks and equivalent reserves.

The refuge manager was host to Refuge Managers Ambrosen, Johnson, Lane, Noble and Prescott from May 18-19. We were guests of the National Park Service in connection with an informal seminar on Coastal Processes and Shore Erosion. Dr. Robert Dolan, Louisiana State University, Baton Rouge, Louisiana and Dr. James Roberts, Meteorology Research, Inc., Altadena, California were speakers and leaders. In attendance were personnel from the following organizations: Fish & Wildlife Service, National Park Service, Navy Department, N.C. State University, USDA Soil Conservation Service, Dare County Extension Service and Dare County Beach Erosion Board.

The Refuge Manager conducted The Biology Club, Southern Connecticut State College, New Haven, Connecticut, on a tour of the refuge on April 13. There were 12 students and 3 adult leaders in the party.

The refuge set up a cannon net trap operation for demonstration to Boy Scouts from the Hampton Roads area of Virginia on May 21 on a Camporee at the National Seashore.

The Refuge Manager addressed the PASQUOTANK Wildlife Club in Elizabeth City, North Carolina on October 6. The color film "Islands of Waterbirds" dealing with Pea Island and the National Seashore was shown to 15 members of the club.

D. Hunting

The National Park Service operates a managed hunt area three miles north of the refuge and therefore there is no hunting on the refuge. Use figures are not yet available from N.P.S.

E. Violations

The following are violation cases for the year:

- (1) January 1, Henry Earl Holden, Jr., trespass •
January 28, pleaded guilty before U. S. Commissioner
L. T. Gallop, Elizabeth City, North Carolina, Fined
\$20.00. Refuge Manager Good and Game Management
Agent Ross cooperating.

- (2) January 1, Walter Joseph Holden, Trespass.
January 28, pleaded guilty before U.S. Commissioner L. T. Gallop, Elizabeth City, N.C. Fined \$20.00. Refuge Manager Good and Game Management Agent Ross cooperating.
- (3) January 1, Harry Adams, hunting on refuge.
January 7, pleaded guilty before U.S. Commissioner L. T. Gallop, Elizabeth City, N.C. Fined \$25.00. Game Management Agents Ross and Carter, Refuge Manager Good, N.P.S. Ranger Baum and N.C. Wildlife Protector Foster Forbes cooperating.
- (4) January 1, Charles Jack Capps, possession and transportation of unlawfully taken game, taken on refuge by Harry Adams.
January 7, pleaded guilty before U.S. Commissioner L. T. Gallop, Elizabeth City, N.C. Fined \$75.00, \$50.00 suspended, 30 days probation. Game Management Agents Ross and Carter, Refuge Manager Good, N.P.S. Ranger Baum and N.C. Wildlife Protector Foster Forbes cooperating.
- (5) January 1, Steve Widgett, possession and transportation of unlawfully taken game, taken on refuge by Harry Adams.
January 7, pleaded guilty before U.S. Commissioner L. T. Gallop, Elizabeth City, N.C. Fined \$75.00, \$50.00 suspended, 30 days probation. Game Management Agents Ross and Carter, Refuge Manager Good, N.P.S. Ranger Baum and N.C. Wildlife Protector Foster Forbes cooperating.

Mr. Capps and Mr. Widgett impersonated State Wildlife officers and by so doing were subject to state statutes.

F. Safety

Monthly Safety Meetings were held at the Field Headquarters. Discussion leader and subjects covered were:

<u>Date</u>	<u>Leader</u>	<u>Subject</u>
Jan. 28	Mr. Phillips	Safe handling of cannon net mortars
Feb. 26	Mr. Good	Accident action & reporting procedure
Mar. 19	Mr. Good	Carbon monoxide poisoning
Apr. 30	Mr. Toler	Safety lenses for glasses

May 28	Mr. Good	Motor Vehicle Accident & Disability Injury Rates
June 28	Mr. Good	National Safe Boating Week
July 30	Mr. Good	Safe operation of bulldozers and tractors in soft sand
Aug. 20	Mr. Good	Commissioner's Accident Control Report CY 1964
Sept. 27	Mr. Good	Region 4 Safety Release No. 33
Oct. 27	Mr. Good	Winter Driving - Message No. 65-5
Nov. 12	Mr. Good	Motor Vehicle Accidents & Disabling Injury Rates
Dec. 27	Mr. Good	Review of Cannon Net Trap operations

There were no accidents during the year. Approximately 46,474 man hours have been worked since the last lost time accident which occurred on January 21, 1959. We have worked approximately 2,842 calendar days since this accident.

Hard hats, gloves, storm suits and boots were purchased during the year for use by station personnel.

VII. OTHER ITEMS

A. Items of Interest

Mrs. Gloria D. Landino was terminated as Clerk, temporary intermittent on April 23, and was replaced by Mrs. Helene K. McGinnis on April 30. Mr. Ward W. Daniels, Construction Representative was transferred to WAPANOCCA, N.W. Refuge, Turrell, Arkansas in July upon completion of the new buildings.

Daniel H. Elliot was employed during the summer vacation under the Youth Opportunity Act.

Luther D. Midgett was employed as laborer during the fall on a SF50A appointment.

There have been several accidents during the year in which refuge personnel assisted other agencies. These are:

James P. Thompson, 35 and Barbara Thompson, 8 of Richmond, Va. drowned in the turning basin at the Oregon Inlet Coast Guard Station on July 10. U.S. Coast Guard and National Park Service personnel were assisted by Refuge Manager Good and Maintencemman Toler in searching for the bodies. Recovery was made on July 12 by Coast Guard personnel.

Maintencemman Toler and student Dan Elliot on July 22 gave first aid to a motorist injured on the highway near the Refuge

field office. They then directed traffic until relieved by the N.C. Highway Patrol.

Mr. Toler and Mr. Good attended the monthly meetings of the Dare County Peace Officers Association. Mr. Good served as Treasurer for the year 1965. The association is composed of law enforcement officers from the following organizations:

Fish & Wildlife Service, National Park Service, N.C. Highway Patrol, N.C. Wildlife Resources Commission, N.C. Conservation and Development, N.C. Forest Service, N.C. Alcoholic Beverage Control Board, Dare County Sheriff's Office, Manteo Police Department, Nags Head Police Department, Kitty Hawk Police Department.

Oscar A. Sklund, 66, Washington, D.C. died of a heart attack on October 21 while fishing on the Oregon Inlet Bridge. Refuge Manager Good assisted Chief E. L. Ferry, Oregon Inlet Coast Guard Station, with details relative to this death.

A conference was held February 5 by Manager Good of Fish & Wildlife Service, Assistant Superintendent Rundell of National Park Service, and Messers. Booth and Gray of Cape Hatteras Electric Membership Corp., Buxton, relative to proposed r/w for power lines from Oregon Inlet to Rodanthe over refuge lands.

On February 9 a meeting was held with Manager Good of Fish & Wildlife Service, Superintendent Gilbert and Mr. McCinnis of National Park Service and Messers. Patrick and Hofler of N.C. State Highway Commission relative to relocation of N.C. Highway 12 and the associated outer sand dune system at Mile Post 9.

Refuge Manager Good and N.P.S. Superintendent Karl T. Gilbert attended a conference of N.P.S. and F. & W. S. personnel in the Atlanta Regional office on March 16 relative to a memorandum of agreement between the services concerning mutual problems of management of Pea Island N.W. Refuge.

Refuge Manager Good and Maintenceman Toler enrolled in a 120 hour Basic Peace Officer's Training course on October 13. The course is sponsored by the Vocational-Technical Division, N.C. Department of Community Colleges, Raleigh, N.C. The class meets twice weekly for three hours each night and terminates on March 10, 1966.

B. Photographs

Photographs for the year follow the signatures.

C. Signature

Date completed January 25, 1966.

Respectfully submitted,

William C. Good
William C. Good, Refuge Manager

Approval:

(sgd) Victor W. Kay

Acting Regional Supervisor

FEB 8 1966

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

WATERFOWL

REFUGE Pea Island

MONTHS OF January 1 TO April 30, 19 65

(1) Species	(2) Weeks of reporting period									
	1	2	3	4	5	6	7	8	9	10
<u>Swans:</u>										
Whistling	570	575	196	265	63	155	63	18	24	11
Trumpeter										
<u>Geese:</u>										
Canada	3931	3985	3474	2354	1861	2170	3131	2088	1395	1523
Cackling										
Brant										
White-fronted	751	865	680	223	697	68	154	135	99	44
Snow	1	5		2	4					
Blue										
Other										
<u>Ducks:</u>										
Mallard	110	120	14	6	2	3	4	4	5	1
Black	463	485	475	320	276	270	235	315	174	79
Gadwall										163
Baldpate	385	365	240	129		1	184	140	114	267
Pintail	335	330	340	218	136	75	10	60	4	1
Green-winged teal	285	265	365	385	410	725	1280	1270	290	710
Blue-winged teal										
Cinnamon teal										
Shoveler	20	20	14	71	38	13		63	50	140
Wood										
Redhead	1800	1850	840	390	250					
Ring-necked										
Canvasback	90	95	20	5						
Scaup	60	65	70	96	40	150	65	40	68	10
Goldeneye						2			1	
Bufflehead	130	135	60	110	35	180	28	30	36	201
Ruddy	25	25	60	10	30					
Other										
<u>Coot:</u>	357	485	370	404	335	258	319	285	158	217

Int. Dup. Sec.,



3 -1750a

Cont. NR-1

(Rev. March 1953)

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

REFUGE

Pea Island

MONTHS OF

January 1

TO

April 30, 1965

(1) Species	(2) Weeks of reporting period								(3) Estimated waterfowl days use	(4) Production Broods: Estimated seen : total	
	11	12	13	14	15	16	17	18			
Swans:									16,212		
Whistling Trumpeter											
Geese:									213,143		
Canada	893	970	685	859	479	340	293				
Cackling Brant											
White-fronted Snow	40	30	6	6		5	15		26,726		
Blue Other			1	1		1			105		
Ducks:											
Mallard					5				1,918		
Black	225	220	231	363	76	140	41		30,716		
Gadwall	55	81	74	135	27	181	48		5,348		
Baldpate	50	75	62						14,084		
Pintail									10,563		
Green-winged teal	570	530	424	335	115	155	65		57,253		
Blue-winged teal	10	70	6	43	1	46	10		1,302		
Cinnamon teal											
Shoveler	80	85	107	5	20				6,384		
Wood Redhead									35,910		
Ring-necked Canvasback									1,470		
Scaup	3	5							4,704		
Goldeneye									21		
Bufflehead	25	27		4	6				7,049		
Ruddy Other Unidentified									1,050		
					148				1,036		
Coot:	207	190	141	25	300	324	67		31,080		

(over)

	(5)	(6)	(7)
	Total Days Use	Peak Number	Total Production
Swans	16,212	575	
Geese	239,974	4855	
Ducks	178,804	3755	
Coots	31,080	485	

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).

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

W A T E R F O W L

REFUGE Pea Island

MONTHS OF May 1 TO August 31, 19 65

(2)

Weeks of reporting period

(1) Species	(2) Weeks of reporting period									
	5/1-8	5/8-15	5/15-22	5/22-29	5/29-6/5	6/5-12	6/12-19	6/19-26	6/26-7/3	7/3-10
	1	2	3	4	5	6	7	8	9	10
Swans:										
Whistling	1	1	1	1	1	1	1	1	1	1
Trumpeter										
Geese:										
Canada	122	104	79	35	5	4	5	4	4	4
Cackling										
Brant										
White-fronted										
Snow	4	4								
Blue										
Other										
Ducks:										
Mallard	26									
Black	66	31	12	29	28	28	21	21	22	26
Gadwall	52	37	51	38	40	42	45	73	71	74
Baldpate										
Pintail										
Green-winged teal										
Blue-winged teal	5	3	3	5	4	5	5	5	4	2
Cinnamon teal										
Shoveler										
Wood										
Redhead										
Ring-necked										
Canvasback										
Scaup										
Goldeneye										
Bufflehead										
Ruddy										
Other										
Coot:	53	26	2	2	4	2	2	2	2	4



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

WATERFOWL
 (Continuation Sheet)

REFUGE Pea Island

MONTHS OF July TO August, 1965

(1) Species	(2) Weeks of reporting period								(3) Estimated waterfowl days use	(4) Production: Broods: Estimated seen: total	
	7/10-17	7/17-24	7/24-31	7/31-8/7	8/7-14	8/14-21	8/21-28	18			
<u>Swans:</u>											
Whistling	1	1	1	1	1	1	1	1	126		
Trumpeter											
<u>Geese:</u>											
Canada	5	4	4	4	4	2	2	2	2,751		
Cackling											
Brant											
White-fronted											
Snow									32		
Blue											
Other											
<u>Ducks:</u>											
Mallard									182		
Black	24	23	24	24	23	24	21	21	3,172	3	15
Gadwall	56	52	74	55	73	73	75	73	2,633	11	20
Baldpate											
Pintail											
Green-winged teal											
Blue-winged teal	3	4	4	3	5	4	5	5	425		
Cinnamon teal											
Shoveler											
Wood											
Redhead											
Ring-necked											
Canvasback											
Scaup											
Goldeneye											
Bufflehead											
Ruddy											
Other											
<u>Coot:</u>	4	2	2	2	2	2	2	2	1,311		
					(Over)						

	(5)	(6)	(7)
	Total Days Use	Peak Number	Total Production
Swans	<u>126</u>	<u>1</u>	
Geese	<u>2783</u>	<u>128</u>	
Ducks	<u>12,782</u>	<u>126</u>	<u>95</u>
Coots	<u>1,344</u>	<u>53</u>	

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. Godd
 William C. Godd, 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).

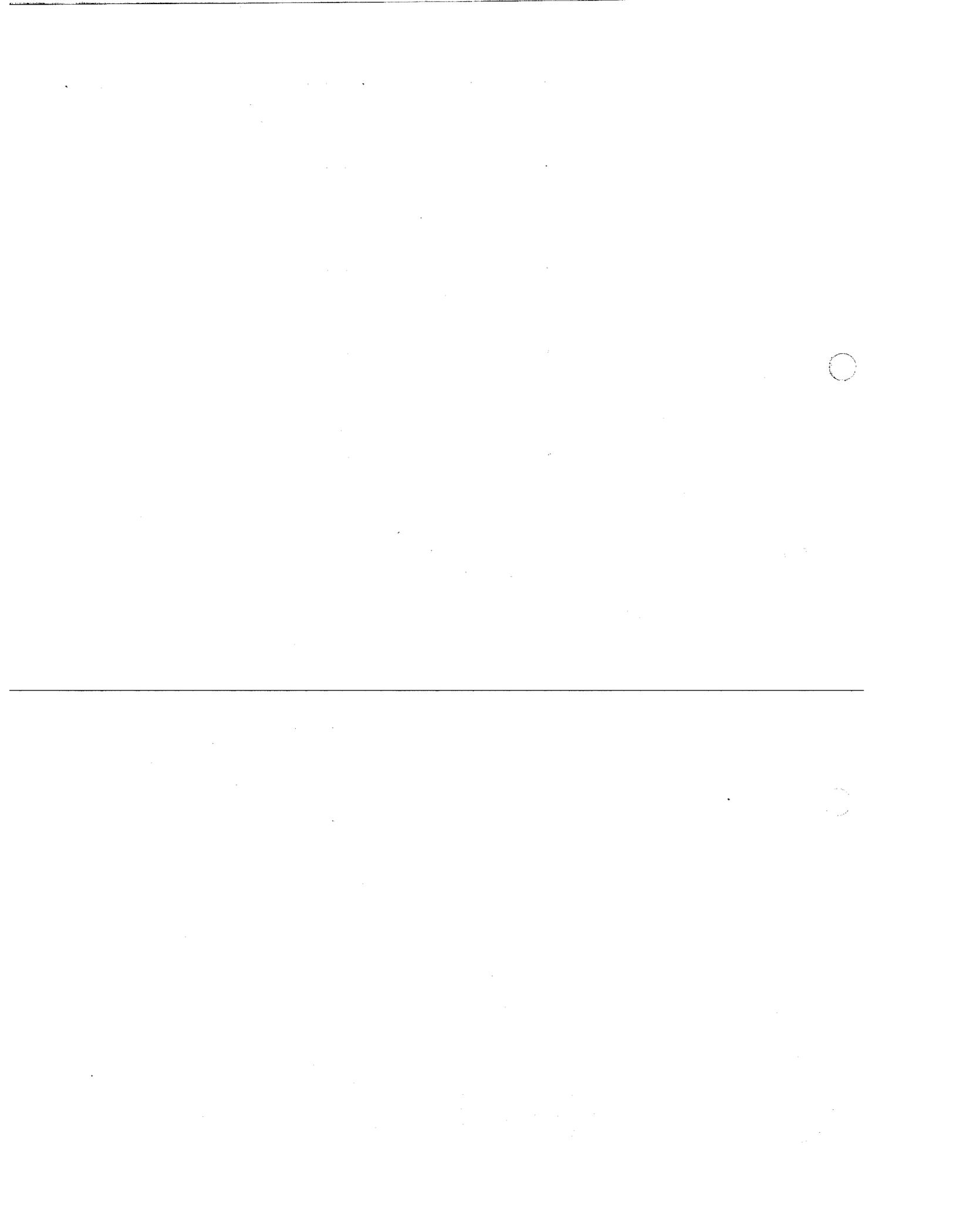
3-1750
Form NR-1
(Rev. March 1953)

W A T E R F O W L

REFUGE Pea Island

MONTHS OF September 1 TO December 31, 1965

(1) Species	(2) Weeks of reporting period									
	1	2	3	4	5	6	7	8	9	10
Swans:										
Whistling Trumpeter		1	1	1	1	1	1	1	37	275
Geese:										
Canada		2	2			1,350	2,550	1,250	2,165	2,010
Cackling Brant										
White-fronted Snow							250	25	125	2,971
Blue									2	37
Other										
Ducks:										
Mallard							15	60	13	37
Black			85	63	64	135	250	385	230	210
Gadwall				3		185	165	165		1,015
Baldpate	3	400	350		367	3,250	2,295	8,295	3,350	
Pintail	35	1,200	1,400	760		1,550	1,380	7,750	5,010	1,905
Green-winged teal			65		800	250	150	125	900	1,500
Blue-winged teal	900	3,000	3,065	1,267	615	150	25	35	20	
Cinnamon teal										
Shoveler										
Wood										
Redhead										
Ring-necked										
Canvasback										
Scaup										6
Goldeneye										
Bufflehead										
Ruddy				3				6		910
Other, Surf Scoter										2
Coot				6	18	35	350	1,195	200	1,410



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

WATERFOWL
 (Continuation Sheet)

REFUGE

MONTHS OF September 1 TO December 31, 1965

(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	28	272	233	73	45	80	12	15	7,389		
Trumpeter											
Geese:											
Canada	2,950	2,900	3,400	2,950	3,000	3,000	3,058	2,577	239,358		
Cackling											
Brant											
White-fronted											
Snow	3,000	3,185	3,160	930	1,000	2,500	1,118	687	134,960		
Blue	5	4	11	1	2	10	1	2	553		
Other											
Ducks:											
Mallard	25	36	30	32	35	10	16	14	2,471		
Black	130	134	134	320	300	100	466	389	23,975		
Gadwall							26	16	32,025		
Baldpate	2,580	2,580	1,180	210	200	150	115	112	177,499		
Pintail	4,450	1,025	1,295	465	500	275	947	1,123	238,630		
Green-winged teal	2,500	2,310	845	1,400	750	200	1,120	831	9,642		
Blue-winged teal				20	10	35			63,994		
Cinnamon teal											
Shoveler						10	23		231		
Wood											
Redhead											
Ring-necked	775	750	510	80	100	50		30	14,065		
Canvasback		3					1		28		
Scaup			47	7	10	50		160	1,960		
Goldeneye											
Bufflehead		15	27	35	50	30	390	170	4,977		
Ruddy		11	21	20	10	20	29		7,120		
Other Surf Scoter								6	56		
Coot:	1,450	464	610	280	150	100	204	160	54,124		
					(Over)						

	(5)	(6)	(7)
	Total Days Use	Peak Number	Total Production
Swans	<u>7,859</u>	<u>272</u>	
Geese	<u>374,871</u>	<u>6,571</u>	
Ducks	<u>665,973</u>	<u>10,480</u>	
Coots	<u>54,124</u>	<u>1,195</u>	

SUMMARY

Principal feeding areas Entire Refuge, Pamlico Sound shoals, fresh water impoundments, salt marshes, sand dunes and rye-grass fields.

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).

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

MIGRATORY BIRDS
(Other than Waterfowl)

Refuge Sea Island Months of January 1 to April 30 1965

(1) Species Common Name	(2) First Seen		(3) Peak Concentration		(4) Last Seen		(5) Production			(6) Total
	Number	Date	Number	Inclusive Dates	Number	Date	Number Colonies	Total # Nests	Total Young	Estimated Use
I. <u>Water and Marsh Birds:</u>										
Great Blue Heron	2	1/26	2	1/26	2	1/26				10
Little Blue Heron	3	4/22	3	4/22	3	4/22				20
Louisiana Heron	6	1/26	20	4/22	20	4/22				125
Black-crowned Night Heron	4	1/26	43	4/22	43	4/22				150
Common Egret	2	3/25	15	4/22	15	4/22				75
Snowy Egret	6	1/26	24	4/22	24	4/22				50
Glossy Ibis	1	2/17	12	3/25	12	3/25				25
White Ibis	1	2/17	1	2/17	1	2/17				5
Common Loon	20	4/22	20	4/22	20	4/22				100
Double-crested Cormorant	1500	3/25	25	4/22	25	4/22				5000
Black Skimmer	6	4/22	6	4/22	6	4/22				500
Gannet	125	3/25	125	3/25	125	3/25				500
American Bittern	12	1/26	15	2/17	15	2/17				25
II. <u>Shorebirds, Gulls, and Terns:</u>										
Royal Tern	7	3/25	35	4/22	35	4/22				75
Least Tern	23	4/22	23	4/22	23	4/22				100
Herring Gull	1600	1/26	1600	1/26	535	4/22				2500
Ring-billed Gull	500	1/26	500	1/26	300	2/17				1500
Laughing Gull	30	1/26	160	2/17	85	4/22				250
Black-backed Gull	25	1/26	40	2/17	8	3/25				150
Willet	24	4/22	24	4/22	24	4/22				200
Black-necked Stilt	4	4/22	4	4/22	4	4/22				25
American Avocet	4	2/17	43	4/22	43	4/22				75
Oyster Catcher	4	4/22	4	4/22	4	4/22				20
Yellowlegs, Great & Less	20	2/17	41	4/22	41	4/22				200
Sandpipers, All Spec.	600	2/17	1800	4/22	1800	4/22				4000

(over)

	(1)	(2)	(3)	(4)	(5)	(6)	
III. <u>Doves and Pigeons:</u>							
Mourning dove	6	1/26	6	1/26	2	3/25	20
White-winged dove							
IV. <u>Predaceous Birds:</u>							
Golden eagle							
Duck hawk	1	1/26	1	1/26	1	1/26	4
Horned owl	2	1/26	2	1/26	1	2/17	4
Magpie							
Raven							
Crow (fish)	6	2/17	23	4/22	23	4/22	50
Sparrow Hawk	8	1/26	8	1/26	2	2/17	10
Marsh Hawk	2	1/26	6	2/17	3	3/25	20
Pigeon Hawk	1	2/17	1	2/17	1	2/17	2

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 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 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 Pea Island

Months of

May 1

to

August 31

19 65

(1) Species Common Name	(2) First Seen		(3) Peak Concentration Inclusive		(4) Last Seen		(5) Production			(6) Total Estimated Use
	Number	Date	Number	Dates	Number	Date	Number Colonies	Total # Nests	Total Young	
I. <u>Water and Marsh Birds:</u>										
Little Blue Heron	44	5/20	45	6/25	5	8/26	1	4	12	60
Louisiana Heron	88	5/20	101	6/25	19	8/26	1	30	80	140
Black-crowned Night Heron	43	5/20	43	5/20	7	7/22				50
Great Blue Heron	3	5/20	3	5/20	3	8/26				10
Common Egret	49	5/20	53	6/25	17	8/26	1	10	20	60
Snowy Egret	102	5/20	121	6/25	30	8/26	1	20	80	130
Glossy Ibis	108	8/20	120	6/25	120	6/25	1	30	120	160
Wood Ibis	1	6/25	1	6/25	1	6/25				1
Black Skimmer	1	5/20	120	8/26	120	8/26				140
Black-bellied Plover	48	5/20	48	5/20	48	5/20				50
II. <u>Shorebirds, Gulls, and Terns:</u>										
Black Tern	6	6/25	14	8/26	14	8/26				25
Common Tern	54	7/22	54	7/22	54	7/22				200
Royal Tern	5	5/20	41	7/22	33	8/26				50
Least Tern	2	5/20	28	8/26	28	8/26				75
Laughing Gull	58	5/20	254	6/25	110	8/26				350
Willet	5	5/20	56	6/25	1	7/22				300
Black-necked Stilt	9	5/20	9	5/20	7	6/25				50
American Avocet	9	6/25	9	6/25	5	7/22				50
Oyster Catcher	1	5/20	2	6/25	2	8/26				10
Yellowlegs, Gt. & Less	2	7/22	10	8/26	10	8/26				50
Sandpipers, All spec.	3000	5/20	3000	5/20	500	8/26				3500

(over)

	(1)	(2)	(3)	(4)	(5)	(6)	
III. <u>Doves and Pigeons:</u>							
Mourning dove	2	7/22	2	7/22	2	7/22	20
White-winged dove							
IV. <u>Predaceous Birds:</u>							
Golden eagle	1	5/20	1	5/20	1	5/20	2
Duck hawk							
Horned owl							
Magpie							
Raven							
Crow	18	5/20	49	6/25	6	8/26	60
Osprey	1	5/20	1	5/20	1	5/20	2
Night Hawk	1	5/20	1	6/25	1	6/25	2

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 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 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)
Months of **September 1**

Refuge Pea Island

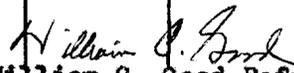
to **December 31**

19**65**

(1) Species Common Name	(2) First Seen		(3) Peak Concentration		(4) Last Seen		(5) Production			(6) Total
	Number	Date	Number	Inclusive Dates	Number	Date	Number Colonies	Total # Nests	Total Young	Estimated Use
I. <u>Water and Marsh Birds:</u>										
Little Blue Heron	25	9/23	25	9/23	25	9/23				150
Louisiana Heron	65	9/23	65	9/23	1	11/26				300
Black-crowned Night Heron	5	9/23	5	9/23	5	9/23				50
Great Blue Heron	4	9/23	6	10/22	1	12/22				50
Common Egret	45	9/23	45	9/23	4	12/22				150
Snowy Egret	375	9/23	375	9/23	3	12/22				500
American Bittern	1	11/26	1	11/26	1	11/26				10
II. <u>Shorebirds, Gulls, and Terns:</u>										
Common Tern	20	9/23	20	9/23	20	9/23				40
Royal Tern	1	10/22	1	10/22	1	10/22				10
Least Tern	6	9/23	6	9/23	6	9/23				40
Black Skimmer	600	10/22	600	10/22	600	10/22				1,000
Herring Gull	189	10/22	3,830	11/26	579	12/22				5,000
Great Black-backed Gull	46	10/22	96	11/26	90	12/22				200
Laughing Gull	30	9/23	412	11/26	117	12/22				1,000
American Avocet	22	9/23	96	11/26	24	12/22				300
Yellowlegs, Gt & Less	125	9/23	215	10/22	30	12/22				500
Sandpipers, All Spec.	600	9/23	6,550	11/22	300	12/22				10,000

(over)

	(1)	(2)	(3)	(4)	(5)	(6)
III. <u>Doves and Pigeons:</u>						
Mourning dove	30	9/23	30	9/23	2	12/22
White-winged dove						50
IV. <u>Predaceous Birds:</u>						
Golden eagle						
Duck hawk	1	9/23	2	10/22	1	12/22
Horned owl						10
Magpie						
Raven						
Crow, fish	125	9/23	125	9/23	125	9/23
Osprey	2	9/23	2	10/23	2	10/22
Marsh Hawk	3	9/23	3	9/23	1	12/22
Sparrow Hawk	15	9/23	15	9/23	1	12/22
Pidgeon Hawk	35	9/23	35	9/23	2	12/22


 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 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 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.

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, 1965

Reported by William C. Good Title Refuge Manager

(1) Area or Unit Designation	(2) Habitat			(3) Use-days	(4) Breeding Population	(5) Production
	Type	Acreage				
Unit 1.	Crops	70	Ducks	556,211		
All unimpounded area from New Inlet north to Oregon Inlet	Upland	522	Geese	114,950		
	Marsh	2,664	Swans			
	Water	16,000	Coots			
	Total	19,256	Total	671,161		
Unit 2.	Crops	68	Ducks	104,650	40	40
Pool No. 2 (North Pond) An Impoundment	Upland	98	Geese	213,218		
	Marsh	70	Swans	43,292		
	Water	400	Coots	77,229		
	Total	636	Total	438,389		
Unit 3	Crops	12	Ducks	40,047	48	35
Pool No. 1 (South Pond) An Impoundment	Upland	38	Geese	164,305		
	Marsh	145	Swans	21,547		
	Water	180	Coots	38,514		
	Total	375	Total	264,413		
Unit 4.	Crops		Ducks	316,809		
All unimpounded area from New Inlet to the South boundary.	Upland	339	Geese	134,073		
	Marsh	1,216	Swans			
	Water	9,700	Coots			
	Total	11,255	Total	450,882		
Sub-totals for the refuge.	Crops	150	Ducks	1,017,717		
	Upland	997	Geese	626,546		
	Marsh	4,095	Swans	64,939		
	Water	26,280	Coots	115,843		
Grand Total	Total	31,522	Total	1,825,045		
	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 flooding facilitates use of non-aquatic type foods; 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 IslandMonths of January 1 to April 30, 19 65

(1) Species	(2) Density		(3) Young Produced		(4) Sex Ratio	(5) Removals			(6) Total	(7) Remarks
						Hunting	For Re- stocking	For Research		
Common Name	Cover types, total acreage of habitat	Acres per Bird	Number broods obs'v'd.	Estimated Total	Percentage				Estimated number using Refuge	Pertinent information not specifically requested. List introductions here.
Ring-necked Pheasant	Dikes, wax myrtle thickets, uplands and marshes (1125 acres)	12.5							90	Range from New Inlet to Oregon 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 Pea Island Refuge

Months of May 1

to August 31, 1965

(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.	Estimat- ed 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.	3.75	6	80	1m - 4f	NONE	NONE	NONE	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 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 Pea Island Months of September 1 to December 31, 19 65

(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	no. broods obs'v'd.	Estimat- ed Total		Hunting	For Re- stocking	For Research		
Common Name					Percentage					Pertinent information not specifically requested. List introductions here.
Ring-necked Pheasant	Dikes, myrtle growth, uplands and marshes (1125) acres	3.75			100%		NONE		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 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 1965

(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	
Common Name	Cover types, total Acreage of Habitat	Number											
Pea Island has no big game animals.													

Remarks:

Reported by *William C. Good*
 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.

3-1754
Form NR-4
(June 1945)

SMALL MAMMALS

Refuge Pea Island

Year ending April 30, 1965

(1) Species	(2) Density		(3) Removals					(4) Disposition of Furs					(5) Total Popula- tion
	Cover Types & Total Acreage of Habitat	Acres Per Animal	Hunting	Fur Harvest	Predator Control *	For Re- stocking	For Re- search	Share Trapping			Furs Destroyed		
								Permit Number	Trappers Share	Refuge share		Total Refuge Furs Shipped	
Common Name													
Muskrat	Impoundments and adjacent marsh areas (1500 acres)	0.8											1800
Otter	Range over all of the land area and tidal creeks (5880 acres)	294											20
Nutria	Same as Muskrat area listed above (1500 acres)	20											75
Mink	Entire Refuge Area (5880 acres)	588											10

* List removals by Predator Animal Hunter

REMARKS:

William C. Good

Reported by William C. Good, 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 headings listed.
 - (4) DISPOSITION OF FUR: On share-trapped furs list the permit number, trapper's share, and refuge share. Indicate the number of pelts shipped to market, including furs taken by Service personnel. Total number of pelts of each species destroyed because of unprimeness or damaged condition, and furs donated to institutions or other agencies should be shown in the column provided.
 - (5) TOTAL POPULATION: Estimated total population of each species reported on as of April 30.
- REMARKS: Indicate inventory method(s) used, size of sample area(s), introductions, and any other pertinent information not specifically requested.

DISEASE

Refuge Pea Island

Year 19 65

Botulism

Lead Poisoning or other Disease

Period of outbreak _____

Period of heaviest losses _____

Losses:

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

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

(a) Waterfowl	_____	_____
(b) Shorebirds	_____	_____
(c) Other	_____	_____

Areas affected (location and approximate acreage) _____

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

Condition of vegetation and invertebrate life _____

Remarks _____

Kind of disease Winter kill and lead poisoning

Species affected Snow and Canada geese

Number Affected	Actual Count	Estimated
Species		
<u>Snow Geese</u>	<u>10</u>	<u>20</u>
<u>Canada Geese</u>	<u>15</u>	<u>25</u>
_____	_____	_____

Number Recovered _____

Number lost 25

Source of infection _____

Water conditions Adequate - 1st half of year
Inadequate - 2nd half of year

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

Remarks _____



PUBLIC RELATIONS
(See Instructions on Reverse Side)

Refuge Pea IslandCalendar Year 1965

1. Visits

a. Hunting 0 b. Fishing 3050 c. Miscellaneous 6675 d. TOTAL VISITS 9725

1a. Hunting (on refuge lands)

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		<u>13 - ocean</u>

1c. Miscellaneous Visits

Recreation 3250 Official 65Economic Use 3360 Industrial 0

2. Refuge Participation (groups)

TYPE OF ORGANIZATION	On Refuge		Off Refuge	
	NO. OF GROUPS	NUMBER IN GROUPS	NO. OF GROUPS	NUMBER IN GROUPS
Sportsmen Clubs			1	15
Bird and Garden Clubs				
Schools	2	19		
Service Clubs			9	36
Youth Groups				
Professional-Scientific	2	3		
Religious Groups				
State or Federal Govt.	1	3		
Other				

3. Other Activities

TYPE	NUMBER	TYPE	NUMBER
Press Releases	1	Radio Presentations	0
Newspapers (P.R.'s sent to)	0	Exhibits	0
TV Presentations	0	Est. Exhibit Viewers	0

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 week-end 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.

Refuge Pea Island

Calendar Year 1965

Facilities

Picnic areas **1 tables **16 fireplaces **8 toilets **1
areas:
drinking water no shelters no

Swimming: designated areas No bathhouses No

Boating: launching sites 1 rental facilities No
service facilities No

are motors allowed Yes maximum horsepower Un-
limited

Camping: permitted **Yes or not permitted _____

tent camps **Yes total capacity **16

group camps No total capacity _____

hunter camps No total capacity _____

trailer camps **Yes

lodges No capacity _____

cabins No motels No total units _____

Tours: Season None frequency _____

self-guided nature trails No is trail leaflet available? _____

self-guided auto tour route No is tour leaflet available? _____

All tours are pre-arranged and are usually limited to groups.

Access estimate number in public use 3
points:

General - Brief statement of two to five lines on recreational opportunities available on refuge (suitable for inclusion in refuge leaflets or briefing reports). **13 miles of ocean front and inlet are available to surf fishing. Pamlico Sound is also open to fishing. Adequate opportunities prevail in winter for bird photography and observation. One overlook platform is open to the public and is situated on an impoundment dike; nearby there is a paved parking area.**

(Over)

INSTRUCTIONS

Supply numbers wherever appropriate. These may be estimated if necessary.

Where operation and maintenance is supervised by this Bureau, but the responsibility of a concessioner, group, or agency, indicate by a single *. Where supervision of such activities is by another Federal Bureau indicate by two **.

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

(1)

NONAGRICULTURAL COLLECTIONS, RECEIPTS, AND PLANTINGS

Refuge Pea Island Year 19 65

Species	Collections and Receipts (Seeds, rootstocks, trees, shrubs)						Plantings (Marsh - Aquatic - Upland)						
	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 Loss
None							None						

- (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 _____
 Food strips, food patches _____
 Forest plantings _____

Remarks: _____



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

Fish and Wildlife Service Branch of Wildlife Refuges

CULTIVATED CROPS - HAYING - GRAZING

Refuge Fca Island County Dare State North Carolina

Cultivated Crops Grown	Permittee's Share Harvested		Government's Share or Return				Total Acreage Planted	Green Manure, Cover and Water-fowl Browsing Crops Type and Kind	Total Acreage
	Acres	Bu./Tons	Harvested		Unharvested				
			Acres	Bu./Tons	Acres	Bu./Tons			
Annual Ryegrass							240	Annual ryegrass for winter goose browse	240
								(Farming accomplished by refuge personnel)	
								Fallow Ag. Land	

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

Hay - Improved (Specify Kind)	Tons Harvested	Acres	Cash Revenue	GRAZING	Number Animals	AUM'S	Cash Revenue	ACREAGE
				1. Cattle				
				2. Other				
				1. Total Refuge Acreage Under Cultivation				240
Hay - Wild				2. Acreage Cultivated as Service Operation				240

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

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

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

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

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

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

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

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

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

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

REFUGE GRAIN REPORT

1965
~~196~~

Refuge Pea Island

Months of January through December, 1965

(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		180 bu.	180 bu.					160 bu.		160 bu.	

(8) Indicate shipping or collection points from Mattamuskeet NW Refuge

(9) Grain is stored at Pea Island Headquarters

(10) Remarks for trapping purposes

*See instructions on back.

REFUGE GRAIN REPORT

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

Report all grain in bushels. For the purpose of this report the following approximate weights of grain shall be considered equivalent to a bushel: Corn (shelled)—55 lb., corn (ear)—70 lb., wheat—60 lb., barley—50 lb., rye—55 lb., oats—30 lb., soy beans—60 lb., millet—50 lb., cowpeas—60 lb., and mixed—50 lb. In computing volume of granaries, multiply the cubic contents (cu. ft.) by 0.8 bushels.

- (1) List each type of grain separately and specifically, as flint corn, yellow dent corn, square deal hybrid corn, garnet wheat, red May wheat, durum wheat, spring wheat, proso millet, combine milo, new era cowpeas, mikado soy beans, etc. Mere listing as corn, wheat, and soybeans will not suffice, as specific details are necessary in considering transfer of seed supplies to other refuges. Include only domestic grains; aquatic and other seeds will be listed on NR-9.
- (3) Report all grain received during period from all sources, such as transfer, share cropping, or harvest from food patches.
- (4) A total of columns 2 and 3.
- (6) Column 4 less column 5.
- (7) This is a proposed break-down by varieties of grain listed in column 6. Indicate if grain is suitable for seeding new crops.
- (8) Nearest railroad station for shipping and receiving.
- (9) Where stored on refuge: "Headquarters granary," etc.
- (10) Indicate here the source of grain shipped in, destination of grain transferred, data on condition of grain, unusual uses proposed.

3-1759
Form NR-9
(April 1946)

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

Refuge Pea Island

Year 1965

Species	Collections				Receipts		Total Amounts on Hand	Amount Surplus
	Amount	Date or Period of Collection	Method	Unit Cost	Amount	Source		
Nothing to report.								



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

TIMBER REMOVAL

Refuge Pea Island Year 1965

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.....

.....



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

Bureau of Sport Fisheries and Wildlife

Refuge

Pea Island

ANNUAL REPORT OF PESTICIDE APPLICATION

Proposal Number

Reporting Year

1

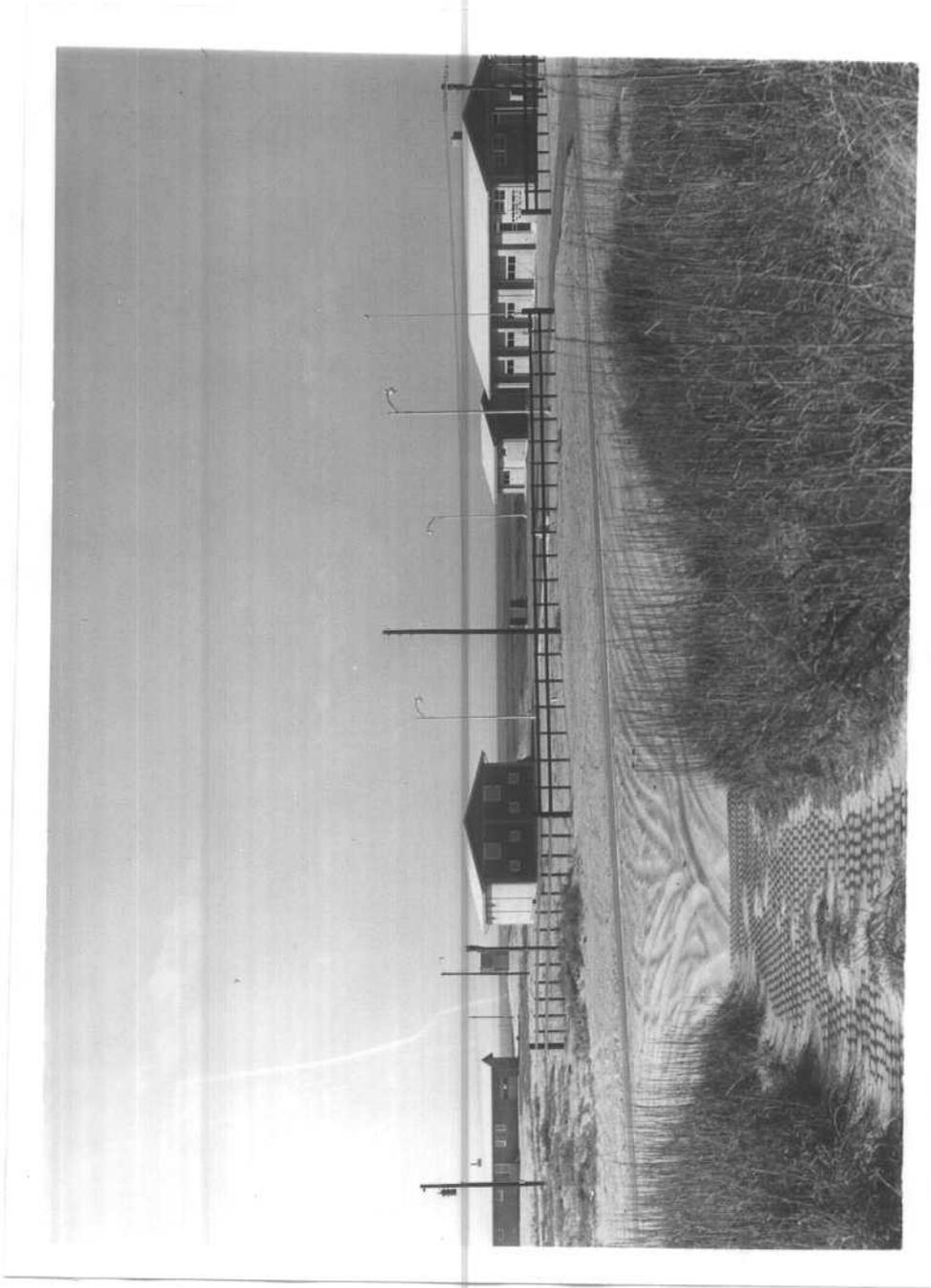
1965

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)
7/19 - 23	Cattail	North Pond & South Pond	10	Dalapon (2, 2 Dichloropropionic Acid)	35 lb.	18.5 lb. ac. sq.	175 gal. water	gun jet

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

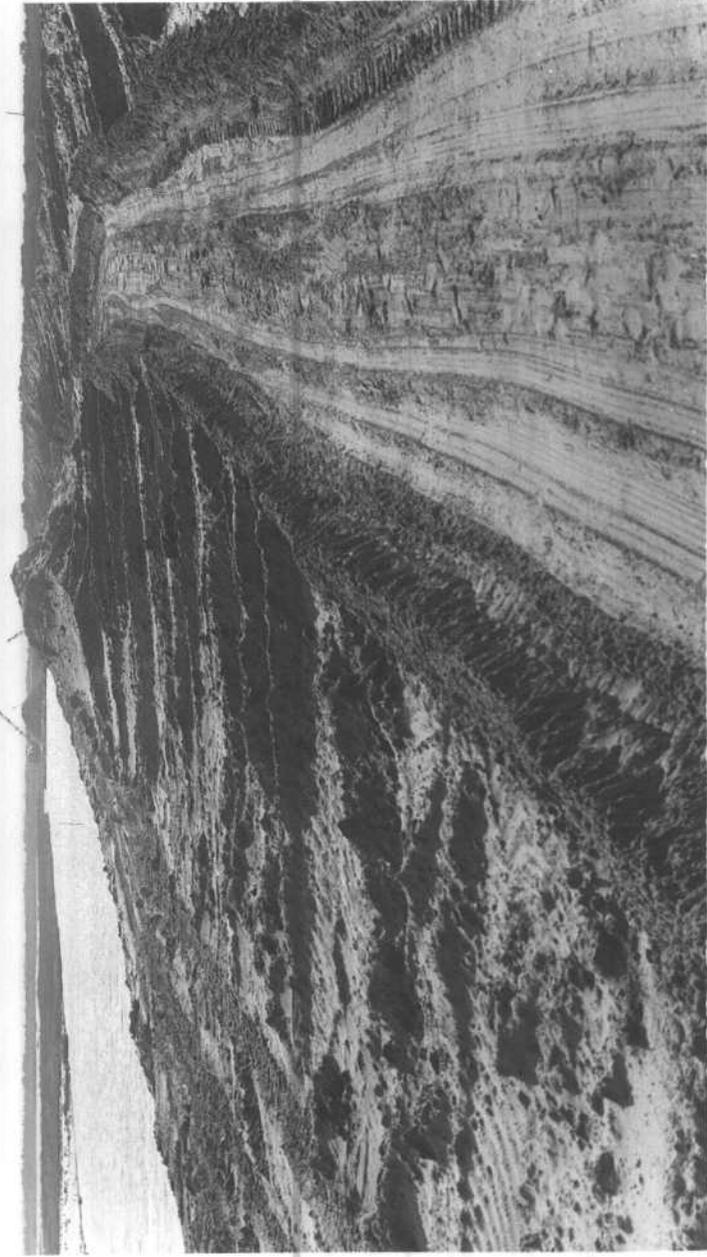
Cattail - (1) 7/27 first rainfall of 1.23 (2) 7/30 first observation (3) 7/30 first effect noted (4) leaf spot and stem twisting (5) 8/13 75% apparent kill (6) 8/8 90% kill with no regrowth (7) 95% kill with no regrowth (8) Chemical cost \$128.10, labor \$35.00, equipment \$20.00, total \$183.10, per acre cost \$18.31.



New Building Unit Completed July, 1965



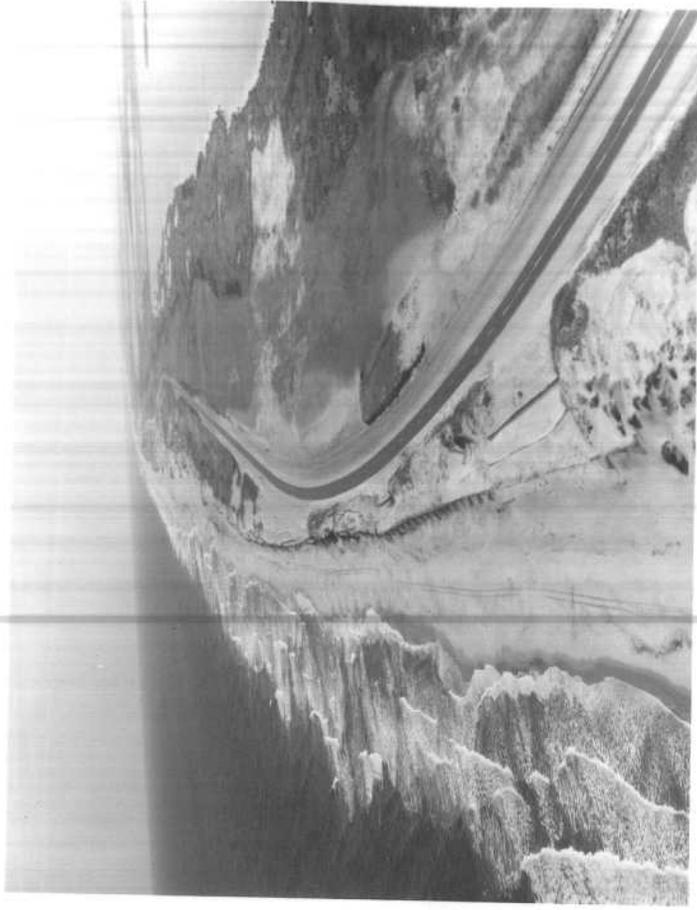
Office - Service Building



New Field Dike Fill Material At 2000' Mark



New Field Dike Between Pools 1 and 2 Showing Completed Link With Pool No. 2



Mile Post 9 Relocation Problem - NPS Photo



Mile Post 9 - Looking South - NPS Photo



Mile Post 9 - Looking North - NPS Photo