

HUNTING PLAN

MATHEW'S BRAKE NATIONAL WILDLIFE REFUGE

Prepared:  
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Recommended by:

George Chumley  
Project Leader

1/30/81  
Date

Stephen W. Ward  
Area Manager

3/11/81  
Date

\_\_\_\_\_  
Regional Director

\_\_\_\_\_  
Date

Approved: \_\_\_\_\_  
Director

\_\_\_\_\_  
Date

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## I. INTRODUCTION

### A. Location and General Description

Mathew's Brake National Wildlife Refuge is located in west central Mississippi in the Yazoo River Basin of the Mississippi Delta, between State highway 7 and U. S. highway 49, 9 miles south of Greenwood, Mississippi, in Leflore County.

The refuge occupies 807 acres with additional land acquisitions possible.

Topography is level to gently sloping with maximum land elevations never exceeding 100 feet above mean sea level. The soils consist of somewhat poorly drained clays to well-drained silty soils in natural levees.

Drainage in Mathew's Brake Refuge is primarily from Abiaca Creek and Alligator Bayou into the Yazoo River.

The climate is humid sub-tropical with an average annual temperature of 64.8 degrees. Mean annual rainfall is 51.8 inches. Winter rains, November through April, account for 30 inches of the annual precipitation.

### B. Habitat and Wildlife

Historically, the Mississippi Delta produced an abundance of diverse fish and wildlife resources. The clearing of bottomland hardwood forests in this century to produce agricultural crops has resulted in a drastic decline in these high quality resources. Mathew's Brake habitat types are dominated by bottomland hardwood forest interspersed with bald cypress/tupelo sloughs and brakes (Type 7 wetlands) and shallow depressions characterized by buttonbush, water elm, swamp privet, and willow (Type 6 wetlands).

Dominant forest species are sweet gum, water oak, and willow oak occurring along the ridges; sugarberry, American elm, green ash, bitter pecan, and overcup oak on the intermediate to low flats; and bald cypress, swamp cottonwood, and swamp tupelo in the low depressions and sloughs.

The fauna is diverse with many popular and important species present. Refuge wetlands are noted for large

numbers of wintering waterfowl. Mallard, wood duck, wigeon, green-winged teal, and gadwall are the most numerous migratory waterfowl. Wood ducks are common summer nesters.

The principal resident game species are fox and gray squirrel, white-tailed deer, raccoon, opossum and swamp and cottontail rabbit. Furbearing species of the area include beaver, nutria, raccoon, muskrat, mink, otter, red and gray fox, weasel, spotted and striped skunk, and bobcat. Non-game wildlife is also abundant on the refuge with the diversity and interspersed habitat types creating an edge effect beneficial to wildlife. There is a small population of American alligators on the refuge, and there is considerable habitat acreage available for this endangered species. Although the southern bald eagle and the Peregrine falcon have not been observed in the Mathew's Brake area in recent years, both are winter migrants of the Yazoo Basin. Sloughs, streams, beaver impoundments and other refuge wetlands provide only a limited amount of fish habitat except during high water periods when concentrations of fish may be high in suitable areas. Species may include any of the fishes common to the Mississippi and Yazoo Rivers.

#### C. Refuge Development

As a recent addition to the NWR System, no development has been carried out on Mathew's Brake. Only a small internal road system is present and best access in the refuge is by boat. A commercial boat launching site exists adjacent to the refuge. Public use of this ramp is currently permitted. If problems arise in the use of this facility in the future, a public launching site will be constructed.

#### D. Refuge Objectives

Specific refuge objectives have not yet been established. NWR System objectives and FWS intent during the acquisition period, however, clearly indicate our primary goals to be endangered species preservation and enhancement, waterfowl protection and habitat preservation, bottom-land hardwood habitat preservation, and provision of substantial opportunities for wildlife oriented public use.

## II. HUNTING PROPOSALS AND JUSTIFICATION

The proposal will allow regulated sport hunting within the framework set forth by the State of Mississippi through the issuance of annual regulations which establish open seasons, season lengths, daily bag and possession limits, shooting hours, time and area closures, and other species management provisions. Hunts will be further controlled by field observations and bag checks and by designated access points and vehicle limitations. An information/check station will be employed as necessary to aid in the collection of biological data. Time and space scheduling and/or zoning may be employed if circumstances justify such action to buffer conflicting refuge uses.

Small game hunting is proposed for the following species: gray and fox squirrel, raccoon, cottontail and swamp rabbit, opossum, and beaver. Based on qualitative and quantitative measures of habitats present on the refuge, and on population parameters of proposed species, annual hunting seasons can be legitimately and properly employed to consume that segment of the population referred to as the "annual surplus". Other small animal species may be included in the small game category at a later date if key habitat and/or population elements are exhibited and if substantial recreational opportunity can be provided.

A huntable population of white-tailed deer exists on the refuge, and annual harvest will be necessary to maintain the herd and its supporting habitat in a desirable and healthy status. State recommendations on season lengths and harvest quotas will be used as a base for the establishment of annual deer hunting regulations.

The planned action also proposes to open refuge lands to the hunting of migratory waterfowl. Hunting will be allowed within the State framework during the morning hours only on Mondays, Wednesdays and Saturdays. The hunt plan proposes the mandatory use of steel shot. Other migratory birds, particularly dove and rails may be included in future hunt plans if sufficient recreational opportunity and demand exist. State bag and possession limits will apply for all species.

## A. Small Game

### Administration of Small Game Hunts

Data on small game hunts will be obtained through field observations and bag checks and by volunteer reports to hunter information stations.

Camping will not be allowed on the refuge.

Vehicle operation on refuge lands will be restricted to designated roads. Off-road vehicles will be confined to those roads open to two-wheel drive vehicles.

### Data

Population, public use, and harvest estimates apply to lands under current FWS ownership. It is estimated that Mathew's Brake Refuge woodlands support an average of one squirrel per acre of dry land or about 300. Squirrel numbers, however, fluctuate considerably with mast availability and changes in weather conditions. According to the Mississippi Mail Survey of Game Harvest for 1976-1977, squirrel hunters in a 14 county area hunted an average of 7.99 days each for an average season bag of 16.47 squirrels. Mathew's Brake Refuge would, however, be more closely represented by the adjoining delta counties in which squirrel hunters spent an average of 10.68 days afield and harvested an average of 25.36 squirrels each.

Delta woodlands and field borders are conducive to high rabbit populations. Rabbit hunting ranks fourth in popularity among Mississippi hunters, and a high demand for this activity is anticipated. Raccoon densities are considered high throughout remaining woodlands in the Yazoo Basin and are estimated at one animal per 10-12 acres. Therefore, the fall population is estimated at 85 animals. Beaver are abundant throughout refuge brakes and sloughs as evidenced by timber damage and by numerous dams and/or lodges.

### Estimated Hunter Participation and Harvest

Based on squirrel hunter use and harvest data collected on similar bottomland hardwood tracts, hunter participation can be expected to be about 25, and the annual harvest should fall between 50 and 75 during average to high density years. From 20 to 25 rabbit hunters are expected to harvest approximately 40 rabbits per season. Participation in the raccoon hunt is expected to be light. An annual harvest of between 15 and 20 is likely. Although beaver are abundant, harvest is expected to be incidental to

more popular species bags. The same applies for opossum.

#### Justification

This proposal will provide substantial outdoor recreational opportunities to the public in a region where sport hunting is a principal recreational pursuit. It will also allow the harvest of a renewable resource without adverse long-term impacts on refuge natural resources.

#### B. Big Game

##### Administration of Big Game Hunt

Deer hunts will be within the State framework. Policy on camping and vehicle use would be the same as for small game hunts.

##### Data

The highly fertile soils of the Mississippi/Yazoo Basin produces some of the highest quality white-tailed deer habitat in the southeast. Population, public use, and harvest estimates apply to lands under current FWS ownership. Mathew's Brake Refuge has the capacity to support a deer per 10 acres of dry land; or a fall population of about 20 deer. In order to maintain the deer herd under managed conditions, it would be desirable to hold the herd at present levels.

##### Estimated Hunter Participation and Harvest

Based on traditional hunter use of Mathew's Brake, the popularity of hunting in the Mississippi Delta, and the amount of public land available to hunters in western and central Mississippi, projected deer hunter participation in refuge hunts is between 10 and 15 hunters. The annual deer harvest would be expected to be two to three deer. Crippling loss may increase the kill by another 10 percent.

##### Justification

This proposal will provide substantial outdoor recreational opportunities to the public in a region where sport hunting is a principal recreational pursuit.

If allowed to overpopulate, deer will destroy their habitat. This destruction affects other species as well. Deer hunts are needed to maintain the deer herd within habitat carrying capacity.

### C. Migratory Birds

#### Administration of Waterfowl Hunts

A permit system requiring hunters to check in/out at an established station may be required to gather accurate harvest and biological data. Policy on camping and vehicle use would be the same as for small game and big game hunts.

#### Data

Mathew's Brake Refuge has been traditionally a heavily used area by wintering waterfowl. The refuge portion of the brake is used by a peak number of 8,000 to 10,000 ducks annually. Waterfowl use days are in the range of 500,000 to 700,000 annually. About 50% of wintering waterfowl using the refuge are mallards. Wood ducks, teal, wigeon, and pintail are other frequently observed species.

The status of dove and rails on the refuge is largely unknown. If it is determined that there is sufficient recreational opportunity, consideration will be given to a refuge hunt.

#### Estimated Hunter Participation and Harvest

The total number of duck hunters expected on the refuge is from 50 to 75 annually. According to the Mississippi Mail Survey of Game Harvests for 1976-77, Delta waterfowl hunters averaged 8.9 days afield and bagged an average of 23.6 ducks for the season. Hunter use days will probably range between 200 and 250 with an expected harvest of about 400 ducks. A crippling loss of 20 percent or 80 ducks can be expected.

#### Justification

Mathew's Brake has been a noted and popular waterfowl hunting area. It is desirable to continue this activity, although with greater restrictions, in order

to provide public hunting opportunities and to utilize a renewable resource and still provide feeding and resting areas for waterfowl.

### III. INTERRELATIONSHIPS WITH OTHER PROJECTS OR PROGRAMS

Program design and management for Mathew's Brake Refuge will focus on migratory waterfowl protection and habitat improvement. The proposal is not expected to have any significant effect on these objectives. Waterfowl hunting on the refuge will be within the State framework and subject to annual migratory bird hunting regulations designed to limit the harvest of migratory waterfowl to desirable levels. Hunting will be allowed on Monday, Wednesday, and Saturday mornings only.

The endangered American alligator is known to occur on Mathew's Brake Refuge, and the southern bald eagle and Peregrine falcon may be occasional winter visitors. Although potential conflicts do exist between the hunting program and endangered species, the disturbance level is expected to be minimal and below that of similar non-refuge habitats in the Yazoo Basin.

Sport fishing and hunting activities will overlap to some degree, particularly during the fall period. No conflicts of any consequence is expected, however, because of the nature of habitats present and the time span between peak use periods for these activities.

The demand for non-consumptive wildlife oriented public use at Mathew's Brake is presently low and is expected to increase only moderately during the foreseeable future. Limited demand for wildlife/nature observation, photography, and study is expected. No conflicts of any consequence are expected to occur. Should a serious conflict arise, consideration will be given to time and space scheduling and/or zoning.

IV. FUND AND MANPOWER REQUIREMENTSA. Estimate for Entire Program

<u>1. General Administration</u>	<u>Man Days</u>	<u>Cost</u>
(a) Hunting plan and environmental assessment preparation, rule-making procedures.	20	\$ 1,600.00
(b) Printing of regulations, news releases, inquiries, public meetings, informational bulletin preparation and placement.	15	\$ 1,080.00
<u>2. Enforcement</u>		
Exclusive from assistance from State conservation officers and Federal special agents.	75	\$ 4,500.00
<u>3. Public Use and Harvest Surveys</u>	25	\$ 1,500.00
<u>4. Equipment Use, Fuel, Etc.</u>		
(6,000 miles)		\$ 2,000.00
Total:		\$10,680.00
<u>5. Capital Investments</u>		
1-12' boat and trailer		\$ 2,000.00
1-4½ h.p. outboard motor		500.00
1-Truck, ½ ton, 4 x 2		\$ 6,000.00
1-Mobile Radio		\$ 1,500.00
Misc. Law Enforcement Equip.		\$ 1,000.00
Total:		\$11,000.00

B. Estimate for Each Hunt

<u>1. Waterfowl</u>		
(a) Enforcement	25	\$ 1,500.00
(b) Equipment Use, Fuel, Etc.	-	600.00
<u>2. Deer (Archery)</u>		
(a) Enforcement	5	300.00
(b) Public Use and Harvest Survey	3	200.00
(c) Equipment Use, Fuel, Etc.	-	300.00

3. Squirrel, Rabbit, Beaver, Raccoon and Opossum

(a) Enforcement	10	\$ 600.00
(b) Public Use and Harvest Survey	10	600.00
(c) Equipment Use, Fuel, Etc.	-	220.00
B. Total:		4,320.00

# MATHEWS BRAKE NATIONAL WILDLIFE REFUGE

UNITED STATES  
DEPARTMENT OF THE INTERIOR

LEFLORE AND HOLMES COUNTIES, MISSISSIPPI

UNITED STATES  
FISH AND WILDLIFE SERVICE

