NARRATIVE REPORT ROUTING SLIP

REFUGE MINGO PERIOD SEPTEMBER-DECEMBER 1964

OFFICE OF THE CHIEF: Mr. Gillett _____ Mr. Ackerknecht _____

Mr. Fermanich _____ Miss. Baum _____ Mr. Goldman _____

WILDLIFE MANAGEMENT: Mr. Webster _____ Mr. Stiles _____

RESOURCE MANAGEMENT: Mr. Stollberg _____ Mr. Lamb _____

OPERATIONS: Mr. Buenecke _____ Mr. Regan _____

PUBLIC USE: Mr. DuMont _____ Mr. Monson _____

A NARRATIVE REPORT
MINGO NATIONAL WILDLIFE REFUGE
SEPTEMBER THROUGH DECEMBER, 1963

PERSONNEL

John E. Toll	--------	Refuge Manager
John P. Davis	--------	WMB
John A. Sifford	--------	Clerk (Typing)
Audrey Walk	--------	Mechanic, HD
Herman E. Wilfong	--------	Operator General
Lonzo E. Hassel	--------	Tractor Operator
Charley E. Hargrove	--------	Dragline Operator
Jewel D. Hodge	--------	Operator General
Charles A. Walk	--------	Tractor Operator

DEPARTMENT OF THE INTERIOR
U. S. FISH AND WILDLIFE SERVICE
BUREAU OF SPORT FISHERIES AND WILDLIFE
PUXICO, MISSOURI

C O N T E N T S

I. GENERAL

A. Weather Conditions.

	Snowfall	Precipitation This Month	Precipitation Normal		Max. Temp.	Min. Temp.
September		.93	4.21		92	44
October		.03	3.69		94	35
November		4.47	3.46		76	26
December		1.29	3.45		20	3
Total		6.72	14.81	Extremes	94	3
Annual Total		30.05	46.71			

The above weather data was obtained from the U. S. Corps of Engineers at Wappapello Dam located about 3/4 mile from the southwest corner of the refuge.

This has been a very dry, but pleasant fall with temperatures as high as 94 degrees on October 12. During the month of November the temperature dropped below freezing only three times, however December was somewhat different. A cold front moved in on December 13 and a low of 3 degrees was recorded on December 24. The Rockhouse Cypress area froze over on December 14 and remained frozen the balance of the period.

COMPARATIVE TABULATION OF PRECIPITATION

Year	Sept.- Dec.	Annual
1953	4.53	27.01
1954	17.59	41.62
1955	7.30	34.20
1956	9.07	36.94
1957	18.31	67.18
1958	11.51	45.33
1959	14.54	36.57
1960	11.11	37.47
1961	13.83	47.30
1962	9.74	43.14
1963	6.72	30.05

B. Habitat Conditions

1. Water

Monopoly Lake. Although our plan was to maintain a 335.5 level in this pool for 1963, mother nature gave us little help. As stated previously this has been a dry one. The Monopoly level during the fall drought fell to a low of 333.92 during the early portion of October and did not start to approach the desired 335.5 level until mid-December when the lake increased to 334.16. Any increase during the remainder of the period was neglible.

As usually water conditions of Monopoly for aquatic growth were status-quo "muddy".

Rockhouse Cypress. The rapid drawdown of this area this year proved to be very satisfactory from a food standpoint, but our drought made early reflooding a flop. As a result of mother natures flickness we had to resort to drastic measures to insure utilization of the food crops in rockhouse. To accomplish the partial flooding in Rockhouse we removed the earthern plug in Ditch 6 which ties Monopoly and Rockhouse together. We were then able to shuttle water from Monopoly into the very low areas of Rockhouse. This water shift was enough to create skiffs of

water for ducksto light on and forage out from. This maneuver did not drastically affect the Monopoly level, but did alleviate what might have been a food shortage since Monopoly Lake offered little in food for the incoming ducks. The 4.47 inches of rain we experienced in late November gave us the desired levels in Rockhouse we needed to flood our natural foods.

We were again this year unable to flood our mast crop.

2. Food and Cover

The waste in our soybean fields were utilized heavily by our earlier migrant waterfowl, but once water was introduced into the Rockhouse area feeding in bean fields dwindled. The excellent stands of natural emergents/ moist soil plants that came in Rockhouse satisfied our wintering birds (both ducks and geese) to such an extent that feeding in corn fields (except during complete freeze up) was mimimal. At one portion of the period prior to freeze up both geese and ducks remained in the marsh for a period of three weeks.

After the freeze in mid-December geese started moving out to the refuge cornfields.

Browse planted at the Company Farm was not utilized very heavily this period.

Cover conditions appear to be adequate for all species during the period.

Results of the food availability studies will be covered under the field investigation section.

II WILDLIFE

A. Migratory Birds

1. Waterfowl

It appears that our wintering population has started on the upswing. Last year during this reporting period the refuge population peaked at 32,500; this year we reached 67,500. Also probably because of the nation-wide mild weather our peak was almost six weeks later in the period than last year.n The peak population of geese was 5,200. This years population as that of last year shows a small decrease.

Total waterfowl use days for this period amounted to 2,579,542 or approximately a 40 percent increase over the 1,559,830 for last year.

This year was unusual in many ways; for one we have noticed a higher population of wood ducks late in the period than was observed last year. The mild weather coupled with a reduced water area may have made a mormal population more noticeable, and consequently seem out of proportion. Duck Creek personnel have also noticed woodies at times and in numbers we don't usually see.

2. Other Water and Shore Birds

The coot population at Mingo this year was considerablly down from last year. We had a peak population of only 300 birds, which was a drop of 200 birds from last years peak. Use days were also down 30 percent.

Most species of water and marsh birds normally found here were seen often during the early portion of the period. Of particular interest was the abundance of sora rails that occurred here and remained until early December.

Killdeer, common sandpiper, and herring gulls were fairly common during the early portion of the period. Woodcock were unusually abundant this year during the middle of the period and remained through December 2.

No very unusual species were sighted during the period.

3. Doves

The dove population remains very high on the refuge. Although only small concentrations were found during Christmas census, prior to this count large flocks of 300-500 birds were common.

B. Upland Game Birds

1. Quail

The quail population appears comparable with last years population. One hugh covey of approximately 40 birds was seen on the south end of the refuge near the Dike Road gate.

2. Turkey

I don't believe we were tooting our horn last year when we

stated our turkey population was on the rise. This year we have observed a flock of 30 birds and up to this time a 23 bird flock was the high count. During the snows we observed numerous tracks throughout the refuge. We had one turkey poacher during our first snow.

All of our turkey confine their activities to the more mature timber stands. These birds move out of areas cut over as a result of our timber sales and have not been observed since.

C. Big Game Animals

Our only big game species the white-tailed deer still appear to be increasing. Although some comments by permittee farmers on crop damage were heard this year; our investigation into these claims revealed that this damage was slight and localized and could not be applied to the refuge as a whole. There were no cases of disease observed during the period and road kills were at a minimum.

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

1. Raccoon

We are not sure just what happened to the raccoon this season. Prior to trapping season Dr. John Rogers of Gaylord Laboratory live trapped 75 coon in 30 days for a study on movement and refuge population. This success led us to believe that we still had a large population, however during the trapping season eight trappers only caught 169 animals. Some of our trappers thought the coon had moved out of the swamp into the hills since their coherts in these hill areas were having good success. Obviously something did happen to the coon since the quality of our trappers hasn't changed. One important factor in the reduced catch probably was the reduced number of iee free days during our trapping season. Actually we only had approximately 15 days of good trapping weather. I am sure we will have a better picture of our population after the live coon catch in March.

2. Mink

The population appears normal since the trapping success this season was comparable to past success. Tracks were seen numerous times during our snow.

3. Muskrat

There were only 43 'rats taken this year. This catch is not

a reflection of the true population since the area where they appear in greatest abundance was not trapped due to freeze up. The man that normally traps this area caught only 10 'rats this season compared to 108 last year. He normally does not trap this area until the last week of the season. The freeze this year prevented his trapping of this area.

4. O'possum

Last year our trappers resorted to dry land sets a large portion of the period, this in turn resulted in a large catch of 'possum, 121 to be precise. This season only 65 pelts were taken, however dry sets were made. I think the 65 this season is comparable to the 71 in 1961 and probably more nearly reflects our population. Refuge personnel reports that observations of this species this year are approximately same as in past.

5. Beaver

Increasing is the appropriate word for this species. No damage is apparent from their increasing numbers. We think that our control on trapping of this species can be lifted (as this year) until some future date. Our trappers don't appear to have the "know-how" to catch beaver. If at some future date their numbers reach the extent as to create damage problems we will need the experience gained yearly by our trappers to control them.

6. Striped Skunk

Very few of this species were trapped during the trapping season, and those caught were accidental. As in the past refuge sightings of this species are small in number.

7. Rodents

Both red and gray squirrel population appeared abundant throughout the period. Lesser forms ie. rat and mice are in plentiful supply also. Groundhogs are seen frequently (same ole hogs), but their numbers are comparatively small.

8. Predators

The bobcat and red fox populations appear equal to last years, but gray foxes have been sighted with greater frequency this period.

9. Other Mammals

"Swampies" appear to be increasing, cottontails are comparable to last year.

E. Hawks, Eagles, Owls, and Crows

Red-shouldered hawks had their usual build up in mid-September, with red tailed and marsh hawks showing a gradual increase during the whole period. The broad-winged hawks peaked in early December. Sharp shinned, cooper's and sparrow hawks appeared throughout the period, but were seen less frequently than last year.

Our bald eagle population reached a high of only 8 birds on December 14, 1963 when we experienced our heaviest concentration of waterfowl. The majority of these eagles were juveniles. With the freeze up in mid-December our eagles left the area.

Barred owls were observed throughout the period in considerable numbers. Horned owls were seldom seen during the period, but were heard frequently at dusk.

Crows as usual were very common during period.

F. Other Birds

No new species were observed during the period.

G. Fish

Fishing success during the period was poor for crappie, bass and bluegill, but was fair to good for "shoopic", bullheads, carp, and buffalo. No fish kills were observed during the period.

H. Reptiles

The warm dry fall enabled us to enjoy the company of our reptile companions until the end of the period. We made it through the APW program without a single snake bite accident.

I. Disease

None was observed.

III REFUGE DEVELOPMENT & MAINTENANCE

A. Physical Development

1. Approximately four miles of road on westside shaped and gravelled.
2. Approximately 2 1/4 miles of trail shaped and ready for gravel.
3. Nine miles of roads regravelled.
4. All refuge roads were bladed.
5. Erected five miles of four strand fence.
6. About 1160 acres of timber cruised, TSI work complete and permit issued for cutting.
7. Entire Wayne County side of refuge was reposted with new signs.
8. Brush was removed from several miles of roads and farm ditches.
9. Shop building insulated and rearranged.
10. Replaced roof on Rockwell School building.
11. Placed screens on carport at residence.
12. Clipped Units G-1 and G-10.

B. Plantings

1. Aquatics and Marsh Plants

None.

2. Trees and Shrubs

None.

3. Upland Herbaceous Plants

None.

4. Cultivated Crops

Our cultivated crops consist of corn, soybeans, wheat and rice.

Permittees and refuge personnel planted 40 2 acres of corn, 838 acres of soybeans, 701 acres of wheat of which 600 acres was for browse and green manure, and 163 acres of rice.

Crop yields for corn and soybeans were above average with corn averaging 50 bushels per acre and beans averaging about 22 bushels per acre. Wheat and rice yields were about average, with wheat averaging about 20 bushels per acre and rice about 80 bushels.

C. Collections and Receipts

1. Seed or Other Propagules

None

2. Specimens

None

D. Control of Vegetation

None

E. Planned Burning

None

F. Fires

Although the fire hazzard during this period was high, we had no fires on the refuge, however we were fortunate in extinguishing one fire that got within twentyfeet of the refuge.

IV RESOURCE MANAGEMENT

A. Grazing

Four grazing permits were issued covering the period May 1 - September 30. Mr. Claud Walk had a permit covering Units G-3 and G-4 which produced a total income of $399. Refuge personnel utilized Unit G-10.

B. Haying

None this period.

C. Fur Harvest

Eight trapping permits were issued, with two additional trappers as assistants. The following is a breakdown of Government's share of

pelts taken:

Species	Gov't. Share
Raccoon	43
Mink	13
Beaver	2
Muskrat	22

The Government's share of raccoon pelts were sold locally for $58. All other pelts were shipped to the Hudson Bay Company for their disposal.

D. Timber Removal

Two timber permits were in effect during this period. Progress of Permit No. 21221 issued to Mr. James covering removal of approximately 500,000 board feet is nearing completion.

Permit No. 21229 was issued to Moss and Holden. This permit authorizes removal of approximately 2,000,000 board feet. Nearly one-half of this amount has been removed, however this operation has been halted due to adverse weather conditions.

E. Commercial Fishing

None authorized.

V FIELD INVESTIGATIONS OR APPLIED RESEARCH

A. Banding Operations

Our attempt at wood duck roost drive trapping left a lot to be desired. Out trap and leads met the desired specifications authorized by Patuxent but the terrain did not. The wood duck roost at adjacent Duck Creek is confined to a large lotus bed in the center of their main pool, and this creates problems not encountered in buttonbrush, hardwood or willow slough roosting sites. The pool is heavily conjested with stumps, log jams, and heavy aquatic growth. We caught 6 wood ducks and 13 blue-winged teal. Several hundred birds were in the roost but flushed before reaching the trap. We are not entirely convenced by this failure that woodies can't be driven through heavy cover, but it appears that we may have to revise our technique. We may cut trails through the cover prior to the next drive to see if this helps.

Goose trapping at Mingo this year has been somewhat more productive than in the past, but not as we would like it. Lack of water did not permit us to bait at the constructed site we baited last year. We were also hampered (except during freeze up) by the preference shown by our flock for natural foods rather than corn. During the late December freeze we managed to band 56 birds.

B. Waterfowl Food Availability Studies

Because here at Mingo we are fortunate to have a rich productive marsh habitat, and because we felt the need to evaluate this habitat we started a study of food availability on the Rockhouse Cypress area. The objectives of this study were to determine (1) the kinds of natural emergent moist soil plants (2) the distribution of waterfowl food plants (3) the productivity of dominant significent food plants ~~and~~ on a pound per acre basis.

This area when flooded at the 335.50 level affords approximately 1200 acres of prime feeding habitat.

Prior to taking ground samples we type-mapped this marsh area. In mapping this area we utilized color variations in plant distribution we were able to detect from a lookout area overlooking this marsh. This color mapping did not apply to all species. We also utilized circular plot samples to detect areas where dominant plant communities could not be determined by color on other general observations. Size of individual dominant plant areas where small were determined by pacing. On large areas when pacing would be very time consuming we estimated size by existing known land marks ie. ditches, roads, etc.

All areas regardless of size were randomly sampled with circular plot stem counts to check dominance. After all areas had been plotted on a map they were measured for acreage using a dot acreage grid.

Size of areas for emergent plants with color were found to be more easily plotted prior to frost. After a frost the varying shades of brown were often misleading in determining species dominance.

A total of 25 ground samples were taken in late November and early December. Ground samples were taken randomly on a line directed through the center of each dominant plant area. Although we feel that more samples would have given us a higher percentage of reliability, we do feel that some of our questions have been adequately answered.

Since our findings only indicate availability for 1963, and many factors may alter this on any marsh from year to year we may want to check several years to get average availability. Techniques are used for taking ground samples are not included here since they are readily available in the literature.

The below listed plants represent the dominant major waterfowl food species found in the Rockhouse Cypress area. It should also be noted here that this list and their amounts do not represent the total availability of this marsh area. So far some 50 species of marsh plants have been identified in the marshes of Mingo. Some of these plants while not occurring as abundantly as these listed below do occur sporaticly with densities that may be of value.

Plot	Species	Size	Amount	
1	Smartweed	380 Acres	1248 av. lbs/acre	484,200
2.	Red Rooted Sedge	245 Acres	547 " "	134,600
3.	(a) Millet	103 Acres	470 " "	48,400
	(b) Smartweed	103 Acres	201 " "	20,700
	(c) Spikerush	103 Acres	185 " "	19,100
	(d) Rice Cutgrass	103 Acres	73 " "	7,500
4.	(a) Spikerush	110 Acres	321 " "	35,300
	(b) Smartweed	110 Acres	293 " "	32,200
	(c) Rice Cutgrass	110 Acres	171 " "	18,800
	(d) Millet	110 Acres	42 " "	4,600
5.	(a) Rice Cutgrass	122 Acres	276 " "	33,700
	(b) Spikerush	122 Acres	489 " "	59,700
	(c) Fall Panicum	122 Acres	42 " "	5,100
	(d) Millet	122 Acres	35 " "	4,300

Total acres sampled 960 acres. Average pounds per acre 946.

VI PUBLIC RELATIONS

A. Recreational Uses

This year as in the past fishing has topped the list of specific recreational uses at Mingo. Picnicing, sportsman clubs (live coon catch), youth groups, tours, school tours, bird and garden club visits followed fishing in decreasing amounts.

B. Refuge Visitors

Date	Name	Purpose
9/25/63	Robert S. Todd, Southeast Missourian	New story
9/30/63	Harry Stiles, USF&W, Minneapolis	Official
10/9/63	Lee Yeager, USF&W, Washington	Courtesy
10/17/63	Mr. & Mrs. Don Lee, Lostwood Refuge	Pick up truck
10/26/63	St. Louis Nature Club	Tour
10/21/63	Wayne Sanders, USGMA,	Official
	Morgan Wilson, USGMA	Official
	Don May, MCC	Official

C. Refuge Participation

9/25/63 Davis, Toll and crew in cooperative wood duck roost drive Missouri Conservation Commission at Duck Creek and Gaylord Wildlife Laboratory.
10/26/63 Toll took group of 40 from St. Louis Nature Study Group on tour of Refuge.
12/9/63 Toll attended Midwest Wildlife Conference.
12/11/63 Davis attended last day of Midwest Wildlife Conference.
12/12/63 Davis attended Conservation Education Workshop at St. Charles.

Toll and Davis are both active in Puxico Rotary Club. Toll as president and Davis as Program chairman. Toll is also assistant Scout master of Troop 370 Puxico.

D. Hunting

None authorized this period.

E. Violations

1. Confiscated 7 pigs on hog trespass, and owner fined $20.71 impounding costs.

2. Apprehended one man shooting deer on refuge during state archery season. Disposed of in State court with fine of $150 and costs.

F. Safety

Three formal safety meeting were held during the period. Topics that were stressed included driving under ice and snow conditions, night driving on narrow refuge roads, and the need and use of safety belts. Accidents that occurred under the APW program were also reviewed.

This station has 2,402 claendar days without a lost time accident.

VII OTHER ITEMS

This report was written by Messrs Davis and Sifford. Mr. Davis wrote Sections IB, II, V and VI. Mr. Sifford prepared Sections IA, III, IV, and VII.

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

WATERFOWL

REFUGE Mingo MONTHS OF September Thru ~~to~~ December, 19 63

(1) Species	(2) Weeks of reporting period 1	2	3	4	5	6	7	8	9	10
Swans:										
Whistling										
Trumpeter										
Geese:										
Canada				45	285	285	300	300	1,500	4,250
Cackling										
Brant										
White-fronted										
Snow										20
Blue										130
Other										
Ducks:										
Mallard				50	150	50	50	200	4,000	10,000
Black									20	100
Gadwall						10	10	50	150	500
Baldpate				175	125	125	125	125	2,000	3,000
Pintail				5	20	20	20	20	500	1,500
Green-winged teal				70	25	25	25	100	1,500	2,500
Blue-winged teal				150	125	50	50	200	1,500	100
Cinnamon teal										
Shoveler					10	20	20	20	250	250
Wood	1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,500	750
Redhead										
Ring-necked										
Canvasback									2,500	1,800
Scaup										
Goldeneye										
Bufflehead										
Ruddy										
Other										
Coot:					5	10	50	80	50	20

INT.-DUP., D.C.-53824-59

3 -1750a

Cont. NR-1
(Rev. March 1953)

WATERFOWL
(Continuation Sheet)

REFUGE Mingo MONTHS OF September Thru TO December, 19 63

(1) Species	(2) Weeks of reporting period: 11	12	13	14	15	16	17	18	(3) Estimated waterfowl days use	(4) Production: Broods seen	Estimated total
Swans:											
Whistling											
Trumpeter											
Geese:											
Canada	4,250	4,500	4,500	5,000	5,000	5,000	5,000	5,000	316,505	0	0
Cackling											
Brant											
White-fronted											
Snow	20								280	0	0
Blue	130								1,820	0	0
Other											
Ducks:											
Mallard	10,000	6,000	17,000	30,000	30,000	50,000	50,000	10,000	1,522,500	0	0
Black	100	50	100	500	500	600	600	200	19,390	0	0
Gadwall	500	250	500	500	500	1,000	1,000	50	35,140	0	0
Baldpate	3,000	1,000	1,000	1,000	1,500	4,000	4,000	750	153,475	0	0
Pintail	1,500	200	100	3,000	5,000	7,500	7,500	400	190,995	0	0
Green-winged teal	2,500	1,200	1,000	1,000	1,500	2,000	2,000	50	108,465	0	0
Blue-winged teal									15,225	0	0
Cinnamon teal											
Shoveler	250	100	200	500	250	100	100	50	14,840	0	0
Wood	750	500	500	500	1,000	500	500	500	116,200	0	0
Redhead											
Ring-necked	1,800	1,600	1,600	1,000	150				73,150		
Canvasback											
Scaup	200								1,400		
Goldeneye											
Bufflehead											
Ruddy											
Other											
Hooded Merganser				6					42		
Coot:	300	300	300	100	100	50	50	50	10,115		

(over)

	(5) Total Days Use	(6) Peak Number	(7) Total Production
Swans			
Geese	346 105	5000	
Ducks	2 [illegible] 422	45 200	
Coots	10 115	300	

SUMMARY

Principal feeding areas [illegible]

Principal nesting areas [illegible]

Reported by [illegible]

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.
1953

6242

3-1751
Form NR-1A
(Nov. 1945)

MIGRATORY BIRDS
(other than waterfowl)

Refuge Mingo Months of Sept. Thru to Dec. 195 65

(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			150	9-5	6	Throughout period				300
Green Heron			200	9-16	2	11-5				400
Little Blue Heron			150	9-16	6	11-10				300
Common Egret			1000	9-16	1	11-5				1250
Black Crowned N. H.	1	10-1	5	10-1	1	11-2				10
Yellow Crowned N. H.	1	9-26	25	10-1	1	12-2				30
Sora Rail	3	9-14	100	12-2	100	12-6				200
Double Crested Cormorant	1	9-14	1	9/14	1	9-19				2
II. Shorebirds, Gulls and Terns:										
Killdeer			200	9-15						500
Common Snipe	25	10-1	100	10-1	1	12-4				150
Spotted Sandpiper			15	9-15						30
Solitary Sandpiper			20	9-14						60
Herring Gull			10	9-15	10	10-15				10
Woodcock	1	10-15	5	10-25	1	12-2				150

(over)

(1)	(2)		(3)		(4)	(5)	(6)
III. Doves and Pigeons:							
Mourning dove			4,000	Sept.	Throughout period		6,000
White-winged dove							
IV. Predaceous Birds:							
Bald ~~Golden~~ eagle	1	11-10	8	12-14	Throughout period		8
~~Duck~~ hawk Sharpshinned			20	12-14			25
Horned owl			25	Dec.			50
~~Magpie~~ Redtailed Hawk			80	Dec.			100
Raven Redshouldered "			150	Nov.			300
Crow			3,000	Oct.			5000
Broadwinged Hawk			5	Dec.			10
Marsh Hawk			35	Dec.			70
Sparrow Hawk			15	Nov.			20
Cooper's Hawk			15	Dec.			25
Barred Owl			100	Dec.			200
Loggerhead Shrike			10	Dec.			20

Reported by John Davis

INSTRUCTIONS

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

(2) First Seen: The first 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.

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

59317

3-1752
Form NR-2
(April 1946)

UPLAND GAME BIRDS

1613

Refuge Mingo Months of Sept. to Dec., 194 63

(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.
Bob White Quail	5,000	10							500	
Turkey	10,000	200							50	

INSTRUCTIONS

Form NR-2 - UPLAND GAME BIRDS.*

(1) SPECIES: Use correct common name.

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

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

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

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

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

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

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

3-1753
Form NR-3
(June 1945)

BIG GAME

Refuge Mingo Calendar Year 1963

(1) Species	(2) Density	(3) Young Produced	(4) Removals				(5) Losses			(6) Introductions		(7) Estimated Total Refuge Population		(8) Sex Ratio
Common Name	Cover types, total Acreage of Habitat	Number	Hunting	For Re-stocking	Sold	For Research	Predation	Disease	Winter Loss	Number	Source	At period of Greatest use	As of Dec. 31	
White Tail Deer	Swamp 4000 , upland hardwood 1,250, Reverting agricultural 100, Bottomland hardwood 11,000, Agricultural 2,000											650	650	

Remarks:

Reported by John Davis

INSTRUCTIONS

Form NR-3 - BIG GAME

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

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

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

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

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

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

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

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

116008

3-1755
Form NR-5
60701

DISEASE

Refuge Mingo Year 19 63

Botulism None

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 None

Lead Poisoning or other Disease None

Kind of disease _____

Species affected _____

Number Affected Species	Actual Count	Estimated

Number Recovered _____

Number lost _____

Source of infection _____

Water conditions _____

Food conditions _____

Remarks None

NR-6 Bureau of Sport Fisheries and Wildlife

PUBLIC RELATIONS

(See Instructions on Reverse Side)

Refuge Mingo Calendar Year 1965

1. Visits

a. Hunting 0 b. Fishing 10,000 c. Miscellaneous 10,750 d. TOTAL VISITS 20,750

1a. Hunting (on refuge lands)

TYPE	HUNTERS	ACRES	MANAGED BY
Waterfowl			
Upland Game			
Big Game			
Other			

Number of permanent blinds

Man-days of bow hunting included above

Estimated man-days of hunting on lands adjacent to refuge 4,800

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

TYPE OF AREA	ACRES	MILES
Ponds or Lakes	4,000 acres	
Streams and ~~Rivers~~ Ditches		32

1c. Miscellaneous Visits

Recreation 2,500 Official 200

Economic Use 8,050 Industrial

2. Refuge Participation (groups)

TYPE OF ORGANIZATION	NO. OF GROUPS	NUMBER IN GROUPS	NO. Of GROUPS	NUMBER IN GROUPS
Sportsmen Clubs	2	500		
Bird and Garden Clubs	5	55		
Schools	3	90		
Service Clubs			5	60
Youth Groups	6	100	2	150
Professional-Scientific	1	4	1	100
Religious Groups				
State or Federal Govt.	2	32	1	25
Other			1	100

3. Other Activities

TYPE	NUMBER	TYPE	NUMBER
Press Releases	1	Radio Presentations	
Newspapers (P.R.'s sent to)	6	Exhibits	
TV Presentations		Est. Exhibit Viewers	

3-1756
(Rev. 4/63)

INSTRUCTIONS

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

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

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

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

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

Other - INCLUDE crow, fox, and similar hunting.

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

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

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

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

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

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

3-1757
Form NR-7
(April 1946)

PLANTINGS
(Marsh - Aquatic - Upland)

Refuge Mingo Year 195 63

Species	Location of Area Planted	Rate of Seeding or Planting	Amount Planted (Acres or Yards of Shoreline)	Amount & Nature of Propagules	Date of Planting	Survival	Cause of Loss	Remarks
None this year								

TOTAL ACREAGE PLANTED:

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

Interior--Duplicating Section, Washington, D. C. 24315

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

Fish and Wildlife Service Bra of Wildlife Refuges

CULTIVATED CROPS - HAYING - GRAZING

Refuge **Mingo** County **Stoddard** State **Missouri**

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	**178**	**8,900**			**138**	**6,900**	**316**		
Soybeans	**468**	**9,360**					**513**		
Wheat			**45**	**900**	**481**	**9,620**	**481**	**456 acres for green manure and browse.**	
Rice	**123**	**9,840**			**40**	**5,200**			
								Fallow Ag. Land.	

No. of Permittees: Agricultural Operations **9** Haying Operations **0** Grazing Operations **3**

Hay - Improved (Specify Kind)	Tons Harvested	Acres	Cash Revenue	Grazing	Number Animals	AUM'S	Cash Revenue	ACREAGE
				1. Cattle		**26.5**	**$26.50**	**75**
				2. Other				
				1. Total Refuge Acreage Under Cultivation				**1167**
Hay - Wild				2. Acreage Cultivated as Service Operation				**225**

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 thenumber 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 Unharvesed column.

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

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

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

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

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

Fish and Wildlife Service Bra[illegible] of Wildlife Refuges

CULTIVATED CROPS - HAYING - GRAZING

Refuge **Mingo** County **Wayne** State **Missouri**

Cultivated Crops Grown	Permittee's Share Harvested		Government's Share or Return				Total Acreage Planted	Green Manure, Cover and Water-fowl Browsing Crops Type and Kind	Total Acreage
			Harvested		Unharvested				
	Acres	Bu./Tons	Acres	Bu./ Tons	Acres	Bu. /Tons			
Corn	**224**	**11,200**			**102**	**5,100**	**326**		
Soybeans	**370**	**7,400**					**370**		
Wheat			**43**	**1075**	**370**		**413**	**370 acres for browse and green manure**	
								Fallow Ag. Land.	

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		**359**	**$399.00**	**149**
				2. Other				
				1. Total Refuge Acreage Under Cultivation				**888**
Hay - Wild				2. Acreage Cultivated as Service Operation				**0**

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 thenumber 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 Unharvesed column.

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

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

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

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

3-1759
Form NR-9
(April 1946)

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

Refuge Minco Year 195 63

Species	Collections				Receipts		Total Amounts on Hand	Amount Surplus
	Amount	Date or Period of Collection	Method	Unit Cost	Amount	Source		
None								

Interior Duplicating Section,
Washington 25, D. C. 84267

Form NR-10

HAYING AND GRAZING

Refuge Mingo Year 194 53

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
C. Walk	21224	G-3 & 4	149	359		5/1 - 9/30		$399,00	
J. Sifford	21225	G-10	75	7.5		5/1 - 9/30		7.50	
A. Walk	21226	G-10	75	10.25		5/1 - 9/30		10.25	
J/ Toll	21227	G-10	75	8.75		5/1 - 9/30		8.75	

Totals:

Acreage grazed 224 Animal use months 385.50 Total income Grazing 425.50

Acreage cut for hay _____ Tons of hay cut _____ Total income Haying _____

1621

3-1761
Form NR-11

TIMBER REMOVAL

Refuge Mingo Year 1963

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
A. D. Holden & F. C. Moss	21229	Sections 4, 36, 30, 31 and 36, Wayne County, R7 & 8E.	1,160	2,000,000		$20,000	Marked	Ash, oak, gum, elm, sycamore, maple, birch, hackberry, cottonwood, willow, persimmon & locust
		Not completed						

Total acreage cut over Not completed Total income

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

Interior--Duplicating Section, Washington, D. C.

24316

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

Bureau of Sport Fisheries and Wildlife

ANNUAL REPORT OF PERSTICIDE APPLICATION

Refuge: **Mingo**

Proposal Number:

Reporting Year: **1963**

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

Date(s) of Application	List of Target Pest(s)	Location of Area Treated	Total Acres Treated	Chemical(s) Used	Total Amount of Chemical Applied	Application Rate	Carrier and Rate	Method of Application
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
9-29-63 to 12/14/63	TSI	Sec. 36 & 31 S½ of 30 in the southern portionof refuge and S½ Sec. 36 in the northern portion of refuge.	1,160	2-4-5T, type II liquid ester	110 gal.	Sufficient to cover girdled portion of tree	diesel 97 gal. to 2½ gal. herbicide t	hand sprayer

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

Results not known

35500

PEST PLANT CONTROL REPORT

Mingo Refuge, Calendar Year 1963

(To be inserted in the September-December Narrative Report.)

Plot No.	Acres	Species Treated	Growth Stage	Date of Treat.	Chem. or Method Used	Dilut. or Carrier	Rate Per Acre	Water Depth	Cost					% Kill last Observ.	Date last Observ.
									Material	Labor	Equipment	Total	Per Acre		
					None										

INSTRUCTIONS ON REVERSE SIDE

Additional forms will be supplied by Regional Office upon request.

Remarks: Include any important information not given in above columns, including No. of years an area has been treated where repeated treatments have been made.

R3-WC1 - April 20, 1962

INSTRUCTIONS

1. Plot No: Number used to identify the area of infestation in the field and on maps.

2. Acres: Use decimals, not fractions.

3. Species Treated: Use common and scientific names. LIST ONE SPECIES - THE PRIMARY ONE.

4. Growth Stage: i.e., Bud, half leaf, full leaf, early flower, full flower, etc.

5. Date of Treatment: Dates applications were made, using a separate line for each area treated. If more than one treatment is made on the same area during the summer, a separate line is used for each application.

6. Chemical or Method Used: Show type of herbicide; i.e., 2,4-D ester, etc., also mechanical methods (mowing, plowing, burning etc.)

7. Diluent or Carrier: Show diluent or carrier used plus stickers, spreaders, etc.

8. Rate Per Acre: Give lbs. acid equivalent per acre - not lbs. of herbicide or total mix. Check the label for % of acid equivalent.

9. Water Depth: Give depth in inches.

10. Cost, Material: Include herbicide and carrier.

11. Cost, Labor: Take from Application form.

2. Cost, Equipment: Take from Application form.

13. Total Cost: Take from Application form.

14. Cost per Acre: Take from Application form.

15. % Kill: Show percent dead plants with no regrowth showing at last observation.

16. Date Last Observation: Last date plants were checked following mechanical treatment or application of herbicide. If the same area is treated more than once during the same season, a new entry should be made on a separate line for each separate treatment. If the same area has been treated for several years, this should be shown in the space for remarks, giving the number of years the area has been treated.

APW crew working on ditch clean-out

Start of cypress release clearing along Ditch 6

Cypress release along Ditch 6 complete

Cattle guards for G-3 and G-4 being constructed

Large earthern fill on natural area road

Rip-rapping of large earthern fill by APW crew

Dozer & scoop working on section of westside fire & timber access trail near Crump place

Dozer widening westside fire & timber access trail near Bootlegger place

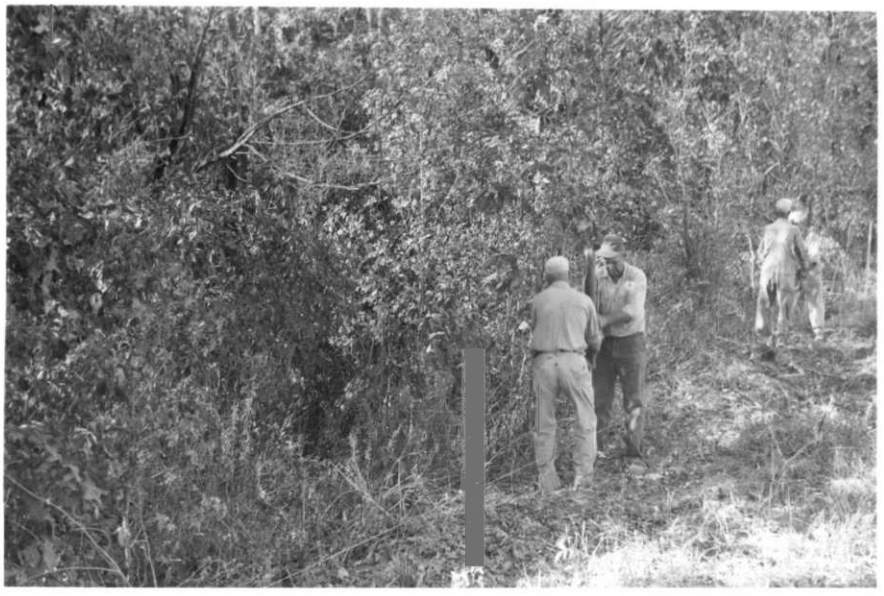
Fire break road along south border of natural area

Gravel being dumped on westside fire break & timber access trail under contract APW program

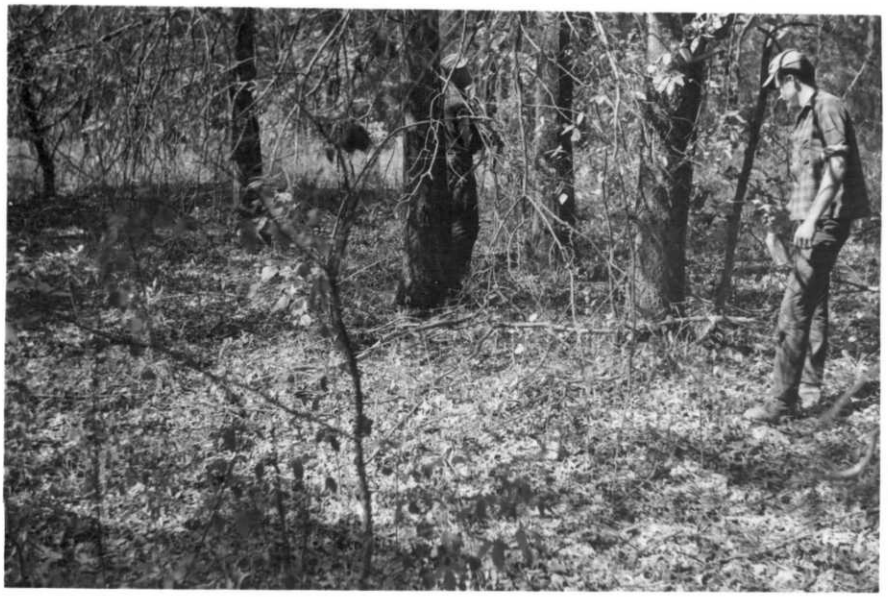
Completed section of westside fire & timber access trail

Roughed out section of road along Ditch 10

Mingo logs ready for cutting at Moss Mill

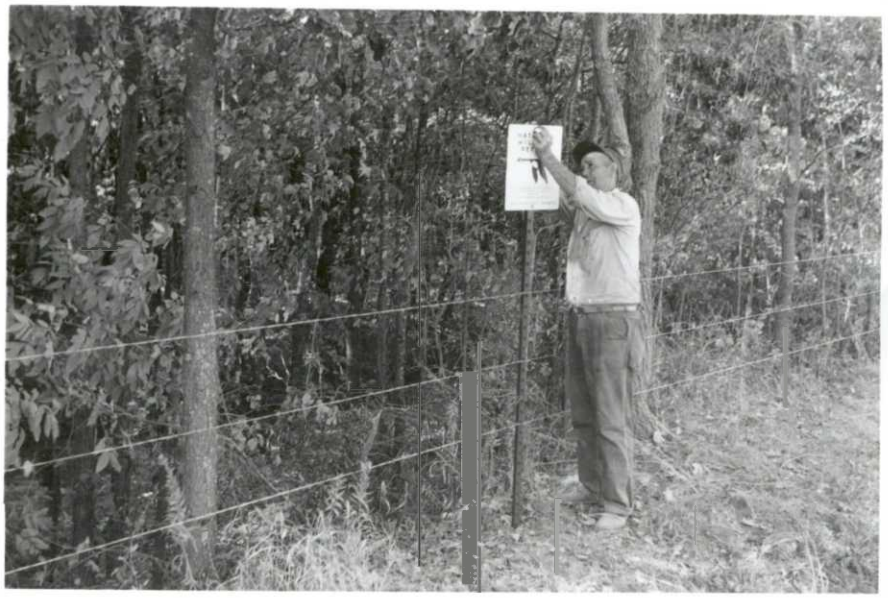


APW crew constructing north boundary fence



Timber being marked under the APW TSI Program

APW crew girdling and spraying timber under TSI program



Completed lateral and corner section of north boundary fence

SIGNATURE PAGE

Submitted by:

John E. Toll
(Signature)

John E. Toll
Refuge Manager
Title

Date: March 4, 1964

Approved, Regional Office:

Date: March 10, 1964

Harry E. Stiles
(Signature)

Asst.
Regional Refuge Supervisor