

ESTABLISHMENT REPORT

MURDER CREEK RESEARCH NATURAL AREA  
OCONEE NATIONAL FOREST, MONTICELLO, GEORGIA

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Approved:



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National Forests

11/30/77  
Date

\_\_\_\_\_  
Regional Forester  
Region 8

\_\_\_\_\_  
Date

\_\_\_\_\_  
Director  
Southern Forest Experiment  
Station

\_\_\_\_\_  
Date

DESIGNATION ORDER

By virtue of the authority vested in me by the Secretary of Agriculture under regulation 36 CFR 251.23, I hereby designate as the Murder Creek Research Natural Area the lands described in the preceding report by Robert L. Hendricks, dated November 18, 1977: Said lands shall hereafter be administered as a research natural area subject to the said regulations and instructions thereunder.

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Date

Chief

## MURDER CREEK RESEARCH NATURAL AREA

The principal reason for designation of Murder Creek as a Research Natural Area is that it is one of the few remaining relatively undisturbed bottomland hardwood forests in the Georgia piedmont. The area is comprised mostly of the alluvial bottom on both sides of Murder Creek. The bottomland hardwood forest contains those tree species characteristic of the piedmont in a forest association (cover type) and age class once far more common in Georgia. Society of American Forester cover types that best describe the forests in the area are swamp chestnut oak - cherrybark oak (91), and sugarberry - american elm green ash (93). The composition of the vegetation on the higher ground on each side of the creek, steep slopes falling to the creek, and the alluvial bottom closely follows Dr. E. Lucy Braun's description of what was once typical in similar situations all over the piedmont.<sup>1/</sup>

Murder Creek has been recognized for years by local educators and the public as an area with unusual floristic values. The area has been described in an initial Natural Park theme study conducted by Drs. Albert E. Radford and David L. Martin and

<sup>1/</sup> Deciduous Forests of Eastern North America (Hafner Publishing Company, 1967), pp. 259-279.

is also described in "Inland Wetlands of the United States."<sup>1/</sup>

The area is of additional value because of its proximity to a number of large local universities.

#### Location and Boundary

The Murder Creek Research Natural Area is 739 acres (299 hectares) at Lat. 33° 17'N, Long. 83°30' (Zone 17 Easting 265420 Northing 3685140) in Putnam County, Georgia. The area is in Federal ownership and is part of the Oconee National Forest administered out of Monticello, Georgia. The area is about forty-five miles (72 kilometers) southeast of Atlanta, thirty miles (48 kilometers) north of Macon and thirty-five miles (56 kilometers) south of Athens. Access from Monticello is by Georgia Highway 16 and Beaverdam Road, Forest Service Road #1068 where Beaverdam Creek crosses. A local landmark known as "Lazenberrys Mills" is the south boundary of the area. A description of the boundary as shown on the topographic map is included in the Appendix.

#### Physiography

The Oconee River watershed has a strongly broken topography, resulting in a hilly relief. The larger divides, of which Murder Creek is one, are indented by many secondary divides which form lateral draws and ravines that have narrow level ridge tops. The flat bottomlands that extend along the edges

<sup>1/</sup>Richard H. Goodwin, William A. Wiering, Inland Wetlands of the United States (Government Printing Office, Washington, D. C.) page 121.

of Murder Creek are narrow and variable, ranging from only a few feet to several hundred feet wide.

Ridge top elevations in the vicinity of Murder Creek are 500 feet (152 meters) above sea level. Differences in elevation from ridge tops to Murder Creek do not exceed 120 feet (37 m ). Elevation of the Research Natural Area ranges from 420 (128 m ) to 380 feet (116 m ) above sea level.

### Geology

The geologic description of rock formations in the Murder Creek area is parphyroblastic biotite gneiss. These are high grade metamorphic rocks that weather slowly. Occasionally, rock are exposed at the subsurface but most underlie the forest floor.

### Soils

The Research Natural Area lies in an area of Piedmont soils with finely textured loams and clays in the subsurface horizons and red clay subsoils. The major upland soils in order of decreasing area are Davidson clay loam, Cecil sandy loam, Cecil clay loam, and Iredell loam. The bottomland soils are mainly Congaree silty clay loam.

### Minerals

There are no records of mineral deposits in the Natural Area that are of commercial importance. A mineral survey has not been conducted on the Forest. Establishment of the natural

area, therefore, does not now, nor is it anticipated to conflict with any mineral extraction needs. These lands were acquired under the National Industrial Recovery Act and are not subject to mineral entry. The mineral rights are owned by the Federal Government.

### Climate

The mean annual rainfall in Putnam County is 44.90 inches. Normally, winter and spring rains are slow and generally summer rains are usually in the form of thundershowers. Fall months have slightly less precipitation than the remainder of the year. Snow is infrequent and remains only a day or two. Glaze storms are occasionally severe enough to cause some damage to trees.

The mean annual temperature in Putnam County is 63.8°F. The January mean maximum and minimum temperatures are 57°F and 35°F respectively. The July mean maximum and minimum temperatures are 90°F and 69°F respectively. The average date of the last killing frost is March 30 and the average earliest killing frost is November 10, giving a growing season of 225 days.<sup>1/</sup> The nearest weather station is located in Monticello, Georgia 10 miles west of the area. Statistics on the area are based on data collected from 1931-1960.

<sup>1/</sup>Climates of the States - Georgia. (Washington, D. C.: U. S. Government Printing Office, 1969).

## DESCRIPTION OF RESOURCE VALUES

### Flora

The Natural Area is unique in that it contains one of the best known examples of a bottomland hardwood forest in this part of the country. Within the area is an unusually diverse community of trees and understory plants. Trees within the area have obtained sizes rarely found anywhere else on National Forest land and are unknown to occur on private land within the area.

The Forest is by no description a virgin one uninfluenced by man. Most of the area was once under cultivation and extensive erosion was allowed to occur. Signs of this past history still can be observed. There are also a number of exotic plants in the area; however, the area has been undisturbed for nearly 100 years and has regained those vegetational attributes that once were typical of the Southern Piedmont. Following Braun's description of what once was a typical piedmont stream bottom; river birch (Betula nigra), cottonwood (Populus deltoides var. deltoides), sycamore (Plantanus occidentalis), and sweet gum (Liquidambar styracitlua) are the most frequent trees immediately along the creek. On the flat bottoms back from the creek occurs the swamp chestnut oak-cherrybark oak and sugarberry-american elm-green ash cover types. Within these stands can be found sweet gum, elm (Ulmus americana), red maple (Acer rubrum), tuliptree (Liroiodendron

tulipifera), ash (Fraxinus pennsylvanica), sugarberry (Celtis laevigata), white oak (Quercus alba), cottonwood, shagbark hickory (Carya ovata), etc. The understory is dominated by small cane (Arundinaria tecta).

Where there are abrupt slopes of a northerly aspect, Braun identifies another forest community which can be observed along Murder Creek. This community contains a variety of mesophytic types of which beech is probably the most distinguishing species. White oak, yellow poplar, and red maple are common associates and an understory of Christmas fern (Polystichum acrostichoides), and spotted wintergreen (Chimaphila maculata) is characteristic. Above this community the transition to the loblolly pine (Pinus taeda) forest can be seen.

In a search for potential National Natural Landmarks, A. E. Radford and D. L. Martin described the forest at the confluence of Beaver Dam Creek and Murder Creek as follows:

The Murder Creek Bottomland hardwood forest is developed over a relatively well-drained, fine sandy to silt loam floodplain. Most of the old oxbows have been filled with sandy loam so that all of the bottomland soils are mesic to wet-mesic. On the best-drained areas (no true levees were noticed) water oak is dominant. Southern sugar maple, sweet gum, shagbark hickory, black walnut, hackberry, loblolly pine, green ash occur on



the slightly lower fine sandy loam. On the wet-mesic silts in the old oxbows ironwood, American elm, sycamore, and river birch are dominant. Strawberry bush and benzoin are scattered representatives of the shrub layer. The herbaceous cover is diverse and extensive for a swamp forest. Coneflower (Rudbeckia laciniata), jewelweed, elephant's foot, snakeroot (Sanicula canadensis), and Microstegium, a grass, are dominant members of the August flora. The forest composition is drastically different from that of the Alcovy River which has developed over wet to wet-mesic silt loams and that on the poorly drained clay loam in Fairfax County, Virginia.

The trees range to over 60 inches DBH with the yellow poplar and cottonwood and over 30 inches DBH with loblolly, water oak, river birch, white oak, and swamp white oak.

#### Fauna

The Natural Area is a favorable wildlife habitat. Evidence of use by animals such as deer (Odocoileus virginianus), fox (Vulpes fulva), raccoon (Procyon lotor), beaver (Castor canadensis), and squirrel (Sciurus carolinensis) were observed.<sup>1/</sup>

#### Recreation

Currently, recreation is dispersed over the Natural Area and has no adverse effect. The primary uses being hunting and fishing. Other uses are bird watching, sightseeing, and hiking.

<sup>1/</sup>Observed by Anthony Durkus and Joseph Saucier.

Table 1.--Flora of the Murder Creek Research Natural Area  
(an incomplete list)\*

TREES

Ash, green	<u>Fraxinus pennsylvanica</u> Marsh.
Beech, american	<u>Fagus grandifolia</u> Ehrh.
Birch, river	<u>Betula nigra</u> L.
Blackgum	<u>Nyssa sylvatica</u> Marsh.
Boxelder	<u>Acer negundo</u> L.
Cherry, black	<u>Prunus serotina</u> Ehrh.
Cottonwood, eastern	<u>Populus deltoides</u> Bartr. var. <u>deltoides</u>
Dogwood, flowering	<u>Cornus florida</u> L.
Elm, american	<u>Ulmus americana</u> L.
Hickory, shagbark	<u>Carya ovata</u> (Mill.) K. Koch
Holly, american	<u>Ilex opaca</u> Ait.
Honeylocust	<u>Gleditsia triacanthos</u> L.
Hornbeam, american	<u>Carpinus caroliniana</u> Walt.
Maple, chaulk	<u>Acer leucoderme</u> Small
florida	<u>Acer floridanum</u> (Chapm.) Pax.
red	<u>Acer rubrum</u> L.
southern sugar	<u>Acer barbatum</u> Michx.
Mulberry, red	<u>Morus rubra</u> L.
Oak, chinkapin	<u>Quercus muehlenbergii</u> Engelm.
southern red	<u>Q. falcata</u> Michx. var. <u>falcata</u>
cherry bark	<u>Q. folcata</u> var. <u>pagodarfolia</u>
swamp chestnut	<u>Q. michauxii</u> Nutt.
water	<u>Q. nigra</u> L.
white	<u>Q. alba</u> L.
Pine, loblolly	<u>Pinus taeda</u> L.
Redbud	<u>Cercis canadensis</u> L.
Sassafras	<u>Sassafras albidum</u> (Nutt.) Ness.
Silverbell, carolina	<u>Halesia carolina</u> L.
Sweetgum	<u>Liquidambar styraciflua</u> L.
Sycamore, american	<u>Platanus occidentalis</u> L.
Yellow-poplar	<u>Liriodendron tulipifera</u> L.
Sugarberry	<u>Celtis kalaevigata</u> Willd.

SHRUBS, VINES, AND PERRENIALS

Atamasco lily	<u>Alamasco atamasco</u> (L.) <u>Greene</u>
Buttercup	<u>Ranunculus abortivus</u> L.
Carolina jassamine	<u>Gelsemium sempervirens</u> (L.) <u>Ait.</u>
Cat greenbriar	<u>Smilax glauca</u> Walt.
Highbush huckleberry	<u>Vaccinium corymbosum</u> L.
Japanese honeysuckle	<u>Lonicera japonica</u> Thwnb.
Muscadine grape	<u>Vitis rotundifolia</u> Michx.
Partridge berry	<u>Mitchella repens</u> L.
Pigweed	<u>Polygonum pennsylvanicum</u> L.
Poison ivy	<u>Rhas. toxicodendron</u>

Table 1 - continued.

SHRUBS, VINES, AND PERRENIALS

Red buckeye	<u>Aesculus payia</u> L.
Rattlesnake orchid	<u>Goddyera pubescens</u> (Willd) Brown
Rue anemone	<u>Anemonella thalictroides</u> (L.) Spach.
Saw greenbrier	<u>Smilax bona-nox</u> L.
Spotted wintergreen	<u>Chimaphila maculata</u> (L.) Pursh.
Trillium	<u>Trillium calesbaei</u> Ell.
Trillium	<u>Trillium cuneatum</u> Raf.
Wild azalea	<u>Rhododendron nudiflorum</u> L.
Wild ginger	<u>Asarum canadense</u> L.
Christmas fern	<u>Polystichum acrostichoides</u> Mich.
Cone flower	<u>Rudbeckia laciniata</u>
Jewelweed	<u>Impatiens biflora</u>
Elephant's foot	<u>Elephantopus</u> sp.
Snakeroot	<u>Sanicula canadensis</u>
Small cane	<u>Arunbinaria tecta</u>

\*Species list compiled from on site inspection. Compiled by  
Robert Hendricks, Anthony Durkas, and Joseph Saucier.

This area is part of the Cedar Creek Wildlife Management Unit and one of the few remaining places available to the general public for hunting. As part of a management unit, it provides hunters with optimum conditions for hunting of large and small game.

A potential adverse effect of hiking and/or sightseeing is plant collection.

#### Water Use

Comparatively little use is made of the area streams. However, as more farms become aware of the profitability of supplemental irrigation, expanded use can adversely affect the characteristics of the research area. Other possible demands for water can be expected from increased populations and/or industries upstream.

These demands could result in changes in the area over an extended time period. The turbidity and mud staining character of this stream deters most industries from utilizing it now.

A BOR composite has been approved for the acquisition of much of the private land to the proclamation boundary in order to protect this area. This will provide more protection for the watershed and expand the area available to recreationalists thus lessening their impact.

## ADMINISTRATION, MANAGEMENT AND PROTECTION

The District Ranger in Monticello, Georgia will be responsible for the area's protection. The Director of the Asheville Experiment Station will be responsible for the administration of the area.

Surrounding land use patterns at present do not pose any great problems in the research area. Practically all the surrounding land is in forest ownership and includes private individuals and industry. In the near future, the private lands around the area will hopefully be acquired. There is an accepted B.O.R. composite for acquisition of private land. Recreation use in the area, which is now mostly hunting, has not impacted the area to any extent. There is one hunt camp near Lazenberry's Mill but has not impacted the value of the area. Steps will be taken to stop adverse hunting impacts in the area.

The area will be signed so as not to advertise the area to the public.

The area will be surveyed when funds become available. The boundary is now being marked with paint to protect it from any administrative errors. The Forest Service land to the west of the area south of the creek will be protected until the private land between it and the present boundary can be acquired. It will then be proposed to include the area in a protected status. Application for mineral exploration as mining will not be approved.

APPENDIX  
BOUNDARY DESCRIPTION

MURDER CREEK

RESEARCH NATURAL AREA

(ALL BEARING AND DISTANCES APPROXIMATE)

Point of Beginning going clockwise  
(2250 feet from creek along boundary)

N 52° 30' E	1 (quad) 650'	N 66° 30' E	1 700'
N 72° 30' E	1 900'	S 36° 0' E	2 1,500'
S 72° 30' E	2 1,120'	S 66° 30' E	2 400'
S 48° 30' E	2 1,050'	N 72° 30' E	1 650'
S 12° 0' E	2 1,500'	S 55° 30' E	2 1,100'
S 56° 30' E	2 1,000'	S 7° 30' W	3 1,400'
S 37° 15' E	2 850'	S 64° 45' W	3
S 23° 0' E	2 1,500'	WEST, ALONG BOUNDARY TO LAZENBERRY'S MILL	2,000'
S 54° 45' E	2 500'	N 64° 0' W ALONG RD.	4 300'
N 71° 0' E	1 850'	N 30° 0' E	1 700'
N 24° 45' E	1 400'	N 6° 30' W	4 400'
CHANGE BEARING AT ROAD		N 66° 0' W	4 1,000'
N 64° 15' W	4 500'	N 23° 0' W	4 800'
N 44° 0' W	4 350'	N 45° 0' W	4 200'
N 8° 45' W	4 2,700'	S 45° 0' W	3 200'

S 32° 0' W                    3  
                                 1,500'

S 76° 0' W                    3  
                                 1,100'

N 69° 45' W                   4  
                                 1,700'

N 8° 45' W                    4  
                                 900'

N 26° 30' W                   4  
                                 2,000'

N 67° 15' W                   4  
                                 1,100'

S 77° 0' W                    3  
                                 1,500'

S 81° 0' W                    3  
                                 1,800'

S 19° 0' W                    3  
                                 1,100'

S 82° 30' W                   3  
                                 800'

N 51° 15' W                   4  
TO BOUNDARY                700'

ALONG BOUNDARY TO POINT OF BEGINNING



# MURDER CREEK RESEARCH NATURAL AREA

OCONEE NATIONAL FOREST

////// PRIVATE LAND  
--- RNA BOUNDARY  
..... PROPOSED BOUNDARY WITH ACQUISITION  
OF PRIVATE LAND

