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GENERAL

A. WEATHER CONDITIONS:

The entire period could be summarized with more than adequate rainfall and cooler in the early fall and colder in the latter part of the period than normal. This was a record breaking period for rainfall and cold weather. In November we received more than nine inches of rain. The coldest day of the period was in December 12th, the temperature dropped to a cold 10 degrees.

MONTH	PRECIPITATION	MAXIMUM TEMPERATURE	MINIMUM TEMPERATURE
SEPTEMBER	5.44	100	50
OCTOBER	1.91	80	32
NOVEMBER	9.21	80	24
DECEMBER	2.33	70	10
Total:	18.89		
Normal:	12.42		
Excess:	6.47	Extreme (100) Sept. 3	10(Dec. 12)

WATER CONDITIONS:

All refuge ponds and lakes were at full pool level.

B. HABITAT CONDITIONS:

1. Water: Water levels in all lakes and ponds was satisfactory. Because more rainfall than usual there was a greater overflow and we are entering the new year with more ground moisture than in previous years.

2. Food and Cover: Numerous food patches provided sufficient food for deer, quail and doves. Brown top and german millet and cowpeas were available in large quantities. In some instances deer grazed cowpeas until nothing was left. Browse areas consisting of oats, wheat, rye and ryegrass were sown in the fall and used by deer and turkeys.

We had insufficient wheat browse for Canada Geese. Other browse such as rye, ryegrass and ladino clover was available. There was only limited use of rye and no use of ryegrass by geese was observed. Wheat browse at Ox Pen is still available but at Martins Lake it is almost all gone. Buckwheat was sown at both Martins and Ox Pen but received very little waterfowl usage. However doves swarmed in by the hundreds. Some corn which was received from cooperating farmers was available and distributed before knocking down our own corn. Some of the latter yielded poorly because of a drought during late spring and summer. Chufas at Ox Pen are also still available.

II WILDLIFE

A. MIGRATORY BIRDS:

Canada Geese arrived several days earlier than usual. Five were observed on October 3. Usually the first ones arrive on or after October 7. 150 Blue-winged teal were noted at Martins Lake on September 3.

Our goose population is up compared with last years. We have been carrying about 600 or more since November 24. On several occasions a population of at least 750 was observed. We have also had a good population with 500-700 on the refuge most of the time.

Doves appeared in goodly numbers near the end of the year but were down from last year. Indications are that farmers have been growing more milo which may have attracted them from the refuge.

One snow goose has been on the refuge for over a month at this writing. This is believed to be the first snow goose to visit the refuge. Records do not indicate any snow goose visiting the refuge in the past.

B. UPLAND GAME BIRDS:

Quail have been observed in larger coveys than last year. No inventory was made but the population is estimated to be higher than last years.

More turkeys have been observed but as previously reported they have changed their range. Most of them are now to be found to the north and east of our Martins Lake area. Ten new food plots were cleared to provide additional food for them.

C. BIG GAME ANIMALS:

The white-tailed deer is our only big game animal. It is thought that it is still increasing in numbers. Although not often seen yet there is plenty of evidence of their presence. As previously reported they have completely grazed many of our cowpeas patches.

The deer season was closed for a month in Chesterfield County because of the high evidence of screw-worms. No evidence of deer loss by screw-worm was observed on the refuge.

D. FUR ANIMALS, PREDATORS, RODENTS AND OTHER MAMMALS:

The bobcat population is up from last year. Mr. Rovers is again trapping and a summary of animals caught follows:

36 red-foxes; 13 grey-foxes; 12 bobcats; 31 raccoons; 16 o'possums; 4 dogs; 2 housecats and 1 golden eagle.

The fox population is down. Most of them being caught are reds, the ratio being 5 reds to 1 grey.

Trapping conditions have not been too good because of rains and freezing weather.

E. **HAWKS, EAGLES, ETC.:**

Red-tailed hawks and Golden eagles have been preying on our decoy geese and ducks. One golden eagle has been caught.

F. **OTHER BIRDS:**

Our snow goose, believed to be a first for the refuge has been observed. Also one brewer's blackbird was noted in a flock of red-winged black-birds.

G. **FISH:**

Lake Bee was stocked with breams late in December at the rate of 500 per acre.

During the latter months of the year fishing declined consistantly. Some nice catches of bass, however were reported.

During 1957 1001 daily and 518 season permits were sold with receipts totalling $969.20.

III - REFUGE MAINTENANCE AND DEVELOPMENT

A. **PHYSICAL DEVELOPMENT:**

A barbed wire fence a mile and a quarter long was constructed at Ox Pen separating our project from Cooperator Catoe's grazing project. He has fenced a part of his project also.

Nine food plots averaging about 2 acres were cleared on the east side of the refuge to increase turkey habitat.

About 10 acres were partially cleared at Martins Lake. This clearing is necessary in order to obtain areas for growing browse and hot foods. Excessive rainfall has slowed this project considerably.

B. **PLANTING:**

1. **Trees and shrubs:** The State Forestry Commission planted 100 acres to long-leaf pines but survival was very poor. This was due to the fact that the seedlings were too large with roots too long for good planting.

The long-leaf pine seed which fell from the cones this year were of good germination. Where seed trees are located throughout the forest there appears to be excellent reproduction. There was also a good crop of oak mast.

2. **Cultivated Crops:** The following crops were planted during the year: Corn, cowpeas, chufas, rye, oats, wheat, crotalaria, ryegrass, brown top millet, German millet, buckwheat, cotton, tobacco, watermelons, L. sericea, L. Korean, L. Bicolor. No serious insect or wildlife damage done. Yields of corn were low because of dry weather.

C. FIRES:

No serious fires occurred on the refuge during 1957. Lighting caused several small ones which were extinguished by personnel of the South Carolina Forestry Commission. Travelling cigarette smokers caused a small patch fire by flipping a cigarette out the car window near refuge headquarters on U. S. Highway No. 1. This fire was quick extinguished by refuge personnel, and State Forest personnel.

IV PUBLIC RELATIONS

A. RECREATIONAL USES:

Recreational uses are chiefly fishing and picnicing at the Lake Bee picnic area.

B. REFUGE VISITORS:

Mr. T. C. Phillips - Civil Aeronautics Administration- October 15
Mr. Charles S. Cook - General Engineer - Regional Office - October 28
Mr. Robert E. Lines - Regional Supervisor-Lands- October 28
Mr. William C. Ashe - Appraiser- Regional Office- October 28
Mr. Carl V. Fermanich - Asst. Regional Supervisor- November 6 & 7
Mr. Robert T. Webb - Fishery Management Biologist- November 11
Mr. James Webb - S. C. Wildlife Resources Dept. - November 21
Mr. Frank Nelson - Federal Aid Coordinator - November 21
Mr. Tommie Steiner - Assoc. Federal Aid Supervisor - November 21
Mr. Lawrence S. Givens - Regional Supervisor - December 19
Mr. James R. Fielding Jr. - Fishery Management Biologist - December 19

C. REFUGE PARTICIPATION:

The refuge manager was installed as Worshipful Master of the Masonic Lodge, McBee. Refuge clerk Mark A. Brown has been active in the Cub Scout Activities in McBee.

SUBMITTED: January 9, 1958

Approved: /s/ C. V. Fermanich
Act. Regional Refuge Supervisor

JAN 13 1958

Paul W. Sturm,
Refuge Manager.

ANNUAL HERBICIDES REPORT

1957

REMARKS: No herbicides of any kind were used during the year 1957.

REFER THE . . . 1957.

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

A. __Carolina Sandhills_____ National Wildlife Refuge.

B. Estimated total use of all types ____11,100____Visitor-days.

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

                      Estimated visitor-days ____None____

    2. Fishing use.

                      Estimated visitor-days ____8,200

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

                      Estimated visitor-days ____2,900

C. Remarks.

__January 9, 1957._____
     Date   Refuge Manager

W A T E R F O W L

REFUGE __Carolina Sandhills National Wildlife Refuge__   MONTHS OF __September__   TO __December 1952__, ____

| | (2) Weeks of reporting period | | | | | | | | | |
(1) Species	1	2	3	4	5	6	7	8	9	10
Swans:										
Whistling										
Trumpeter										
Geese:										
Canada					12	150	200	205	210	335
Cackling										
Brant										
White-fronted										
Snow										
Blue										
Other										
Ducks:										
Mallard						4	12	25	70	200
Black		2			1	3	5	8	15	30
Gadwall										
Baldpate						1				
Pintail									15	15
Green-winged teal							7			
Blue-winged teal	75	90		4	5	5	5			
Cinnamon teal										
Shoveler										8
Wood	2				5					8
Redhead										
Ring-necked							2	2		50
Canvasback										
Scaup										
Goldeneye										
Bufflehead										5
Ruddy										
Other										
American Widgeon										4
Coot:									1	3

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

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

REFUGE Carolina Sandhills National Wildlife Refuge   MONTHS OF September   TO December , 19 57.

(1) Species	Weeks of reporting period								(3) Estimated waterfowl days use	(4) Production Broods seen	Estimated total
	11	12	13	14	15	16	17	18			
Swans:											
Whistling											
Trumpeter											
Geese:											
Canada	300	325	650	600	700	750	650	650	40,271		
Cackling											
Brant											
White-fronted											
Snow					1	1	1	1	28		
Blue											
Other											
Ducks:											
Mallard	400	400	325	325	350	700	700	700	22,627		
Black	50	50	35	55	105	130	130	130	6723		
Gadwall											
Baldpate			15	15					217		
Pintail	5	5							250		
Green-winged teal									49		
Blue-winged teal									1040		
Cinnamon teal											
Shoveler	5	5							126		
Wood						10	10	10	318		
Redhead											
Ring-necked	30	30	15	15	85	85	85	85	1700		
Canvasback			2	2					20		
Scaup											
Goldeneye											
Bufflehead									35		
Ruddy											
Other											
American Widgeon	10	10			10	15	15	15	653		
Coot:	3	3	3	3	3				133		

(over)

	(5) Total Days Use	(6) Peak Number	(7) Total Production
Swans			
Geese	40,299	750	
Ducks	43,449	1000	
Coots	133	3	

SUMMARY

Principal feeding areas Martins Lake and Ox Pen area

Principal nesting areas _____

Reported by _____

Paul W. Sturm, 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
(Nov. 1945)

MIGRATORY BIRDS
(other than waterfowl)

Refuge ~~Carolina Sandhills~~   Month of ~~September~~   to ~~December~~   19 ~~57.~~

(1) Species	(2) First Seen		(3) Peak Numbers		(4) Last Seen		(5) Production			(6) Total
Common Name	Number	Date	Number	Date	Number	Date	Number Colonies	Total # Nests	Total Young	Estimated Number
I. Water and Marsh Birds:										
Great Blue Heron	1	Sept.	1	Sept. 2	1	Dec.				5
American Coot	1	Sept.	1	Oct.	1	Dec.				4
II. Shorebirds, Gulls and Terns:										

(over)

(1)	(2)	(3)	(4)	(5)	(6)
III. Doves and Pigeons:					
Mourning dove	Resident	2500 Sept & Dec.			6,000
White-winged dove					
IV. Predaceous Birds:					
Golden eagle					
Duck hawk					
Horned owl	Resident				10
Magpie					
Raven					
Crow	Resident				1500

Reported by _____

Paul W. Sturm, Refuge Manager.

INSTRUCTIONS

(1) Species: Use the correct names as found in the A.O.U. Checklist, 1931 Edition, and list group in
A.O.U. order. Avoid general terms as "seagull", "tern", etc. In addition to the birds
listed on form, other species occurring on refuge during the reporting period should be
added in appropriate spaces. Special attention should be given to those species of local
and National significance. Groups: I. Water and Marsh Birds (Gaviiformes to Ciconiiformes
                                     II. Shorebirds, Gulls and Terns   & Gruiiformes)
                                                Charadriiformes)
                                     III. Doves and Pigeons (Columbiformes)
                                     IV. Predaceous Birds (Falconiformes, Strigiformes and
                                                predaceous Passeriformes)

(2) First Seen: The first refuge record for the species for the season concerned.

(3) Peak Numbers: The greatest number of the species present in a limited interval of time.

(4) Last Seen: The last refuge record for the species during the season concerned.

(5) Production: Estimated number of young produced based on observations and actual counts.

(6) Total: Estimated total number of the species using the refuge during the period concerned.

UPLAND GAME BIRDS

Refuge __Carolina Sandhills Refuge__   Months of __Sept.__ to __Dec. 1957.__ , ~~194~~

(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 specifioally requested. List introductions here.
E. Bob-white	40,000 acres (all cover)	10							4,000	
E. Wild Turkey	"	50							60	

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.

1613

Form NR-3

BIG GAME

Refuge _Carolina Sandhills_   _1957._   ~~Year 194~~

(1) Species	(2) Density	(3) Young Produced	(4) Removals				(5) Losses			(6) Introductions		(7) Estimated Total Refuge Population as of Dec. 31	(8) Sex Ratio
Common Name	Cover types, total Acreage of Habitat	Number	Hunting	For Re- stocking	Sold	For Research	Predation	Disease	Winter Losses	Number	Source		Percentage
White-tailed deer	10,000 acres (all cover types)	30										300	

1614

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: Applies particularly to those species considered in removal programs (public hunts, etc.) exclusive of fenced herds. Detailed data may be omitted for species occuring 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 as of December 31.

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

Refuge_Carolina Sandhills efuge_____1957._____Year 194xxx_____

Botulism	Lead Poisoning or other Disease

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_____

Species affected_____

Number Affected Species	Actual Count	Estimated
_____	_____	_____
_____	_____	_____
_____	_____	_____

Number Recovered_____

Number lost_____

Source of infection_____

Water conditions_____

Food conditions_____

Remarks__No diseased birds or animals observed on the
refuge.

FISH

Species	Relative Abundance	Sport Fishing		Commercial Fishing		Restocking		Number removed for Restocking
		Man-days Fishing	Number Taken	No. of Permits	Pounds Taken	Number Stocked	Area Stocked	
Large Mouth Bass	Common	1030	2010					0
Small Mouth Bass	Rare	0	0					0
Bream(Bluegill & sunfish)	Common	5100	10300					0
Jack(E. Pickerel)	Common	500	1000					0
Warmouth Bass	Common	1300	5100					0
Cat Fish	Common	2000	1000					0

REMARKS:

PLANTINGS
(Marsh - Aquatic - Upland)

Refuge __Carolina Sandhills Refuge   1957_____ ~~Year 194xxxxx~~

Species	Location of Area Planted	Rate of Seeding or Planting	Amount Planted (Acres or Yards of Shoreline)	Amount & Nature of Propagules	Date of Plant-ing	Survival	Cause of Loss	Remarks
								No plantings done

TOTAL ACREAGE PLANTED:

Marsh and aquatic_____

Hedgerows, cover patches_____

Food strips, food patches_____

Forest plantings_____

Fish and Wildlife Service   Branch of Wildlife Refuges

GM - Green Manure
C - Cover
B - Browse

CULTIVATED CROPS - HAYING - GRAZING

Refuge _Carolina Sandhills N. W. Refuge_   County _Chesterfield_   State _South Carolina_

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			
Corn xxx	94	800 Bu	15	125 Bu.	44	700 Bu.	114	Coastal Bermuda (C)	300
xxCowpeas xxx	62	20 Bu			50	50 Bu.	112	Suwnee Bermuda (C)	10
Chufas xxx			7	100 Bu.	12	50 Bu.	19	Ryegrass (B)	3
Rye	203	1015 Bu	61	385 Bu.			264	Ryegrass (C)	20
Oats	14	126 Bu	4.5	37 Bu.			188	Wheat (B)	41.5
Wheat	46.5	342 Bu	12.5	80.5 Bu.			59	Oats (B)	20
Crotalaria xxx	129	176 Bu.	51	99 Bu			180	Rye-abbruzzi (B)	30
Ryegrass	24	132 Bu	6	33 1/3 Bu			30	Rye-abbruzzi (C)	4
Millet, Brown Top					15	45 Bu.	15		
Millet, german					17	50 Bu.	17	Vetch (C)	7
Buckwheat					14	100 Bu.	14	Clover White D.(B)	3
Cotton	82	21 Tons					82		
Tobacco	1.5	3/4 Tons					1.5		
Watermelons	37	50 Tons					37	Fallow Ag. Land	
L.Sericea	13.6	36Bu.X	4.4	9 Bu.X			13.6		
L. Korean					5	None	5		

No. of Permittees: Agricultural Operations __10__   Haying Operations _____   Grazing Operations __1__ ?

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				

X Not cleaned XXX Estimated XX Not harvested & not allowed to mature by deer.

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.

Fish and Wildlife Service   Branch of Wildlife Refuges

CULTIVATED CROPS - HAYING - GRAZING

GM - Green Manure
C - Cover
D - Browse

Refuge __Carolina Sandhills N. W. Refuge__   County __Chesterfield__   State __South Carolina__

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			
Bicolor	11	X56 Bu.	3	X14 Bu.			14		
								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				

X Not cleaned

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.

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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
NR-8a

REFUGE GRAIN REPORT

Refuge **Carolina Sandhills**   Months of ___September___ thru ___December___ 195_7_.

(1) VARIETY	(2) ON HAND BEGINNING OF PERIOD	(3) RECEIVED DURING PERIOD	(4) TOTAL	(5) GRAIN DISPOSED OF				(6) ON HAND END OF PERIOD	(7) PROPOSED USE		
				TRANS-FERRED	SEEDED	FED	TOTAL		SEED	FEED	SURP.
Corn	526 Bu.	125 Bu.	651 Bu.			325 Bu	325 Bu.	325 Bu.		325 Bu	
L. Sericea	7 Bu.	* 9 Bu.	1? Bu.					16 Bu.	16 Bu.		
Chufas		*100 Bu.						** 100 Bu.	30 Bu.		70 Bu.
Bicolor	1 Bu.	*14 Bu.	*15 Bu.					* 15 Bu.	15 Bu.		
Peanuts		3 Bu.						3 Bu.	3 Bu.		
Crotalaria		*99 Bu.						*99 Bu.	99 Bu.		
Oats	112 Bu.			10 Bu.	102 Bu.		112 Bu.				
Rye	100			30 Bu.	70 Bu.		100 Bu.				
Wheat	80			10 Bu.	70 Bu.		80 Bu.				
Ryegrass		33 1/3 Bu.			33 1/3 Bu.		33 1/3 Bu.				
Alfalfa		3 Bu.			3 Bu.		3 Bu.				
Dixie Wonder Peas		8 1/3 Bu.			8 1/3 Bu.		8 1/3 Bu.				

(8) Indicate shipping or collection points **Carolina Sandhills**

(9) Grain is stored at ___Refuge area in bins___

(10) Remarks ___* Not cleaned ** estimated___

NR-8a   REFUGE GRAIN REPORT

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

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

(1) List each type of grain separately: Corn, wheat, proso millet, etc. Include only domestic grains; aquatic and other seeds will be listed on NR-9.

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

(4) A total of columns 2 and 3.

(6) Column 4 less Column 5.

(7) This is a proposed breakdown by varieties of grain listed in Column 6.

(8) Nearest railroad station for shipping and receiving.

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

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

Form NR-9

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

Refuge _Carolina Sandhills National Wildlife Refuge_   Year 195 **7.**

| Species | Collections | | | | Receipts | | Total Amounts on Hand | Amount Surplus |
	Amount	Date or Period or Collection	Method	Unit Cost	Amount	Source		
NO SEEDS, ROOTSTOCKS, TREES OR SHRUBS COLLECTED OR RECEIVED								

Form NR-10   HAYING AND GRAZING

Refuge ___Carolina Sandhills National Wildlife Refuge___   Year __1957.__

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

Totals:

Acreage grazed_____   Animal use months_____   Total income Grazing_____

Acreage cut for hay_____   Tons of hay cut_____   Total income Haying_____

Form NR-11   TIMBER REMOVAL

Refuge Carolina Sandhills National Wildlife Refuge   Year 1957.

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

Total acreage cut over _____   Total income _____

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

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REFUGE NARRATIVE REPORT
CAROLINA SANDHILLS NATIONAL WILDLIFE REFUGE
MAY TO AUGUST 1957

GENERAL

WEATHER CONDITIONS:

Month	Precipi- tation	Maximum Temperature	Minimum Temperature
May	7.58	90	41
June	7.46	96	60
July	2.40	104	62
August	7.60	100	56
Total:	25.04		
Normal:	20.65	Extremes: 104 (July 9)	41 (May 4)
Overage:	4.39		

WEATHER:

No extremes in weather were experienced during this period. We had somewhat more rainfall than during the three previous summers, especially during the months of May and June. July was dry, August cool and wet.

WATER CONDITIONS:

All lakes and ponds had normal water levels.

FIRES:

Again we were fortunate in not having any serious fires. Several lightning fires occurred but were extinguished by State Forestry Personnel.

WILDLIFE

MIGRATORY BIRDS:

POPULATION AND BEHAVIOR

WATERFOWL

Except for an occasional pair of Wood Ducks, no migratory waterfowl

were observed during this period.

MOURNING DOVES

Our dove population is down from last year. Banding of nestlings was again attempted but with little success. The doves in most cases were attracted by sources of food other than the baited areas.

One of our mourning dove road counts totalled only about half of that registered in 1956. The other route was somewhat higher.

FOOD AND COVER

Some of our early plantings did not turn out well due to cool weather and also because they may have been planted a little too early.

But sufficient food was available for the dove population present.

UPLAND GAME BIRDS:

POPULATION AND BEHAVIOR

EASTERN BOB WHITE

Practically all of our fields or food plots have one or more coveys of quail. Large areas such as Martins and Ox Pen have numerous coveys. Several coveys consisting of new hatched quail were noted late in August with other coveys consisted of birds barely able to fly. One pair was noted at headquarters on August 23. We don't know if they are nesting at the present time.

EASTERN WILD TURKEY

We have reports of several flocks consisting of this years birds. One flock totalled 18, another 21 and a third 26. As reported previously they have changed their range. They have moved northeastward with most of them observed east of black creek.

FOOD AND COVER

Foods planted for turkeys are used by everything but turkey. It

appears that we may have to open up some new food plots in the vicinity
frequented by then.

BIG GAME ANIMALS:

POPULATION AND BEHAVIOR

WHITE-TAILED DEER

During the heat of the summer the deer either moved out or lay low
in the creek or river swamps. During the cooler weather in August they were
again in evidence. They did not damage our peas to any extent. We not only
had more than usually but had a good growing season.

FUR ANIMALS, PREDATORS, RODENTS, AND OTHER ANIMALS:

There is no great change in the population of any of our fur bearers
or predators. Coon and fox signs is again prevalent but bobcats are not
too numerous.

FISH:

No record breaking fish were caught this year. Many caught their
limit of bream. Other fishermen didn't do so well.

REFUGE MAINTENANCE AND DEVELOPMENT

The following is a list of the projects performed during the period:
Preventative maintenance of vehicles and servicing same.

Repairs on MD-14 tractor.

Repairs on TD-9 tractor.

Installation of gutters at quarters #2.

Lakes fertilized.

Made repairs on goose pen at Martins Lake and Ox Pen.

Made repairs to spillway to stock watering pond at Ox Pen then sodded it
with bermuda grass.

Safety inspection of vehicles.

Terraces at Ox Pen opened up and maintained.

Office cleaned and repainted.

Farming operations continued during period.

Clearing at Martins Lake and sawing of trees into lumber.

Maintenance of refuge roads.

Dug watering hole in goose pen at Martins Lake with bulldozer.

Repair and maintenance of farm tractors and equipment.

Annual farming operations were continued during this report period.

Acreage planted during period by Refuge Personnel:

Corn 4 acres (replanted)

Millet - 20 acres

peas - 24 acres

soybeans - 14 acres

chufa - 15 acres

peanuts - 1.5 acres

buckwheat - 9 acres

Total acreage planted by refuge personnel this season:

Corn - 32.5 acres

Millet - 32 acres

Buckwheat - 11.5 acres

Peas - 24 acres

Soybeans - 14 acres

Chufa - 14 acres

Peanuts - 1.5 acres

Crotalaria - 100 acres

Lespedeza - bicolor 5.5 acres

Sericea - 3 acres

In the planting a good stand resulted with the exception of 4 acres of corn which goose decoys destroyed near Martins Lake. Draining the small pond in the corn field resulted in the geese returning to Martins Lake in spite of it being occupied on occasion by fishermen.

During the month of May and since that time crops have not suffered as much from dry weather. Although a dry period during the later days of June and during the first half of July hurt the crops it was not as bad as the dry weather in April.

The crops are estimated to have a fair to excellent yield except in a few instances where deer have kept the crop eaten as it grows. In such cases we might also call this an excellent yield for it has benefited wildlife. Plans should be made to increase the acreage in such areas. The farming operations are continuing on the plot plans, whereby a part of a plot is planted to one crop and the other part to another crop. Rotation in the plots will be carried out each year and at the same time distributing equally over the refuge the crops planted. Soil building varities are to be rotated with none soil building varities in each plot.

Plans are being made to plant approximately 100 acres of wheat, oats and rye early next period for winter browse.

Checks on farming operations of cooperators during the period reveals their crops as fair to excellent from the standpoint of production.

Cooperators had difficulty harvesting rye due to excessive rains. At least a bushel or more per acre was lost due to lodging. Of course doves had a field day after the harvest.

PUBLIC RELATIONS

Recreational uses on the refuge consisted of sightseeing, picnicing and fishing. On July 5 the Girl Scouts of America (16) and 2 leaders

visited the refuge. It appears that fishing pressure has increased over last year.

REFUGE VISITORS:

Mr. Carl V. Fermanich - Asst. Regional Supervisor   May 13

Mr. George W. Verrill - Regional Office - Lands   7/22,7/23,8/26,8/27

Mr. Clyde Lee - Cape Romain   August 12

Mr. Ernest F. Holland - Kentucky Woodlands   August 13

Dr. George Timmons & Mr. Dunlap - Prestwood Lake
                                  Wildlife, Hartsville,S.C.   August 25

SUBMITTED: September 5, 1957

APPROVED: _Carl V. Fermanich_

Act. Regional Refuge Supervisor

SEP 1...
SEP 16 1957

Paul W. Sturm (By B.S. Lundy)
Refuge Manager.

W A T E R F O W L

REFUGE _Carolina _____ ___ _____   MONTHS OF _____ TO _____ , 19__

| | (2) Weeks of reporting period | | | | | | | | | |
(1) Species	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										
Coot:										

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

REFUGE Carolina Sandhills N.W. Refuge _____ MONTHS OF _____ TO _____ 1951, 19___

(1) Species	(2) Weeks of reporting period								(3) Estimated waterfowl days use	(4) Production	
	11	12	13	14	15	16	17	18		Broods seen	Estimated total
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	25	25	25	25	25	25	25	25	2975	0	25
Redhead											
Ring-necked											
Canvasback											
Scaup											
Goldeneye											
Bufflehead											
Ruddy											
Other											
Coot:											

(over)

	(5) Total Days Use	(6) Peak Number	(7) Total Production
Swans		:	:
Geese		:	:
Ducks	2975	: 50	: 30
Coots		:	:

SUMMARY

Principal feeding areas Refuge Lakes and ponds

Principal nesting areas Rogers Branch, Skinner and Black
Creeks

Reported by Paul W. Stun
(By B.C. Lundy)

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

MIGRATORY BIRDS
(other than waterfowl)

Refuge ___Carolina Sandhills___   Month of ___ ___ to ___ ust 195 .___ 19 ___

Species	First Seen		Peak Numbers		Last Seen		Production			Total
Common Name	Number	Date	Number	Date	Number	Date	Number Colonies	Total # Nests	Total Young	Estimated Number
I. Water and Marsh Birds:										
Great Blue Heron			5							10
American Egret			5							10
Snowy Egret			25							70
II. Shorebirds, Gulls and Terns:										

(over)

(1)	(2)	(3)	(4)	(5)	(6)
III. Doves and Pigeons: Mourning dove White-winged dove	Resident	5,000		1,000	6,000
IV. Predaceous Birds: Golden eagle Duck hawk Horned owl Magpie Raven Crow	Resident	1,000			1,500

Reported by *Paul W. Sturm (by B C Lund)*
Paul W. Sturm, Refuge Manager.

INSTRUCTIONS

(1) Species: Use the correct names as found in the A.O.U. Checklist, 1931 Edition, and list group in A.O.U. order. Avoid general terms as "seagull", "tern", etc. In addition to the birds listed on form, other species occurring on refuge during the reporting period should be added in appropriate spaces. Special attention should be given to those species of local and National significance. Groups: I. Water and Marsh Birds (Gaviiformes to Ciconiiformes
II. Shorebirds, Gulls and Terns   & Gruiiformes)
Charadriiformes)
III. Doves and Pigeons (Columbiformes)
IV. Predaceous Birds (Falconiformes, Strigiformes and predaceous Passeriformes)

(2) First Seen: The first refuge record for the species for the season concerned.

(3) Peak Numbers: The greatest number of the species present in a limited interval of time.

(4) Last Seen: The last refuge record for the species during the season concerned.

(5) Production: Estimated number of young produced based on observations and actual counts.

(6) Total: Estimated total number of the species using the refuge during the period concerned.

3-1750
Form NR-1B
(December 1956)

UNITED STATES
DEPARTMENT OF THE INTERIOR
Fish and Wildlife Service

WATERFOWL UTILIZATION OF REFUGE HABITAT

Refuge __Carolina Sandhills__   For 12-month period ending August 31, 19_57_

Reported by __Paul W. Sturm__   Title __Refuge Manager__

(1) Area or Unit Designation	(2) Habitat Type	(2) Acreage		(3) Use-days	(4) Breeding Population	(5) Production
Northern Zone #1	Crops	368	Ducks	3000		
	Upland	11752	Geese			
	Marsh		Swans			
	Water	80	Coots			
	Total	12200	Total	3000		
Central Zone #2	Crops	1286	Ducks	703,157	10	30
	Upland	19464	Geese	278,705		
	Marsh		Swans			
	Water	150	Coots	200		
	Total	20900	Total	1082062	10	30
Southern Zone #3	Crops	230	Ducks	1000		
	Upland	11677	Geese			
	Marsh		Swans			
	Water	10	Coots			
	Total	11917	Total	1000		
	Crops		Ducks			
	Upland		Geese			
	Marsh		Swans			
	Water		Coots			
	Total		Total			
	Crops		Ducks			
	Upland		Geese			
	Marsh		Swans			
	Water		Coots			
	Total		Total			
	Crops		Ducks			
	Upland		Geese			
	Marsh		Swans			
	Water		Coots			
	Total		Total			
	Crops		Ducks			
	Upland		Geese			
	Marsh		Swans			
	Water		Coots			
	Total		Total			

(over)

NOTE: Map attached showing Zones

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 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.

INSTRUCTIONS

(1) Area or Unit: A geographical unit that, 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. Estimated acreage of each unit should be indicated.

(2) Habitat: Crops include all cultivated croplands such as cereals and green forage, planted food patches and agricultural row crops; upland consists of 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 the water category includes all other water areas inundated most or all of the growing season and extends from the deeper edge of the marsh zone to strictly open-water areas, 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 each type should be kept as accurate as possible through reference to available maps supplemented by periodic field observations and should agree with unit acreage.

(3) Use-days: Use-days is computed by multiplying weekly waterfowl population figures by seven.

(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.

CAROLINA SANDHILLS NATIONAL WILDLIFE REFUGE

CHESTERFIELD COUNTY, SOUTH CAROLINA

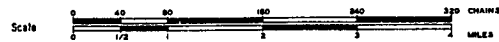U. S. DEPARTMENT OF THE INTERIOR

FISH AND WILDLIFE SERVICE

VICINITY MAP

SCALE OF MILES
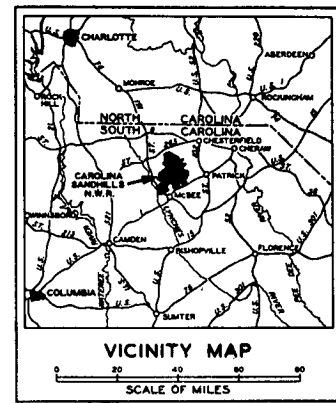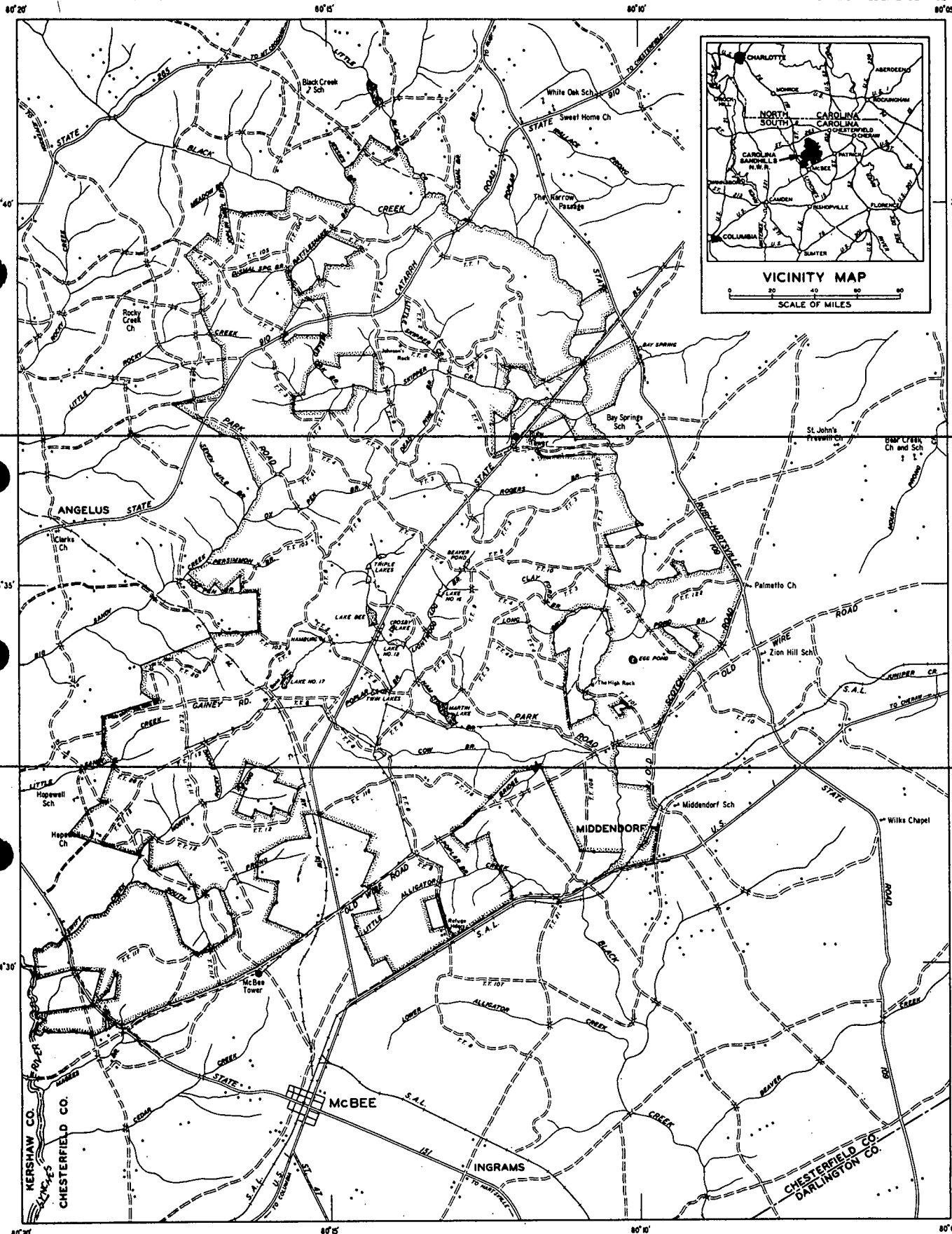
COMPILED IN THE BRANCH OF ENGINEERING
FROM SURVEYS BY U.S. ARMY, F.& W.S. AND
AERIAL PHOTOGRAPHS

ATLANTA, GEORGIA   OCTOBER, 1951

Scale

MEAN
DECLINATION
1950

UPLAND GAME BIRDS

Refuge ~~Carolina Sandhills W. L. Refuge~~   Months of _____ to ~~August 1957.~~ , 194__

(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.
E. Bob-white	45,000 acres (All cover types)	10	30	3000					4,000	
E. Wild Turkey	"	50	2	20					50	

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.

1613

3-1570
NR-8a

REFUGE GRAIN REPORT

Refuge...**Carolina Sandhills Refuge**...................................... Months of...May...........thru...August.....194 1957.

(1)	(2) ON HAND BEGINNING OF PERIOD	(3) RECEIVED DURING PERIOD	(4) TOTAL	(5) GRAIN DISPOSED OF				(6) ON HAND END OF PERIOD	(7) PROPOSED USE		
VARIETY				TRANS-FERRED	SEEDED	FED	TOTAL		SEED	FEED	SURP.
Corn	591 u.	1 u.	592 u.	24 u.	2 u.	30 u.	56 u.	536 u.		536 u.	
L. Lespedeza	7		7					7	7		
Cowpeas	22		22		22		22				
Chufas	35		35	27	8		35				
Oats	5	112	117			5	5	112	112		
Bicolor	1		1					1	1		
Millet, rowm,top	2	2	4		4		4				
Millet, German	3		3		3		3				
Buckwheat		10			10		10				
Peanuts		3			3		3				
Rye		485	485	352			352	133	100		33
Wheat		80	80					80	70		
Soybeans		16	16		16		16				

(8) Indicate shipping or collection points...**Carolina Sandhills Refuge**..

(9) Grain is stored at...**Refuge**..

(10) Remarks..

NR-8a   REFUGE GRAIN REPORT

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

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

(1)   List each type of grain separately: Corn, wheat, proso millet, etc. Include only domestic grains; aquatic and other seeds will be listed on NR-9.

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

(4)   A total of Columns 2 and 3.

(6)   Column 4 less Column 5.

(7)   This is a proposed breakdown by varieties of grain listed in Column 6.

(8)   Nearest railroad station for shipping and receiving.

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

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

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REFUGE NARRATIVE REPORT
CAROLINA SANDHILLS NATIONAL WILDLIFE REFUGE
JANUARY TO APRIL 1957

GENERAL

WEATHER CONDITIONS:

Month	Precipi-tation	Maximum Temperature	Minimum Temperature
January	2.62	74(28,29 & 31st)	16(18th)
February	2.68	74(26th)	26(15,16,19)
March	5.08	80(15 & 16)	30(9 & 10)
April	1.27	92(22)	36(10 & 16)
Total:	11.65		
Normal:	14.28		
Shortage:	2.63		

No extremely cold weather was expierenced during the period. March was a wet month. The usual March winds occurred during the month of April. April was one of the driest months on record. The Florence Weather Bureau reports it as being the driest in 58 years. In Wilmington, N. C. it was the driest since records were maintained in 1870. On April 8 a tornado struck Jefferson, S. C. and headed toward Cheraw, S. C. and on into North Carolina. Eight to ten thousand ft. of timber was harvested as salvage as a result of the tornado, in the northern most tip of the refuge. The Town of Jefferson was hit severely by the tornado. The main business district was in shambles. Roofing was torn off houses, windows smashed and trees toppled over. No one was killed, some suffered shock and minor injuries. National Guard, red cross and other agencies moved in to help.

WATER CONDITIONS:

All of our lakes and ponds had normal water levels.

FIRES:

We were very fortunate in not having any fires during this period.

Fire hazards were present during most of this period and extremely

high during April.

WILDLIFE

Migratory Birds:
    Population and Behavior:

WATERFOWL:

The usual population of Canada Geese on the refuge was 450-500

birds but during the cold spell early in January it reached 550.

We also had the most ducks at that time with about 1500 birds present.

Numbers up to 1000 could be noted on many occasions.

In past years we have had a few ducks of quite a number of species on

the area but this winter it was unusual to see anything except Mallards

and Blacks and a few Ring necks.

Most of the geese and ducks departed for northern climes during the

last week in February and first week in March.

On April 13 we received 47 geese from Mattamsukeet and another

53 on April 14. The purpose of obtaining these geese from Mattamuskeet

is to attempt to give our goose project a shot in the arm, of these geese

36 were released as free flyers, 25 were pinioned and the primaries were

pulled from 39 on April 21. Most of the latter had gone by the first

week in April. We have a few "extras" still with us but since they were

banded but not marked or colored otherwise we have no way of knowing

whether they belong to the Mattamuskeet group or are migrants .

We hope that on another occasion we will be permitted to dye them
and thus have a better record on them in regards to their movements.
It is almost impossible to hold the decoys in the pen at Martins Lake.
Beaver tunnel under the wire and from time to time a goose slips through
and out into restricted freedom.

At the last count on April 2 8 we had 1 at Lake 17, 3 more on Middle Lake -
Triple, 14 at large at Martins (9 of these belong to our old flock of
decoys) 36 in the goose pen at Ox Pen, 8 capable of flight at Ox Pen and
22 in the pen at Martins. The 14 at Martins are causing depredation to
newly sprouted corn necessitating replanting of several acres.

FOOD AND COVER:

We had sufficient browse and grains. Most of the browse usage was on a
one acre plot which was sown after the corn was harvested, browse sown
early is evidently to unpalatable. Our corn yield was among the best
in the county. (Chesterfield County earned the State Record this year
with 200 bushels per acre but this was irrigated corn in the Pee Dee
bottoms. We are lucky to get 40-50 bushels per acre in these sandhills).

MOURNING DOVES:

There is no evidence of any great change in our dove population. Dove
nestlings were found nearby during the middle of March. In April nesting
was in full swing.

Plans are underway for the resumption of the dove trapping program.

UPLAND GAME BIRDS:
Population and Behavior;

EASTERN BOB WHITE:

Numerous pairs can be observed at this time. Mr. Bob can again be heard as he sits atop a fence post plaintively calling for someone to be "Missus" Bob.

EASTERN WILD TURKEY:

There is no great change to be recorded from previous reports. We have a few in the vicinity of Martins Lake but most range to the north and eastward toward Sugarloaf Mountain. Sufficient food was available but they did not frequent the cultivated areas to the extent that we had hoped they would. In order to provide a better distribution of the food supply plantings are being made in succession stages during the year. Because of the extremely dry conditions during April our first plantings are meeting with limited success.

BIG GAME ANIMALS:
Population and Behavior:

WHITE-TAILED DEER:

Deer have been giving our browse area heavy usage. As we have reported previously deer are now observed in areas in which there formerly were none. We believe that these consist of the overflow and dispersion of deer from the refuge.

In order that the browse would not be eliminated completely we left strips in the food patches until Spring growth provided new vegetation.

FUR ANIMALS, PREDATORS, RODENTS AND OTHER MAMMALS:

MAMMALS:

Beaver continue to gnaw and dam. They are doing some damage to pines by girdling them.

Some raccoons and fox signs are again in evidence. At the time we stopped trapping predator sign had been reduced considerably.

The following is the record of predators caught during the 1957 trapping season:

<u>FOXES</u>: 129 <u>BOBCATS</u>: 14 <u>RACCOONS</u>: 96 <u>STRAY HOUSECATS</u>: 4 <u>SKUNKS</u>: 16

<u>FISH</u>:

Cool weather and windy days slowed down fishing activity during the first part of April but pressure was heavy during the latter part. Lake 16, 17 and Martins were used the most. Many of the lakes are so choked with weeds that they may as well be written off as fishing lakes. As always success ranged from good to poor. Those fishermen who were of slightly higher mentality than the fish were successful. In many instances the fish came out ahead.

FARMING ACTIVITIES

Cooperative agreements were checked and assurance was made that farming operations would be ready to begin when weather permitted.

Annual farming operations were planned for each plot being farmed this season by the Service. Plans were made to plant a part of a plot to one crop and the other part to another crop, then rotating the following season. The different crops (buckwheat, millet, peanut, peas, chufa, browse, crotalaria and cowpeas) are to be distributed equally over the refuge. Records showing crops, date disced, date planted, lbs. seed used, lbs. fertilizer were maintained. It is expected that our farming operation will benefit greatly, thereby benefiting our wildlife. Most of the crotalaria planted will be disced in this fall and browse planted in the area.

One food strip approximately 5 acres in size and one plot .5 acres in size were planted to lespedeza bicolor and good stands of plants have

resulted.

The sericea, clover and lespedeza bicolor patches were fertilized and additional acreage (3 acres) of sericea planted.

In the preparation of land for planting corn it was necessary to disc the land three times to destroy the rye used for browse the previous season. Due to the rank growth it would seem preferable to use another plant (oats, ryegrass or something else) for browse but would it supply as much browse is a question.

All land in the plots to be used has been disced to destroy weeds and browse planted last season. It is interesting to note that after discing lightly on the 28th of March a good stand of beach peas has resulted in one of the plots (#5). In this plot there was a poor stand of beach peas last season. Whether the time and depth of discing had its effect on the stand remains to be seen.

Up to date the following acreages have been planted by laborers on the refuge: crotalaria 100; millet 12; buckwheat 25; corn 32.5; lespedeza bicolor 5.5; sericea 3 acres.

In the plantings a good stand has resulted but approximately 4 acres of corn will need replanting near Martins Lake. The goose decoys were on the small pond in the field since fishermen began fishing on Martins Lake and have pulled the corn out by it's roots. The water has been drained out of the small pool and it is hoped this will force the geese back to Martins Lake, getting them away from the planted corn. The decoys were fed at intervals during the period but seemed to prefer the corn planted.

Crops are not looking their best due to the dry weather in April. Only 1.27 inches of rain was registered at Headquarters. The areas immediately adjacent to Ox Pen had a 1 inch rain the 23rd of April and some of the

crops there seem to be in better shape than in other areas. In
checking the records for the past 5 years the average rainfall for
April was 3.5" inches. It is hoped that rain in May will replenish
the supply of water needed.

The Cooperators were contacted several times during the quarter and
checked as to the progress being made on their area of farming operations.
Up to date the majority of the Cooperators have only completed the
planting of their cotton crops. Some of them have planted part of their
corn crop and parts of other crops to be planted. Their farming operations
could be classed as normal for this time of the year. Cotton acreage has
been reduced by 1/5. Plans call for additional reduction next year.
Approximately 8 acres of new ground has been cleaned of grubs and sprouts
and will be planted to chufas and peanuts to be harvested for seed.
Twelve acres which have been planted to corn near Ox Pen was also cleaned
of grubs and sprouts prior to planting corn.

Plans are to continue planting plots during next quarter to millet,
buckwheat, chufa, replant corn and plant a small area to peanuts at
Martins Lake and at Ox Pen. Planting operations will not be completed
for this season until the browse areas are planted this fall.

We know you will be sorry to hear that we have no watermelons on the
refuge this year. This is due to several reasons. Prices of watermelons
received by the farmers have been very poor in recent years. Another
factor is that the State does not supply enough trees to plant the areas
already cleared. This is aggravated still further by the fact that only
long-leaf pines are to be planted on the refuge. According to State
personnel long-leaf will not survive unless some means is found to control
the scrub oak.

REFUGE MAINTENANCE AND DEVELOPMENT

The following is a list of projects performed during the period:

Preventative maintenance of vehicles and servicing same
Repairs to HG-14
Repairs to D-7
Repairs to quarters # 2 -- Plumbing, wiring, painting, carpentry, etc
Lakes fertilized
Underground wire to quarters # 1 replaced
Telephones repaired and checked for maintenance needs
10 year development plan completed
Gutters installed on quarters # 1
Surplus property inspected
Constructed holding pen for geese
Made repairs to spillway to stock watering pond at Ox Pen
Constructed trap and trapped wild hogs
Safety inspection of vehicles
Repaired bridges
Painted directioned signs for lakes
Had public sale of fourteen wild shoats and three wild sows
   Total received $140.00
Checked and remarked and posted boundary lines
Planted shrubbery at headquarters.

PUBLIC RELATIONS

Usually around the first of the year fishermen get anxious about when

the ponds and lakes will be open and where the best fishing is going

to be.

Except for Martins and Lake 16, the lakes will be open to the end of

the year. This writer seldom fishes. Whenever he gets the urge to fish

he lies down until the feeling passes away.

REFUGE PARTICIPATION

Students of the university of South Carolina were conducted on a tour

of the refuge by the manager on February 10.

REFUGE VISITORS

This period was noted by it's lack of official visitors to the refuge.

The highlight being Mr. Salyer's surprise visit on February 20.

Mr. Randolph B. Lee - Director, Sandhills State Forest   Jan. 14,16,18 &
  Feb. 18

Mr. Edward B. Earl - McBee Schools, McBee, S. C.   Jan. 16

Mr. Carl V. Fermanich - Asst. Regional Supervisor   Jan. 31

Mr. William C. Ashe - Appraiser, Regional Office   Feb. 5

Mr. Rembert Jones - S. C. Wildlife Resources Dept.   Feb. 18

Mr. Herman Holbrook - S. C. Wildlife Resources Dept.   Feb. 19

Mr. Clark Salyer - Chief, Branch of Wildlife, Wash.   Feb. 20
          D. C.

Mr. Robert W. Young - Appraiser, Regional Office   Mar. 4,5,6

Mr. Victor W. Kay - Cape Romain Refuge   Mar. 22

Mr. Clyde Lee - Cape Romain Refuge   Mar. 22

Mr. Harold Steele - U. S. Game Management Agent   April 13

PERSONNEL:

Unfortunately we had two accidents this period thereby breaking a good safety record.

In trying to remove the master pin from the tracks of a D-7, a steel rod flew from the hands of Walter Crowley, laborer and cut a gash in his left temple.

While marking and posting a boundary line, Roy Rogers, Refuge Aid punctured his eardrum. He was working in heavy brush while turning his head around, a small stick entered his ear puncturing the drum. On the more pleasant side of the picture we are happy to report that Mr. B. C. Lundy entered on active duty on Feb. 18, 1957 as Assistant Refuge Manager. Mr. Lundy was formerly with the Mississippi State Game and Fish Commission. The Lundys are living in Quarters #2.

OTHER:

Much valuable assistance in writing this report was given by Mr. Mark A. Brown and Mr. Bennie C. Lundy.

Mr. Brown wrote the weather and water conditions and compiled other date for the report.

Mr. Lundy wrote the section on Refuge Farming Operations.

VIOLATIONS:

Mr. Thomas Campbell was caught stealing lighter wood on the refuge. It had been reported that he was selling it. He forfeited a $25.00 bond in Magistrates Court.

Submitted: May 8, 1957.

Paul W. Sturm,
Refuge Manager.

Approved: _Laurence S. Givens_
             Regional Refuge Supervisor
                              MAY 1 3 1957

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

W A T E R F O W L

REFUGE **Caroline Sandhills Refuge**   MONTHS OF **January**   TO **April 1957.** , 19

(1) Species	(2) Weeks of reporting period									
	1	2	3	4	5	6	7	8	9	10
Swans:										
Whistling										
Trumpeter										
Geese:										
Canada	375	375	400	400	400	400	400	400	400	60
Cackling										
Brant										
White-fronted										
Snow										
Blue										
Other										
Ducks:										
Mallard	1350	1000	525	525	900	900	750	750	700	500
Black	150	100	75	75	100	100	50	50	50	50
Gadwall										
Baldpate										
Pintail										
Green-winged teal										
Blue-winged teal										
Cinnamon teal										
Shoveler										
Wood										
Redhead										
Ring-necked	25	25	25	25	20	20	25	25	20	
Canvasback										
Scaup										
Goldeneye										
Bufflehead										
Ruddy										
Other										
Coot:										

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

REFUGE Carolina Sandhills Refuge   MONTHS OF January TO April , 19 57.

(1) Species	(2) Weeks of reporting period								(3) Estimated waterfowl days use	(4) Production Broods seen	Estimated total
	11	12	13	14	15	16	17	18			
Swans:											
Whistling											
Trumpeter											
Geese:											
Canada									25,270		
Cackling											
Brant											
White-fronted											
Snow											
Blue											
Other											
Ducks:											
Mallard	300	300	25	12					59,759		
Black	25	25							5,050		
Gadwall											
Baldpate											
Pintail									7		
Green-winged teal											
Blue-winged teal	4	4							56		
Cinnamon teal											
Shoveler											
Wood											
Redhead											
Ring-necked	30	30	30	15					2205		
Canvasback											
Scaup											
Goldeneye											
Bufflehead											
Ruddy											
Other											
Coot:											

(over)

	(5) Total Days Use	(6) Peak Number	(7) Total Production
Swans		:	:
Geese	25,270	: 500	:
Ducks	67,977	: 1500	:
Coots		:	:

SUMMARY

Principal feeding areas Refuge Lakes and ponds

Principal nesting areas   Ham Branch, Rogers Branch,

Skipper Creek and Black Creek

Reported by _____

Paul W. Sturm, 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

MIGRATORY BIRDS
(other than waterfowl)

Refuge **Carolina Sandhills Refuge** Month of ___**January**___ to ___**April**___ 19 **57.**

(1) Species	(2) First Seen		(3) Peak Numbers		(4) Last Seen		(5) Production			(6) Total
Common Name	Number	Date	Number	Date	Number	Date	Number Colonies	Total # Nests	Total Young	Estimated Number
I. Water and Marsh Birds:										
Pied-billed Grebe			10	Jan-Apr	1	4/31				10
Great Blue Heron			4	Mar-Apr						4
American Egret			2	Apr.						2
II. Shorebirds, Gulls and Terns:										

(over)

(1)	(2)	(3)	(4)	(5)	(6)
III. Doves and Pigeons:					
Mourning dove	Resident	2500			6500
White-winged dove					
IV. Predaceous Birds:					
Golden eagle					
Duck hawk					
Horned owl	10				
Magpie					
Raven					
Crow	Resident	500			500

Reported by _____

Paul W. Sturm, Refuge Manager.

INSTRUCTIONS

(1) Species: Use the correct names as found in the A.O.U. Checklist, 1931 Edition, and list group in A.O.U. order. Avoid general terms as "seagull", "tern", etc. In addition to the birds listed on form, other species occurring on refuge during the reporting period should be added in appropriate spaces. Special attention should be given to those species of local and National significance. Groups: I. Water and Marsh Birds (Gaviiformes to Ciconiiformes
II. Shorebirds, Gulls and Terns   & Gruiiformes)
Charadriiformes)
III. Doves and Pigeons (Columbiformes)
IV. Predaceous Birds (Falconiformes, Strigiformes and predaceous Passeriformes)

(2) First Seen: The first refuge record for the species for the season concerned.

(3) Peak Numbers: The greatest number of the species present in a limited interval of time.

(4) Last Seen: The last refuge record for the species during the season concerned.

(5) Production: Estimated number of young produced based on observations and actual counts.

(6) Total: Estimated total number of the species using the refuge during the period concerned.

Form NR-2

UPLAND GAME BIRDS

Refuge **Carolina Sandhills Refuge**   Months of **January**   to **April 1957.** , 19XX

(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.
E. Bob White	40,000 acres (all cover type)	27							1500	
E. Wild Turkey	"	80							60	

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.

1613

Form NR-4

SMALL MAMMALS

Refuge **Carolina Sandhills Refuge**   April 30, 1~~XXX~~ 1957.

(1) Species	(2) Density		(3) Removals					(4) Disposition of Fur							(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 Research	Permit Number	Trappers' Share	Refuge Share	Total Refuge Furs Shipped	Refuge Income	Furs Donated	Furs Destroyed	
Raccoon	40,000	40			96										1000
Beaver	6500	12													550
Mink	6500	130													50
Otter	6500	130													50
Muskrat	6500	86													75
O'Possum	40,000	200			10										200
Skunks	40,000	200			16										200
Gray Squirrel	40,000	133													300
Fox Squirrel	40,000	80													500
Gray Fox	40,000	133			49										300
Red Fox	40,000	133			80										300
Bob Cat	40,000	400			14										100

REMARKS:

1615

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. "List of North American Recent Mammals" by G. S. Miller, Jr., a very good reference, is now out of print, although a revision is scheduled for publication in the near future.)

(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, 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. Also show any removals not falling under heading 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 and the total income to the refuge by species, including share-trapped furs and furs taken by Service personnel. Total number of pelts of each species destroyed because of un-primness 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.

1615

3-1570
NR-8a

REFUGE GRAIN REPORT

Refuge **Carolina Sandhills Refuge**   Months of **January** thru **April** 195**7.**

(1) VARIETY	(2) ON HAND BEGINNING OF PERIOD	(3) RECEIVED DURING PERIOD	(4) TOTAL	(5) GRAIN DISPOSED OF				(6) ON HAND END OF PERIOD	(7) PROPOSED USE		
				TRANS- FERRED	SEEDED	FED	TOTAL		SEED	FEED	SURP.
CORN	780 Bu.	5 Bu.	785 Bu.		4 Bu.	200	204	581 Bu.	1	580 Bu.	
L. S RICHA	26		26	17	2		19	7	7		
CO PEAS	5	17	22					22	22		
CHUFAS	70		70	35			35	35	35		
OATS	10		10			5	5	5		5	
CROTALARIA	48		48	24	24		48				
BICOLOR	15		15	9	5		14	1	1		
MILLET JEO P		6	6		4		4	2	2		
MILLET,G L		4	4		1		1	3	3		
BUCK HEAT		2	2		2		2				

(8) Indicate shipping or collection points **Carolina Sandhills Refuge**

(9) Grain is stored at **On refuge area**

(10) Remarks

NR-8a   REFUGE GRAIN REPORT

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

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

(1) List each type of grain separately: Corn, wheat, proso millet, etc. Include only domestic grains; aquatic and other seeds will be listed on NR-9.

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

(4) A total of columns 2 and 3.

(6) Column 4 less Column 5.

(7) This is a proposed breakdown by varieties of grain listed in Column 6.

(8) Nearest railroad station for shipping and receiving.

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

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