
NOXUBEE NATIONAL WILDLIFE REFUGE

NARRATIVE REPORT

SEPTEMBER 1 to DECEMBER 31, 1942

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Noxubee National Wildlife Refuge

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Refuge Narrative Report
September 1 to December 31, 1942

I. GENERAL

A. Weather Conditions.

	<u>Precipitation</u>	<u>Max. Temp.</u>	<u>Dates Max. Occurred</u>	<u>Min. Temp.</u>	<u>Dates Min. Occurred</u>
August	5.24	101	2	60	25
September	3.13	96	11	41	29
October	1.73	89	17	30	27
November	.83	82	8, 9, 18	30	28
December	5.57				

Readings, except precipitation, are from State College, Miss.

September: Precipitation at Headquarters was 3.13 inches or .29 inch above the State College, Mississippi normal. Rain fell on eight days during the month with the greatest amount in any 24 hours being 1.1 inches on the 6th. Following that date there were only showers.

October: Precipitation was 1.73 inches or 1.14 inches below normal. Rain fell on six days but the greater portion of the total fall, 1.17 inches, occurred on the 31st day of the month. Thus the whole month of October was unusually dry.

November: The rainfall for November was .83 inch or 2.69 inches below normal. There was measurable rainfall on four days with the bulk of the fall occurring in the last week of the month. This shortage, coupled with the October shortage, resulted in a very dry month. Many wells and stock ponds went dry for the first time in fifteen to twenty years. The weather bureau lists this as the driest November since 1924.

December: The rainfall for December totaled 5.57 inches which is .24 inch above normal. Of this 3.06 inches fell on the 26th of the month but moderate rains earlier in the month had helped to relieve the dry conditions prevailing earlier.

Reviewing the summer season it will be noted that rainfall was deficient in May, June, and July for a total of 3.01 inches during that period. This deficiency, plus the 3.30-inch deficiency in the last third of the year, combined to make the whole growing season below normal.

B. Water Conditions.

The dead low on the Bluff Lake guage is .3 feet flowing through the spillway. At the beginning of the third period the reading was .3 feet and never varied more than .3 feet above that until mid-December. At that time the guage reached .7 feet and rose from there to 1.1 feet at the periods end. Thus again this period the flow of water was remarkably uniform as it was during the summer period. This long period of minimum fluctuation was very conducive to the growth of aquatic plant life.

C. Fires.

The period covered by this report covers the usual fall fire season. During this period there were 12 fires. This is the smallest number of fall fires on record for the four years that the records cover. Previous years records show 14, 16, and 23 fires, respectively. This record of a small number of fires was achieved in spite of the fact that rainfall was seriously deficient during October, November, and the first part of December.

The only thing good about the fire record for the period is the number of fires. The acreage burned was exceeding high. In two cases strings of 15 to 20 fires were set that all burned together as one fire. These cases occurred at the time of high wind and extreme drouth, resulting in a very large acreage burned. The total acreage burned for the period was 11,106.52 acres or 926.54 acres per fire on government-owned land. The large fires were definitely of incendiary origin. The cases are being investigated by the FBI as sabotage cases but to date there has been no formal report.

II. WILDLIFE

A. Migratory Birds.

1. Populations and Behavior.

Migratory birds have been more plentiful this fall than ever before. The very first ducks to appear was a flock of 27 baldpates on September 24. There were no additions until October 26 when many ducks of several species arrived on the edge of a cold wave as shown on form NR-1. Close watch was maintained to see this first lot of ducks and they were seen the first day. Since that time other flocks have come and gone with 14 species of ducks and mergansers having been identified. A flock of 5 Golden Eyes were seen for the first time since April 11, 1939 when Zimmerman saw 2 males. A flock of 2 males and 1 female Canvas backs was seen on Bluff Lake December 27, 1942. This is a new record for this refuge. This flock was seen several times at close range.

A large flock of Coots came in on October 23 but soon dispersed. Pied-billed Grebes have been much more numerous than previously. An unusual concentration of 20 Great Blue Herons was noted in the dead timber in the back part of Bluff Lake December 3 and again on the 4th. New records for the refuge includes a Sora Rail picked up September 15. This bird appeared to be injured but after being fed and rested it was released and not seen again. On September 24 James Allen reported a bird that was believed, from his description and study of pictures, to be a King Rail.

2. Food and Cover.

The food conditions in Bluff Lake continued to improve during the early part of this period so that there was a great deal more natural food available in the lake for waterfowl than ever before. Brasenia covered areas of several acres in extent both in open water and under stands of dead timber. The beds of Potamogeton diversifolius were also unusually extensive.

B. Upland Game Birds.

1. Populations and Behavior.

The favorable conditions noted for quail in the summer report continued unchanged so that even late broods appear to have thrived. One brood of birds just large enough to fly was seen on October 6 and was later noted to have developed well. General refuge wide observations throughout the period confirmed the belief that quail were more plentiful this year than previously. The large fire that burned over most of the area designated for opening to hunting this year occurred just at the time when censuses were to have been taken. This fire so disrupted the birds that it was felt that censuses run at this time would be meaningless. However, the Headquarters Quail Area was not disturbed by burning and a fall census was run on it. The results of this census indicate that there 12 coveys in the area this year as compared with 10 coveys last year. The average covey this year was 13 birds with 18 the largest number. This indicates a 20% gain on this sample area which is thought to be typical.

2. Food and Cover.

Due to the very poor showing of the mixed-grain food strips planted last fall this type of food strip was eliminated this fall. A total of 62 miles of ten-foot food strip-fire breaks were plowed during October and approximately one-half of this mileage was planted to vetch, crimson clover, and wild winter peas. The seeds were not mixed but the sites believed most favorable to a species were planted to that kind. The unplanted portions will be planted in the spring to field peas and sorghum.

Cover is plentiful on all except the large burn. There are a few unburned islands within the area of the big burn and also some places where the fire burned very slowly at night. These places continue to furnish some cover.

Generally speaking lack of cover is not a problem on this refuge, rather the reverse is true. The old fields grow up so fast to pine, hardwood sprouts, briars and broomsedge that the cover becomes too dense for the birds. Most coveys are found close to either a road or foodstrip-fire break. In addition to the 62 miles of fall-plowed fire breaks-foodstrips, a total of 28½ miles of abandoned roads and abandoned log railroad lines were bladed out to serve primarily as fire breaks, but also serve as a break in cover for the birds. The fact that coveys are very frequently flushed in these breaks indicate that they are at least of some value to the birds.

D. Fur Animals, Predators, Rodents, and other Mammals.

In accordance with approved plans traps were set along the Bluff Lake dam to catch muskrats that were denning in the dam. They were left there only a couple of days as the water rose. During that time one very large and fine Raccoon was caught. As it was only slightly injured it was released at Headquarters and was not seen again. Different people living around the edge of the refuge have reported that they are beginning to see soon sign now more plentiful than for many years past.

Muskrats do not appear to have increased as fast as it was expected they would. Very little sign is seen around the lake. Another effort will be made to remove the ones that have been denning in the dam.

E. Predaceous Birds.

Two American Eagles, in full adult coloration, have been seen over Bluff Lake almost daily. One of them was seen to be harrying a small duck on Bluff Lake. The duck was too far away for positive identification. A small flock of crows is wintering on Bluff Lake.

III. REFUGE DEVELOPMENT AND MAINTENANCE

A. Physical Development.

No development work has been undertaken during this period. There has been no CCC or WPA project in operation and no jobs have been undertaken from refuge funds. What labor has been available has been kept busy scraping fire breaks in September, plowing foodstrip-fire breaks in October, fighting fire in November and working at road maintenance in December.

B. Plantings.

3. Upland Herbaceous Planting.

The only type of plantings made during this period was foodstrip-fire break planting, which is discussed under Upland Game Food and Cover.

4. Cultivated Crops.

The tabulation of the results of cooperative farming is shown on form NR-3. It will be noted that several of the small agreements entered into were never worked. In each case the permittee thought in the spring that he was going to be able to handle some additional land but later found that, for various reasons, he could not work it. In one or two cases the permittee got the land plowed up and planted but never worked his crop. This served the purpose insofar as the needs of the refuge were concerned as it broke the land and retarded reversion. It will be noted that yields per acre were very poor which is the reason it is so hard to rent the refuge land for agriculture.

C. Collections.

No collections of any kind were made.

D. Receipts of Seed and Nursery Stock.

The only receipts was 75 bushels of corn and 1 1/2 bushels of vetch from Wheeler Refuge for feeding wildlife and for foodstrip planting.

IV. ECONOMIC USE OF REFUGE

There is nothing new to discuss under this heading as no new types of uses have been started during this period.

VI. PUBLIC RELATIONS

B. Refuge Visitors.

<u>Name of Visitor and Service</u>	<u>Dates of Visits</u>
Arthur F. Miller, Refuge Supervisor, FWS	November 19, 1942.
Monty Payne, Extension Forester--Miss.	November 20, 1942
Mr. Leggett, State Forester--Mississippi	November 20, 1942
Mr. Mauze, FBI Agent	11/19, 12/10, & 1/6/43
Mr. Eames, FBI Agent	November 19, 1942
Messrs. Hardesty & Fedric, Zoning Technicians of SCS	December 3, 1942
Col. Oxford of Auxillary H'way Patrol	November 19, 1942
Capt. Plumer of Miss. H'way Patrol	November 19, 1942

D. Hunting.

It was intended that a portion of the refuge should be opened to the hunting of quail and squirrels this year but the big fire burned over the major portion of the area that was to have been opened so the hunt was canceled. There was considerable interest expressed locally in the intended opening and refuge personnel have been careful to point out to everyone who inquired that it was not opened due to the big fire. Local agitation for duck hunting on

Bluff Lake and adjoining streams increases each year but to date has not reached important proportions.

E. Fishing.

Bluff Lake was open to fishing from May 1 to September 30 this season. The May 1 to August 31 fishing was reported in the previous narrative report for that period. The fishing for the whole season was the subject of a special report submitted October 8, 1942. For the month of September there were 869 adult and 12 children permits sold which was considered very good for the month.

The general opinion of fishermen indicated that fishing was improving on the lake. The bass particularly were larger this year so that it was seldom necessary to throw fish back.

F. Violations.

At the fall session of Federal Court several pending cases were disposed of.

Henry Spruell, charged with hunting and killing four squirrels on the refuge on July 4, was given a 60-day suspended jail sentence.

R. E. Hudesbeth, charged with stealing government-owned wire, was fined \$25.00.

In the case of Rube Prisock, charged with trespass and stealing government fruit, no true bill was returned and the District Attorney did not hold him on the trespass charge.

In the case of Dave, Walter, and Charles Lowery, charged with setting a fire on government land, the Grand Jury returned a true bill but the men plead not guilty so the case was set over to the spring term of court.

Stanley Keys was apprehended hunting on Bluff Lake for ducks on December 3, 1942. Affidavit was sworn out and forwarded to Game Management Agent Davis.

Earl Sanders was apprehended on October 5, 1942 hunting and killing two grey squirrels. Affidavits have been forwarded to Game Management Agent Davis.

In addition much investigative work has been carried out in an effort to apprehend fire setters. Special Agent Charles W. Mauze of the Federal Bureau of Investigation has made three trips into the area to investigate fire setting and is continuing his investigation. Refuge personnel have spent considerable time with him and on independent investigation work but no tangible results can be listed as yet.

Submitted by:

Samuel H. Lamb,
Refuge Manager.

January 8, 1943.

Approved:


for Regional Director

MIGRATORY BIRDS

Refuge Noxubee National Wildlife Refuge Months of September 1 to December 31, 1942

1612

(1) Species	(2) First Observed		(3) Became Common	(4) Peak Concentration		(5) Last Observed		(6) Young Produced			(7) Total
	Number	Date	Date	Number	Date	Number	Date	No. Broods Obsvd.	Avg. Size	Esti- mated Total	Number Using Refuge
Pied-billed Grebe	1	9/23	12/3								25
Double-crested Cormorant	8	9/28	10/23	141	12/3						141
Great Blue Heron			Resident	20	12/3						20
American Egret						4	9/21				4
*Geese		10/28									--
Mallard	200	10/26	10/26	500	12/4						500
Gadwall	1	10/26									--
Baldpate	27	9/24	10/26								48
American Pintail	1	10/26									--
Green-winged Teal	11	10/26									11
Wood Duck			Resident								200
Redhead	3	12/4									3
Ring-necked Duck	1	10/26	11/10	150	11/10						250
Canvas-back	3	12/27									3
Lesser Scaup Duck	8	10/24	11/10	150	11/10						200
American Golden-eye	5	12/4									5
Ruddy Duck	31	10/24		Flock of 6 remained							31
Hooded Merganser	7	10/26									10
American Merganser	3	12/15									--
Bald Eagle	2	10/2									2
Osprey	--					1	9/21				--
*King Rail	1	9/24									--
*Sora Rail	1	9/15									--
American Coot	125	10/19	10/19	650	11/23						1000

REMARKS: (Pertinent information not specifically requested)

*Geese--Flock heard over Bluff Lake in night, thought to be blue and snow geese--number not known.

*King Rail--Seen only once--first record.

*Sora Rail--Seen only once--first record.

Refuge Norabee National Wildlife Refuge Months of September 1 to December 31, 1942

(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.
Quail	Composite map now being prepared from cover type maps. Type acreage data not yet compiled. Estimates are refuge wide.	5	*1			n	o	n	7,600	
<p>* Only one brood of newly hatched birds were seen in this period. More detailed account of census run on Headquarters area is given in text.</p>										

Refuge Horubee National Wildlife Refuge Year 1942

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	
Bullfish, Crapie, Bass, Catfish and Grinnel	*	8,221	Not known	None	None	None	None	None
<p>Note: Mississippi State College has had concession for fishing and has not kept records on kinds of fish or numbers taken.</p>								

REMARKS:

* Fishing was considered to be better this year than any previous year, indicating that favorable relative abundance was being maintained.

PLANTINGS
(Marsh - Aquatic - Upland)

Refuge Norube National Wildlife Refuge

Year 1942

Species	Location of Area Planted	Rate of Seeding or Planting	Amount Planted (Acres or Yards of Shoreline) <small>No. Plants</small>	Amount & Nature of Propagules	Date of Planting	Survival	Cause of Loss	Remarks
Shortleaf Pine	Betheden & Roach Place	No block planting done. All plants set along gullies or behind check dams.	21,300	2-year seedlings	1/1-2/15	0%	Severe freezing in transit	
Loblolly Pine	South of Bevil Hill		29,350	1-year seedlings	1/15-2/15	95%		
Lespedeza bicolor	Refuge wide		25,300	1-year seedlings	1/1-3/30	92-95%		
Privet	Roach Place & Bevil Hill		4,700	1-year seedlings	1/1-3/30	95%		
Hawthorn	Roach Place & Bevil Hill		5,700	1-year seedlings	1/1-3/30	33-50%	Freezing of plants in transit	
Black locust	Betheden & Bevil Hill		18,000	1-year seedlings	3/1-3/30	90%		
				All above nursery grown				

TOTAL ACREAGE PLANTED:

Marsh and aquatic _____

Hedgerows, cover patches _____

Food strips, food patches _____

Forest plantings _____

Erosion Control Planting: 101,350 plants set.

Generally 3 to 6 rows, spaced 3' x 3' along each side of washes and gullies.

Generally 3 to 6 plants set behind each check dam.

Called spots set thickly to average 3' x 3' spacing.

3 to 6 plants set in each rail fence corner.

Refuge Hexabee National Wildlife Refuge

Year 1948

Permittee (If Farmed by Refuge, Indicate)	Permit No.	Unit or Location	Actual Acreage Cropped	Crops Grown	Avg. Yield Per Acre	No. Bu. Har- vested	Acres Left Stand- ing	Compensatory Services	Cash Receipts to Refuge
Beckham, Murph	6334	T17.R15.S31	4 1/2	Corn	15	67	0	10 bu. for refuge	0
"	"	"	2	Sorghum	100 gal.	200 gal.	1/8	Brushing & Clearing	0
Bevill, Ellis	2608	T17.R14.S19	4-3/4	Corn	12	57	0	Peas left in corn	0
"	"	"	1/4	Sorghum	40	10	1/8	--	0
"	"	"	3/4	Peas	--	--	3/4	--	0
Bevill, Glenn	6247	T17.R14.S30	5	Corn	12	60	0	--	0
"	"	"	2	Peas-Sorghum	--	--	2	--	0
"	"	"	3	Hay	1-ton	1 1/2 tons	0	Brushing out	0
Devine, Bill	6248	T17.R13.S26	4	Corn	15	60	0	Brushing & clearing	0
"	"	"	1	Peas	--	--	1	--	0
Dickerson, J. R.	6376	Nothing done							
Jackson, Isaac	2609	T17.R14.S25	5	Corn	15	17	0	Peas left in corn	0
"	"	"	1/2	Peas	--	--	1/2	Brushing & Clearing	0
Livingston, Freeman	7523	T16.R13.S26	1	Corn	15	15	0	Brushing & Clearing	0
"	"	"	1/4	Peas	--	--	1/4	--	0
Logan, Walter	6333	T16.R14.S4	Nothing done						
Logan, G. S.	6249	T17.R14.S36	5	Peas	10	40	1 1/2	Brushing & Clearing	0
"	"	"	1	Sorghum	20 gal.	20 gal.	0	--	0
Lowery, Glen	2610	Nothing done							
Lowery, Round L.	6250	Nothing done							
Friscock, Rube	6358	T16.R13.S28	3	Corn	15	45	0	Brushing & Clearing	0
"	"	"	1/2	Peas	--	--	1/2	--	0
								Total	0

Summary of Crops Grown:	Crops	Acreage	Refuge Share Bu. Harvested	Acres left Standing
See Continuation sheet for summary	_____	_____	_____	_____
	_____	_____	_____	_____
	_____	_____	_____	_____
	_____	_____	_____	_____
	_____	_____	_____	_____
	_____	_____	_____	_____

Refuge Norubee National Wildlife Refuge

Year 1942

Permittee (If Farmed by Refuge, Indicate)	Permit No.	Unit or Location	Actual Acreage Cropped	Crops Grown	Avg. Yield Per Acre	No. Bu. Har- vested	Acres Left Stand- ing	Compensatory Services	Cash Receipts to Refuge
Shinn, Joe * * *	7577	T16.R14.S17	1 1/8	Garden Peas	-- --	-- --	-- 1/8	Brushing and clearing	0 0
Shinn, Will * * *	6245	T16.R13.S4	4 3 1 1	Corn Peanuts Sorghum Peas	10 15 20 gal. --	40 45 20 gal. --	0 0 0 1	Brushing & Clearing	0 0 0 0
Young, John	2611	Nothing	done						
Young, William * * *	6246	T17.R14.S25	4-1/2 2-1/2 3 1	Corn Garden Hay Peas	15 -- 1 ton --	67 -- 3 tons --	0 0 0 1	Peas left in corn Brushing & Clearing	0 0 0 0
									Total

Summary of Crops Grown:

Crops	Acreage	Refuge Share Bu. Harvested	Acres left Standing
Corn	35-3/4	10	0
Peas	10-1/8	0	6-1/8
Sorghum	4-1/8	0	1/8
Hay	6	0	0
Peanuts	3	0	0
Garden	3-1/2	0	0
Peas-Sorghum	2	0	2
Total	64-7/12		8-1/3

COLLECTIONS AND RECEIPTS OF PLANTING STOCK
 (seeds, rootstocks, trees, shrubs)
Refuge Norubee National Wildlife RefugeYear 194 2

Species	Collections				Receipts		Total Amounts on Hand	Amount Surplus
	Amount	Date or Period or Collection	Method	Unit Cost	Amount	Source		
Shortleaf Pine					21,300	SCS	None	--
Loblolly Pine					29,350	Forest Service	None	--
Lespedeza bicolor					25,300	SCS	None	--
Privet					4,700	SCS	None	--
Hawthorn					5,700	SCS	None	--
Black Locust					15,000	Ga. Forest Ser.	None	--
Vetch					1-1/2 Bu.	Wheeler Refuge	None	--
Sorghum					4-1/2 Bu.	Purchased Local	None	--
Square-stem Spike rush	50 lbs.	7/10/42	Digging	Not computed			None	None
Soft-stem bullrush	50 lbs.	7/10/42	Digging	Not computed			None	None

Approved 7/11/42
J. H. Lamb
53 192

Noxubee National Wildlife Refuge
Starkville, Mississippi

July 6, 1942.

Regional Director,
Fish and Wildlife Service,
Atlanta, Georgia.

Dear Mr. Silver:

Attached is the annual report for Noxubee Refuge for the fiscal year 1942. In absence of specific instructions this report was made up in the same manner as the report for the fiscal year 1941.

Very truly yours,

Samuel H. Lamb,
Refuge Manager.

ANNUAL NARRATIVE REPORT
FORBES NATIONAL WILDLIFE REFUGE
FISCAL YEAR 1942

JULY 6, 1942

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ANNUAL NARRATIVE REPORT
NOXUBEE NATIONAL WILDLIFE REFUGE
STARKVILLE, MISSISSIPPI
FISCAL YEAR 1942

I. WILDLIFE

A. List of Birds

There follows a list of the birds noted on the refuge during the fiscal year 1942 not previously reported. Records were made largely by Thomas Z. Atkeson and Tom Kirksey. The 21 species here reported raises the total list to 181 species noted.

Horned Grebe	<i>Colymbus auritus</i>
Swan (Whistling)	<i>Cygnus columbianus</i>
Snow Goose	<i>Chen hyperborea</i>
Redhead	<i>Nyroca americana</i>
American Merganser	<i>Mergus merganser americanus</i>
Red-breasted merganser	<i>Mergus serrator</i>
Woodcock	<i>Philohela minor</i>
Herring Gull	<i>Larus argentatus</i>
Common Tern	<i>Sterna hirundo hirundo</i>
Least Tern	<i>Sterna antillarum antillarum</i>
Black Tern	<i>Chlidonias nigra surinamensis</i>
Caspian Tern	<i>Hydroprogne caspia imperator</i>
Screech Owl	<i>Otus asio</i>
Great Horned Owl	<i>Bubo virginianus</i>

Short-Billed Marsh Wren	<i>Cistothorus stellaris</i>
Eastern Warbling Vireo	<i>Vireo gilvus gilvus</i>
Eastern Yellow Warbler	<i>Dendroica aestiva aestiva</i>
Western Palm Warbler	<i>Dendroica palmarum palmarum</i>
Eastern Grasshopper Sparrow	<i>Ammodramus savannarum australis</i>
Vesper Sparrow	<i>Poaeetes gramineus</i>
White-Crowned Sparrow	<i>Zonotrichia leucophrys</i>

B. Concentrations of Birds

1. Waterfowl

As many as 500 ducks could be found on Bluff Lake throughout the winter with an estimated 1000 present on two different occasions. This represents a large increase over previous numbers reported. There was a fairly constant population of mallards and associated species throughout the winter reaching a peak of 400 in January 1942. A flock of 100 ringneck ducks was noted in November 1941. A flock of 700 coots appeared October 21, 1941 and gradually dispersed during the balance of the month.

A flock of 60 blue and snow geese circled over Bluff Lake for several minutes October 25, 1941 but did not light.

Double-Crested cormorants gather in numbers up to 500 on Bluff Lake in late April and then disperse.

2. Upland Game Birds

Last year quail were reported to be decreasing, and up to that time that appeared to be true. A favorable breeding season last summer largely reversed the trend so that quail are now very numerous.

Early spring censuses showed from 8 to 12 coveys per section with an average of ten to twelve birds per covey. One hundred miles of 10-foot-wide food strip-fire breaks were plowed and planted during the year and approximately 300 acres controlled burned to improve quail habitat conditions.

Mourning doves appear to be on the increase although no definite figures are available. Only one turkey has been seen.

C. Mammals

Fox and grey squirrels are abundant. That grey fox may be somewhat less numerous this year than last, is reflected in a big increase in the number of rabbits seen. Rabbits virtually destroyed all plantings of soybeans on food strips.

Muskrats are increasing in Bluff Lake. Mink, raccoon, and opossum are frequently seen and appear to be increasing. Mink sign continues to be more widely distributed over the refuge. The beaver colony established on Lookforn creek shows increasing activity with eleven dams now built. Three colonies are now established in or very close to the refuge.

II. WATER CONDITIONS

Bluff Lake is the only water impoundment. The water level was fairly constant without any extremely high period. Rainfall for the area has been consistently below normal throughout the year.

III. IMPROVEMENTS

A. Plantings

1. Aquatic Plantings

The following aquatic and marsh plantings have been made in Bluff Lake during the year:

Seed Plantings: 1/2 pound Brasenia shreberi -- July 7, 1941.

Plantings of Vegetative parts: 60 pounds Polygonum mihlenbergii--
July 7, 1941. 75 pounds Potamogeton americanus--July 7, 1941.

Results from this and, more particularly, earlier plantings, have been very good. As a result beds of Brasenia shreberi and Potamogeton diversifolius cover large areas of the more shallow backwater portions of the lake. In fact, these suitable areas are virtually completely covered by one or the other of these plants. Brasenia is rapidly spreading to every suitable place. The spread of the square-stem spike rush and bullrush has been very satisfactory, although less spectacular.

2. Upland Plantings--Herbaceous

One hundred miles of 10-foot-wide food strip-fire breaks were planted during the year, including 30 miles planted in the fall to a mixture of wheat, barley, oats, and rye and 70 miles planted in the spring to short strips of either soybeans, cowpeas or sorghum. The fall grains produced an abundance of winter greens but very little spring grain due to insufficient rainfall during the spring season. Good stands of cow peas and sorghum are found on the spring-planted strips but the soybeans were all destroyed by rabbits.

3. Upland Plantings--Woody

As a part of the soil and moisture conservation operations 101,350 trees and shrubs were planted on eroding lands in mixtures, especially on galls and around gully sides.

The following species and amounts were used:

Shortleaf Pine	21,300
Loblolly Pine	29,350
Privet	4,700
Hawthorn	5,700
Black Locust	15,000
Lespedeza bicolor	25,300

Initial survival appears to be very high on all except Hawthorn and Shortleaf pine.

4. Cooperative Farming

Cooperative farming agreements have been entered into with 17 farmers for the farming of 155 acres of refuge lands. All agreements call for the planting of food patches for the Government's share.

B. Soil and Moisture Conservation Operations

A total of \$2,825.00 was made available for use on the refuge from soil and moisture conservation operation funds.

The major items of work done include:

Mulching	20,170 sq. yds.
Bank Sloping	86 banks
Channel Cutting	14 each
Tree and Shrub Planting	101,350 plants
Pond Dam Repair	12 dams
Fence Construction and Repair	2-1/4 miles
Fencing Stock Ponds	124 rods
Pasture Reseeding and Improvement	15 acres

C. Miscellaneous Improvements

1. Tool House

An old building was moved into the headquarters area, renovated and painted to be used as a tool house. The building measures 16'6" x 24'4".

2. Oil House

Another old building was moved into the headquarters site, renovated and painted for use as an oil house. It measures 12'4" x 16'4".

3. Light Plant House

A building, 8'5" x 10'4", was moved into the headquarters lot to be used as a light plant house. The building was reroofed, concrete floor added, and repainted.

4. Granery

A building covered with galvanized iron roofing on top and sides was moved into the headquarters area, near the open equipment shed, to be used as a granery. It required only a minimum of reconditioning. It measures 8' x 10'.

5. Spence Subsistence Farm Unit

At the Spence subsistence farm unit a small building was moved in and reconditioned to serve as a brooder house and another larger building moved in and repaired for a poultry house. The residence, meat house, brooder house, poultry house, toilet and garage were all painted with green creosote stain on the outside and the interior of the residence painted with kalsomine. Pasture and lot fences were built or reconditioned as needed. A one-half mile extension was built to the telephone line to connect up this unit.

6. Keaton Tower Subsistence Farm Unit

At this unit a small brooder house was built of salvaged material and an addition built onto the barn. The house was wired for electricity.

7. Murphy Patrolman Residence

At this location the house was kalsomined on the inside and the outside stained with creosote stain. The meat house, well house, and poultry house were also painted with green creosote stain. A toilet was moved in and stained and a building was moved in to serve as a garage but not reconditioned.

8. Bluff Lake Dam Repair and Maintenance

The Soil Conservation Service rebrushed both faces of the Bluff Lake dam. All rivulet erosion runs were filled and sodded.

9. Improvement to Headquarters Buildings

The well house was raised and a foundation built under it to prevent rotting. The wash house at the managers residence was reconditioned and painted.

IV. SUMMARY OF LAW ENFORCEMENT

In local State Court the following apprehended hunters plead guilty and were fined:

Frank Brown	\$10.00 and costs
Oris Doughty	10.00 and costs
Walter Brooks	10.00 and costs
Jake Mosley	10.00 and costs

In Federal Court the following men plead guilty as indicated and fined:

Less Bush	hunting	\$25.00 and 30 days (suspended)
Robert E. Ivy	Illegal occupancy	60 days (suspended)
Una & Nan Kinard	" "	60 days (suspended)
T. A. Livingston	" "	60 days (suspended)
Jack Williams	" "	Served 30 days of suspended sentence-- 3 years probation
L. C. McClelland	trapping	\$25.00 and 30 days (suspended) 3 years probation
Dr. T. C. Suttle	trespass	\$20.00 fine
Herman Sanders	trespass	\$25.00 and 30 days (suspended) 3 years probation
Prince Williams	hunting	\$100 and 30 days (suspended)

In addition James Kinard was charged with hunting. The case was not processed by the District Attorney as the man was drafted into the Army.

Walter, Dave, and Charley Lowery were all apprehended setting fires on Government land and all made bond before U. S. Commissioner. They will be brought to trial in the fall term of court 1942.

Robert E. Hudespeith was charged with illegal possession of Government-owned fence wire. He made bond and will be tried in Federal Court in the fall term 1942.

Thus every case that has come up has been acted upon favorably resulting in convictions. This action has resulted in very material decrease in the amount of hunting, trespassing and violations of all kinds.

V. RECREATION

The only form of recreation on the Hoxbee Refuge is fishing. Bluff Lake is open each year from May 1 to September 30. During July, August and September of 1941 a total of 2,530 adults and 40 children permits were sold, the adults at \$0.50 each and the children at \$0.25 each. During May and June 1942, 4,123 adults and 599 children permits were sold, as nearly as can be determined. Fishing continues to be good with Large-mouth Black Bass, Sunfish, and Crappie being most abundant. Of rough fish, Catfish, Grinnel and eels are frequently taken.