

# Management Plan

## Cossatot River State Park-Natural Area

### Recommended by:

\_\_\_\_\_  
Richard W. Davies  
Executive Director  
Arkansas Department of Parks  
and Tourism

\_\_\_\_\_  
Date

\_\_\_\_\_  
Harold K. Grimmert  
Director  
Arkansas Natural Heritage  
Commission

\_\_\_\_\_  
Date

### Approved by:

\_\_\_\_\_  
Montine McNulty  
Chairman  
Arkansas Parks, Recreation, and  
Travel Commission

\_\_\_\_\_  
Date

\_\_\_\_\_  
Jane Lucky  
Chairman  
Arkansas Natural Heritage  
Commission

\_\_\_\_\_  
Date



**ARKANSAS PARKS, RECREATION AND  
TRAVEL COMMISSION**

**Chairman**

Montine McNulty

**Vice-Chairman**

Karen Lackey

Steve Chyrchel  
Jeptha "Jep" Futrell  
Jim Gaston  
Karen Lackey  
Billy Lindsey  
Cone Magie  
Dean Murphy  
Olden Murray  
Ness Sechrest  
J.D. "Bud" Schamburger  
Ovid Switzer  
Charles Yeargan

**ARKANSAS DEPARTMENT OF  
PARKS AND TOURISM**

Richard W. Davies,  
Executive Director

Richard W. Davies,  
Director, Arkansas State Parks

Greg Butts,  
Manager, Planning and Development

**Co-author**  
Bill Paxton,  
Resource Management Specialist

**Planning Team Contributors**  
Stan Speight,  
Park Superintendent

John Beneke,  
Landscape Architect

Rex Friedman,  
Real Estate Management Officer

Melissa Smrh,  
Graphic Artist

**ARKANSAS NATURAL HERITAGE  
COMMISSION**

**Chairman**

Jane Lucky

**Vice-Chairman**

Ralph Wilson, Jr.

Raymond Abramson  
Dr. Tom Clark  
Eddie Holt  
Ellen Neaville  
Robert Pierce  
Ellen Shipley  
Godfrey White

**DEPARTMENT OF  
ARKANSAS HERITAGE**

Joan Baldrige,  
Executive Director

Harold K. Grimmett,  
Director, Arkansas Natural Heritage Commission  
(ANHC)

Jane Jones,  
Director, Arkansas Natural and Scenic Rivers  
Commission

**Co-author**  
Bill Pell,  
Chief of Stewardship

**Planning Team Contributors**  
Mina Marsh,  
Deputy Director

Bill Shepherd,  
Planning Specialist

Dr. Bert Pittman,  
Botanist

■ **TECHNICAL ADVISORY TEAM**

**State Agencies**

Dick Cassat, Chief, Technical Services Branch,  
Department of Pollution Control and Ecology

Garner Barnum,  
Assistant State Forester-Management,  
Arkansas Forestry Commission

Fred Wetzel, District Forester,  
Arkansas Forestry Commission

Charley Oholendt, Forester,  
Arkansas Forestry Commission

Greg Mathis, District Supervisor,  
Arkansas Game and Fish Commission

Sam Barkley, Endangered Species Biologist,  
Arkansas Game and Fish Commission

Jane Rice, Upland Wildlife Coordinator,  
Arkansas Game and Fish Commission

Dr. John Harris, Biologist,  
Arkansas Highway and Transportation Department

**Federal Agencies**

Larry Hedrick, Range, Fisheries, and Wildlife  
Officer, Ouachita National Forest

John McClemore, Range Specialist,  
Ouachita National Forest

Hardee Jarrells, Landscape Architect,  
Ouachita National Forest

Gary Hawkins, Other Resources Assistant,  
Mena District, Ouachita National Forest

Mobie Price, Manager, Tri-Lakes Region,  
U.S. Army Corps of Engineers, Little Rock District

Mark Hubbert, Outdoor Recreation Planner,  
U.S. Army Corps of Engineers, Little Rock District

John Pulliam, Biologist,  
U.S. Fish and Wildlife Service

**Private Organizations**

Arkansas Nature Conservancy

Arkansas Canoe Club

Ozark Society

American Red Cross

( )

( )

( )

# Contents

## CHAPTER 1 Purpose and Outline of the Plan

- 1 Introduction
- 1 Implementation and Revision of the Plan
- 1 A Note About Complexity

## CHAPTER 2 Project and Resource Summaries

- 3 Location and Access
- 3 Origins of the Park-Natural Area
- 6 Social and Economic Conditions in Polk and Howard Counties
- 7 Economic Impact of CRSPNA
- 7 Physiography and Geology
- 8 Watershed Area
- 8 Streamflow
- 8 Water Quality
- 9 Fish and Wildlife
- 10 Vegetation
- 10 Special Plants
- 14 Recreational Activities
- 15 Land Ownership and Use
- 15 Historic and Cultural Resources

## CHAPTER 3 Summary of Public Concerns/ Comments

- 19 Timber Management
- 19, 22 Litter and Pollution
- 19, 21 Development
- 20 Signs
- 20 Road Crossings
- 20 Environmental Education
- 20 Special Species
- 20 Historical Names
- 20 Floating Safety

- 20 Swimming
- 21 Herbicides
- 21 Special Species
- 21 Fishing
- 21 Floating
- 22 Grazing
- 22 Wild and Scenic River Proposal
- 22 Zoning
- 22 Recreation Management/Law Enforcement
- 22 Additional Land Needs
- 22 Wildlife Management and Hunting
- 23 Forest Management
- 23 Utilities
- 23 Concessions, Fees and Economic Development

## CHAPTER 4 Goals and Objectives

- 25 Legal and Administrative Requirements
- 26 Park Classification
- 26 Management Goals and Objectives

## CHAPTER 5 Land Classification Zoning System

- 29 Ecological Protection Zone
- 33 Road/Utility Zone
- 33 Development Zone
- 33 Forest Restoration Zone
- 34 Historic/Cultural Zone

## CHAPTER 6 Resource Management

- 35 Management for Wild and Scenic River  
(national) and Natural and Scenic River (state)  
Status
- 38 Water Management

- 39 Endangered/Threatened and Other Special Species
- 39 Outstanding Natural Communities
- 40 Pest Insect Control
- 40 Fire
- 41 Wildlife
- 43 Hunting
- 43 Exotic and Feral Animal Control
- 43 Non-Native and Introduced Plants
- 43 Forest Restoration
- 44 Pesticide Use
- 44 Visual Resources
- 45 Cultural Resources
- 45 Soils
- 45 Minerals, Rocks and Fossils
- 46 Utility Transmission Lines
- 46 Quarry Restoration
- 46 Grazing

#### **CHAPTER 7**

#### **Resource Inventory, Monitoring and Research**

- 47 Biological Inventory Needs
- 47 Research and Collecting Permits
- 47 Problem Species Monitoring
- 47 Element Occurrence Monitoring
- 48 Environmental Monitoring

#### **CHAPTER 8**

#### **Recreation Management**

- 51 Draw Zone and Projected Visitation
- 51 Avoiding Overuse and Damage
- 52 Floating Use
- 53 Swimming, Bathing
- 53 Signs and Printed Information
- 53 Human Waste and Litter
- 54 Access and Parking Facilities
- 54 Camping and Day Use
- 54 Trails
- 54 Hunting and Fishing
- 55 Other Recreation Management Policies

#### **CHAPTER 9**

#### **Development and Additional Land Needs**

- 57 Background
- 57 Capital Improvements
- 69 Additional Land Needs

#### **CHAPTER 10**

#### **General Maintenance and Operations**

- 73 Boundary Survey, Boundary Marking and Line Maintenance
- 73 Fencing
- 73 Gates/Barriers
- 73 Law Enforcement/Public Safety
- 73 Sign Maintenance
- 73 Road Maintenance
- 74 Trail Maintenance
- 74 Campgrounds and Day-use Areas
- 74 Staffing Requirements
- 74 Maintenance and Operations—Costs
- 75 Equipment on Hand
- 75 Future Equipment Needs

#### **CHAPTER 11**

#### **Interpretive Programs**

- 77 Background
- 77 Interpretive Program Philosophy
- 78 Interpretive Themes

#### **APPENDIX A**

- 81 Statement of Agreement

#### **APPENDIX B**

- 85 Road Closures Within CRSPNA

# List of Figures and Tables

## ■ FIGURES

### Chapter 2

- 3 #1, Location Map
- 4 #2, Access Map
- 5 #3, Road Easements Map
- 11-13 #4, Existing Pine Plantations Map
- 16-18 #5, C.O.E. Right-of-way and Flowage Easements Map

### Chapter 5

- 30-32 #6, Land Classification Zoning Map

### Chapter 6

- 36-37 #7, Wild and Scenic River Proposal Map

### Chapter 8

- 51 #8, Draw Zones Map

### Chapter 9

- 58-60 #9, Development Plan Components Map
- 61 #10, Administrative and Overnight Facilities Site Plan
- 62 #11, Cossatot Falls Area Site Plan
- 63 #12, Primitive Camping Area Site Plan
- 64 #13, Brushy Creek Access Site Plan
- 65 #14, Ed Banks Bridge Access Site Plan
- 66 #15, Sandbar Access Site Plan
- 67 #16, Falls Overlook Site Plan
- 70-72 #17, Additional Land Needs Map

## ■ TABLES

### Chapter 2

- 8 #1, Monthly Stream Flows
- 9 #2, Water Quality Record
- 14 #3, Special Plants of CRSPNA

### Chapter 6

- 42 #4, Vertebrate Wildlife Species Likely to Benefit from Old-growth Forest Habitat
- 44 #5, Plantation Data

### Chapter 8

- 52 #6, Degree of Difficulty Classification for Streams

### Chapter 9

- 68 #7, Preliminary Development Budget

### Chapter 10

- 74 #8, Staffing Requirements
- 75 #9, Maintenance and Operations Costs

( )

( )

( )



# Profile

## Cossatot River State Park-Natural Area

**Date Authorized:**

December 23, 1987

**Acquisition Initiated:**

December 5, 1988

**Anticipated Completion Date, Acquisition:**

September, 1991

**Managing Agencies:**

Arkansas State Parks  
Arkansas Natural Heritage Commission

**Cooperating Agencies:**

Arkansas Game and Fish Commission  
Arkansas Natural and Scenic Rivers Commission  
Arkansas Forestry Commission  
Arkansas Department of Pollution Control  
and Ecology  
U.S. Forest Service, Ouachita National Forest  
U.S. Army Corps of Engineers, Little Rock District  
U.S. Geological Survey

**Brochure:**

Available

**Facilities:**

None

**Main Attractions:**

Cossatot Falls  
rugged scenery and primitive character  
whitewater stream  
natural pools in the river

**Special Features:**

free-flowing stream with high water quality  
outstanding examples of Ouachita Mountain  
oak-pine forests, cedar glades and riverine  
vegetation  
habitat for the threatened leopard darter and the  
Ouachita Mountain shiner  
habitat for plants found only in a restricted part of  
the Ouachitas and/or rare in Arkansas  
(twistflower, Waterfall's sedge and others)

**Designations:**

Arkansas State Parks System  
Arkansas System of Natural Areas  
Arkansas System of Natural and Scenic Rivers  
proposed National Wild and Scenic River (part of  
joint state-federal application to give this  
designation to 39 miles of the Cossatot River  
and tributaries.

**Acreage Owned or Scheduled for  
Acquisition by State:**

4,414.2 acres

**Counties:**

Polk, Howard

**Physiographic Province:**

Ouachita Mountains

**State House Districts:**

50, 76, 95

**State Senate Districts:**

20, 31

**U.S. Congressional Districts:**

3, 4

**School Districts:**

Wickes, Umpire, Vandervoort

**Highway Access:**

Highway 246 between Vandervoort and Athens

Highway 4 between Wickes and Umpire

**Staff:**

Superintendent Stan Speight (501-385-2201)

# Management Plan Summary

## Cossatot River State Park-Natural Area

### National Wild & Scenic River Designation

The managing agencies will seek National Wild and Scenic River designation for the 10.4-mile segment of the Cossatot River within CRSPNA. State Parks and Natural Heritage have entered into a cooperative agreement with the U.S. Forest Service and the U.S. Army Corps of Engineers to work together to protect 39 miles of the Cossatot and several tributaries (the latter two agencies will also request national designations for the portions they manage).

### Visual Resources

CRSPNA will be managed to protect and enhance the primitive, natural and aesthetic character of the area. All management and development activities will be evaluated for their potential impacts on these resources; intrusions will be minimized.

### Wildlife (game, non-game and special species) and Special Plants

CRSPNA will be managed to favor naturally-occurring mature hardwood and mixed shortleaf pine-hardwood forests for the benefit of dozens of game and non-game species. The habitats of the Threatened leopard darter, all species that are candidates for listing by the U.S. Department of the Interior as Threatened or Endangered, and all special species listed by the Arkansas Natural Heritage Commission will be protected and maintained. Several hundred acres of previously cut-over or cleared land will be managed in cooperation with the Arkansas Game and Fish Commission and the Arkansas Forestry Commission to benefit game species.

### Natural Areas

Initially 2400 acres of the 4414.2 within CRSPNA will be dedicated into the Arkansas System of Natural Areas. As forest restoration efforts are completed, additional acreage will be added to this system.

### Hunting

In keeping with standard park management policies, hunting will be prohibited once CRSPNA boundary lines are surveyed and signed (scheduled for late 1990). Regulated hunting is permitted in the interim.

### Fishing

Fishing will be regulated in accordance with Arkansas Game and Fish Commission regulations. State Parks and Natural Heritage may recommend special regulations based on fisheries research data.

### Forest Management

Forest management activities will take place on approximately 812 acres of loblolly pine plantations within CRSPNA and in a few hundred acres of land that was heavily cut over within the last five to ten years. The objective of forest management activities on this acreage will be to restore native hardwood and mixed pine-hardwood forests over the next 28 years. Elsewhere on the property forest management actions may be necessary to control pine beetle outbreaks or wildfire. Some vegetation removal may be necessary in conjunction with facility development and management, especially for public safety.

### Soil and Water

Water quality will be protected by applying stringent erosion and sewage controls, in accordance with all

applicable state and federal laws. Soil erosion problems and water quality conditions will be monitored regularly, and corrective actions will be taken.

## **Insect Pest Species**

The Arkansas Forestry Commission will monitor pine beetle outbreaks and provide recommendations for specific control measures on a case-by-case basis. State Parks and Natural Heritage will implement appropriate control measures.

## **Feral and Exotic Animals/ Non-native Plants**

Due to the destructive impacts of exotic and feral animals (goats and wild pigs, for example) on native vegetation, any such animals that appear within CRSPNA will be removed by staff. Non-native plants will be eradicated.

## **Fire**

Wildfires will be controlled with the assistance of the Arkansas Forestry Commission and local volunteer fire departments. Staff will conduct carefully-controlled prescribed burns as needed to reduce fuel loads, maintain mixed pine-hardwood forests, and to enhance certain restoration efforts.

## **Cultural Resources**

A complete archeological survey of CRSPNA is needed. Initial survey efforts will focus on proposed development sites. If cultural resources are located during inventory or construction, the State Historic Preservation Officer will be asked to evaluate the site and recommend appropriate action.

## **Minerals/Oil and Gas**

Weyerhaeuser Company (WEYCO) retained all subsurface rights within CRSPNA. Due to the low potential for commercially-valuable mineral deposits and the high costs of extraction in the region, however, neither mining nor drilling is likely to occur within the area. Also, WEYCO has agreed to restrict any exploration and extraction activities that might take place to methods which would not destroy or substantially damage the natural values for which CRSPNA was established. Restoration of disturbed sites would be required.

## **Utility Transmission Lines**

Any proposal for transmission facilities across CRSPNA property must be supported by a thorough environmental analysis, including assessment of a range of alternatives. Transmission crossings must be restricted to designated corridors near Highways 4 and 246 (See Chapter 5), and all disturbed surface area must be restored to conditions prescribed by the directors of the managing agencies (subject to standards that may be imposed by federal or state agencies).

## **Grazing**

Grazing is counter to the purposes for which CRSPNA was established and therefore will not be allowed. Holders of grazing leases on adjacent lands will be required to keep their livestock from entering the state property. Fences now on CRSPNA property will be removed unless they contribute in some way to the goal of preventing grazing.

## **Park-Natural Area Development**

**Cossatot Falls Area:** Parking will be provided; compacted and gullied areas will be reclaimed, using fill materials, structural improvements and native plants; a restroom will be installed; trails will be constructed; and the primitive camping area upstream from the Falls will be improved. Because much of this area lies within the 100-year floodplain, its future status as a camping site is subject to change.

**Other River Accesses & Parking:** A canoe launch/day-use area will be developed just north of the new Highway 246 bridge. Parking, signs and put-ins will be provided near three other traditional use sites (Ed Banks, Sand Bar, old Highway 4 low-water bridges).

**Trails:** Hiking, interpretive and portage trails will be constructed and maintained. Initial emphasis will be on short interpretive and portage trails. A trail development plan will be proposed by mid-1991.

**Signs, Barriers:** Directional, interpretive, boundary, safety and area signs will be installed. Information boards will be placed at main access points to convey regulations, safety recommendations and natural history. As many as 30 former timber access roads that dead-end within CRSPNA will be closed to vehicular access.

**Visitor Center/Support Facilities:** A visitor center will be constructed on the west side of the river south of Highway 4; this structure will house administrative offices and environmental education/interpretive facilities. Other support facilities, including staff housing and maintenance buildings, will be located nearby.

**Additional Camping:** Primitive camping (30 sites) will be provided north of WEYCO-numbered Road #52600. Locations for 30-60 Class A campsites have been identified west of the river and south of the visitor center.

**Rustic Cabins:** Development of 10 rustic cabins will be located near the campground areas south of Highway 4.

## **River Safety/Floating Recommendations**

Helmets and life preservers will be recommended above certain flow levels. These levels will be determined through consultation with experienced floaters from the Arkansas Canoe Club and the American Red Cross. Single chamber flotation devices are discouraged above 100 cfs. All safety recommendations will be posted by mid-1990 in conspicuous locations at each river access point.

## **Litter Program**

The Carry-In/Carry-Out philosophy will be encouraged throughout CRSPNA by use of signs and brochures. Arkansas litter laws will be enforced. Designated trash collection points will be established in 1991. Glass containers are prohibited on or within 50 feet of the river's banks and on trails, both for aesthetic and safety purposes (Park Directive 3215).

## **Equestrian, Bicycle and Off-road Vehicle Use**

Equestrian and off-road vehicle use are prohibited everywhere within CRSPNA except on the designated WEYCO-numbered access roads. Bicycle use is prohibited except within park development areas.

## **Additional Land Needs**

To meet management goals and objectives, several tracts have been identified as desirable future additions to the resource base of CRSPNA.

## **Environmental Education Programs/Interpretation**

Emphasis will be on increasing environmental awareness and promoting a stewardship ethic. CRSPNA will become an outdoor environmental education laboratory for school children and adults.

( )

( )

( )

# 1 Purpose and Outline of the Plan

## ■ Introduction

This plan provides long-range management direction for Cossatot River State Park-Natural Area (CRSPNA). Responsibility for development and implementation of the plan rests with the Arkansas Natural Heritage Commission (ANHC) and the Division of Arkansas State Parks (ASP), agencies of the Department of Arkansas Heritage and Department of Parks and Tourism, respectively. Significant contributions have been made by staffs of the Department of Pollution Control and Ecology, the Arkansas Forestry Commission, the Arkansas Game and Fish Commission, the Arkansas Natural and Scenic Rivers Commission, The Nature Conservancy, the U.S. Army Corps of Engineers, the U.S. Forest Service, the U.S. Geological Survey and the U.S. Fish and Wildlife Service, among others.

The plan consists of eleven chapters. Chapter 2 provides a brief history and description of the project. Chapter 3 summarizes public input and comments concerning management and development of CRSPNA. In Chapter 4, management goals and objectives for CRSPNA are presented, along with some of the legal and administrative requirements that drive these goals and objectives. Succeeding chapters cover the "Land Classification Zoning System," "Resource Management," "Inventory, Monitoring and Research," "Recreation Management," "Development and Additional Land Needs," "Maintenance and Operations," and "Interpretive/Educational Programs."

## ■ Implementation and Revision of the Plan

This management plan, formally approved by both the Arkansas Natural Heritage Commission and the Arkansas Parks, Recreation and Travel Commission in January, 1990, directs and regulates all resource management decisions affecting CRSPNA. The plan will be implemented by the staffs of both agencies, with assistance from contractors, volunteers and personnel from other state and federal agencies. Fiscal year action (work) plans and yearly management reports will be prepared by July 1 each year. Any proposed departures from annual work plans that would significantly affect the property must be approved by both agency directors.

The comprehensive management and development plan will be reviewed at least every six years and revised as needed. All proposed changes must be approved by both Commissions.

## ■ A Note About Complexity

Cossatot River State Park-Natural Area presents a complex array of resource and visitor management challenges, many of which center on the river itself. Not only does the Cossatot have very high water quality, it also harbors at least two rare fish species; draws crowds of bathers and fishermen; and is considered by many to be Arkansas' premier whitewater float stream. The river is both beautiful and dangerous, clean but vulnerable. It must be given stringent protection, but it must also be kept open for public use and enjoyment.

## • Purpose and Outline of the Plan

Moving to the uplands, where rare plants and old-growth forests thrive, we find a whole new set of challenges. Here, the issue is not simply how to protect and maintain the natural features that make the upland slopes so appealing and valuable, but also how to deal with potential bark beetle outbreaks, what to do about fire (both wild and prescribed), where to locate trails in a manner that is appealing to hikers and yet causes little harm to the environment and how to deal with wildlife populations that may exceed the area's carrying capacity. One of the most pressing issues on the uplands is what do with CRSPNA's 812 acres of pine plantations. Another major issue is the level of park development CRSPNA can or should support.

The foregoing is a sample of the ecological, aesthetic, and recreation-related issues, problems and opportunities addressed in the plan. In the next three chapters we describe the context in which all identified issues, problems and opportunities were considered and resolved, or at least addressed. Readers already familiar with this background material—the resources and history of CRSPNA, concerns and issues raised by the public, and pertinent laws and regulations affecting the area's management and development—may wish to refer to Chapter 5, where management goals and objectives for CRSPNA are discussed. Chapters 5 through 11 provide the actual details concerning management and development of the property.



# 2

## Project and Resource Summaries

### Location and Access

Cossatot River State Park-Natural Area lies approximately 130 highway miles southwest of Little Rock, Arkansas (Figure 1). It extends from the southern boundary of the Ouachita National Forest south along the Cossatot River 10.4 miles to the upper reaches of Gillham Lake. The north access to CRSPNA is via Highway 246, eight miles east of Vandervoort and 17 miles west of Athens, Arkansas (Figure 2). On the south access is via Highway 4, 7.5 miles west of the junction of highways 4 and 84 in Umpire and 10.5 miles east of the junction of highways 4 and 71 in Wickes, Arkansas.

Access to the interior of the park-natural area is via a network of WEYCO and WEYCO/CRSPNA roads; segments of #52000, 52200, 52600, 53900, 82640, and 82646 are available for public use (Figure 3). Road easements on two dozen other Weyerhaeuser roads

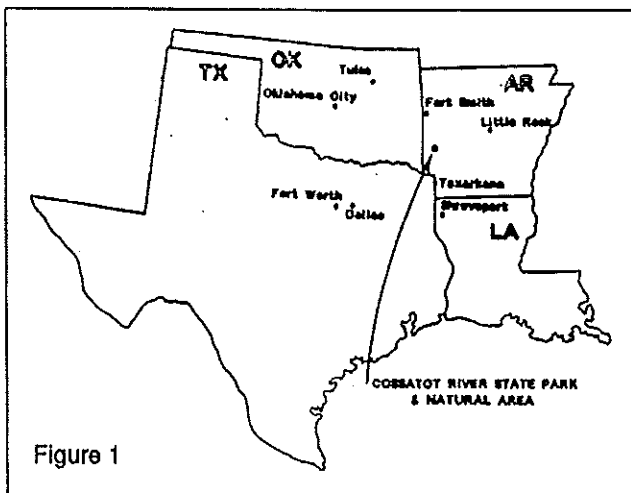


Figure 1

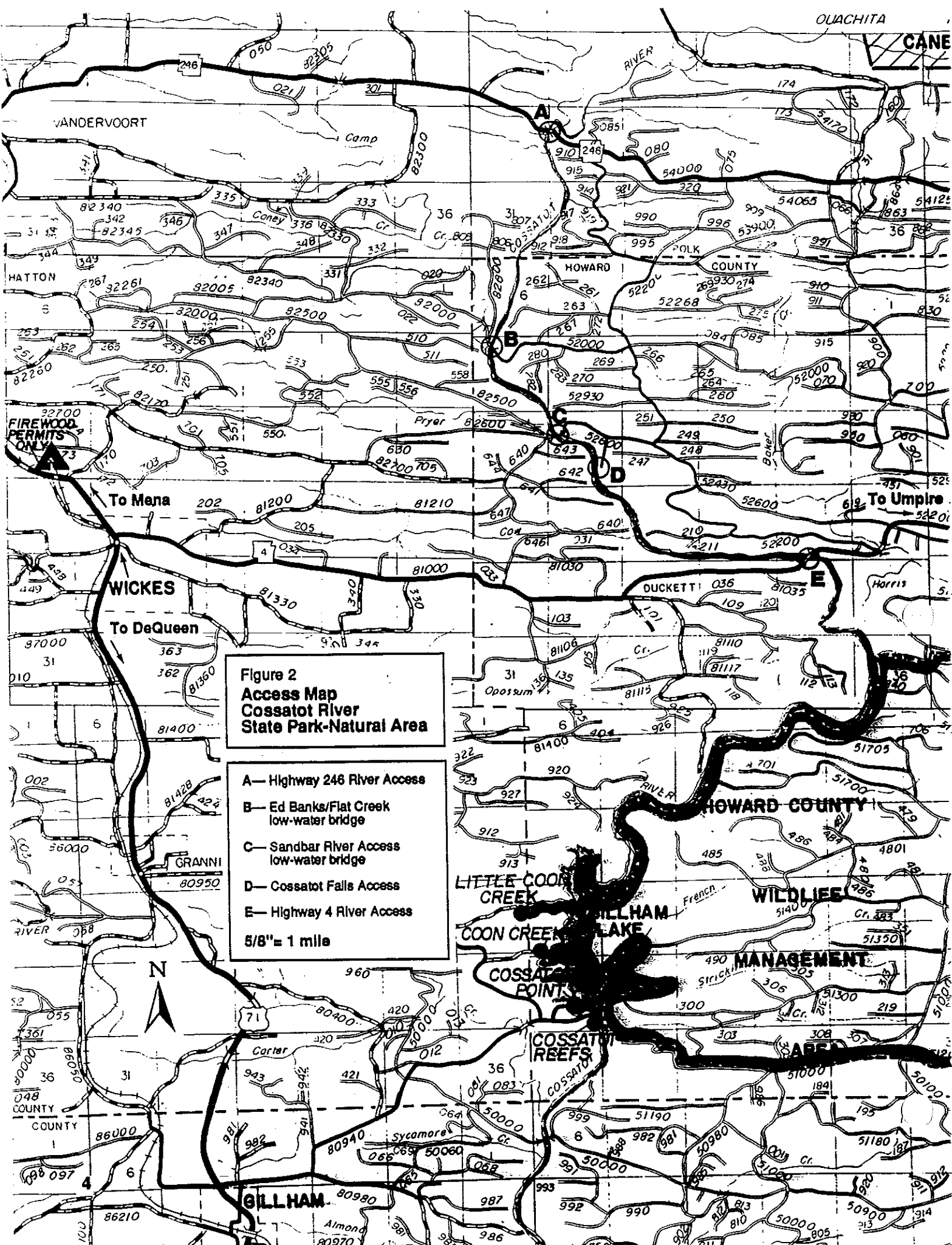
that extend to the CRSPNA property line have been acquired by the managing agencies for administrative and management purposes only.

The Cossatot River originates in Polk County, Arkansas, approximately 8 miles south of Mena in Section 15, T3S, R33W. From the headwaters, the river flows generally southward through three counties—Polk, Howard and Sevier—for approximately 94 miles before entering Little River near the Arkansas Highway 71 bridge approximately 3 miles north of Wilton.

### Origins of the Park-Natural Area

The idea of establishing a natural area along the upper Cossatot River first surfaced in 1974, not long after the Arkansas Environmental Preservation Commission (AEPC) was created. In October, 1975, the staff of the Arkansas Natural Heritage Commission (ANHC; formerly the AEPC) contacted Weyerhaeuser Company (WEYCO) to discuss acquiring the Cossatot Falls area and other portions of the Cossatot River corridor. A few months later, in January of 1976, the ANHC presented a written proposal to Weyerhaeuser. The Company's response to that proposal, while positive in many ways, was tempered by concerns over the Commission's limited manpower resources for overseeing such an intensively-used public recreation area.

Discussions continued off and on until 1984, when productive negotiations began in earnest. By that time, the Division of Arkansas State Parks (ASP) had joined in the effort to protect the river corridor, enabling ANHC and ASP to prepare a joint proposal that addressed the Company's concerns about the State's



**Figure 2**  
**Access Map**  
**Cossatot River**  
**State Park-Natural Area**

- A**— Highway 246 River Access
  - B**— Ed Banks/Flat Creek low-water bridge
  - C**— Sandbar River Access low-water bridge
  - D**— Cossatot Falls Access
  - E**— Highway 4 River Access
- 5/8" = 1 mile

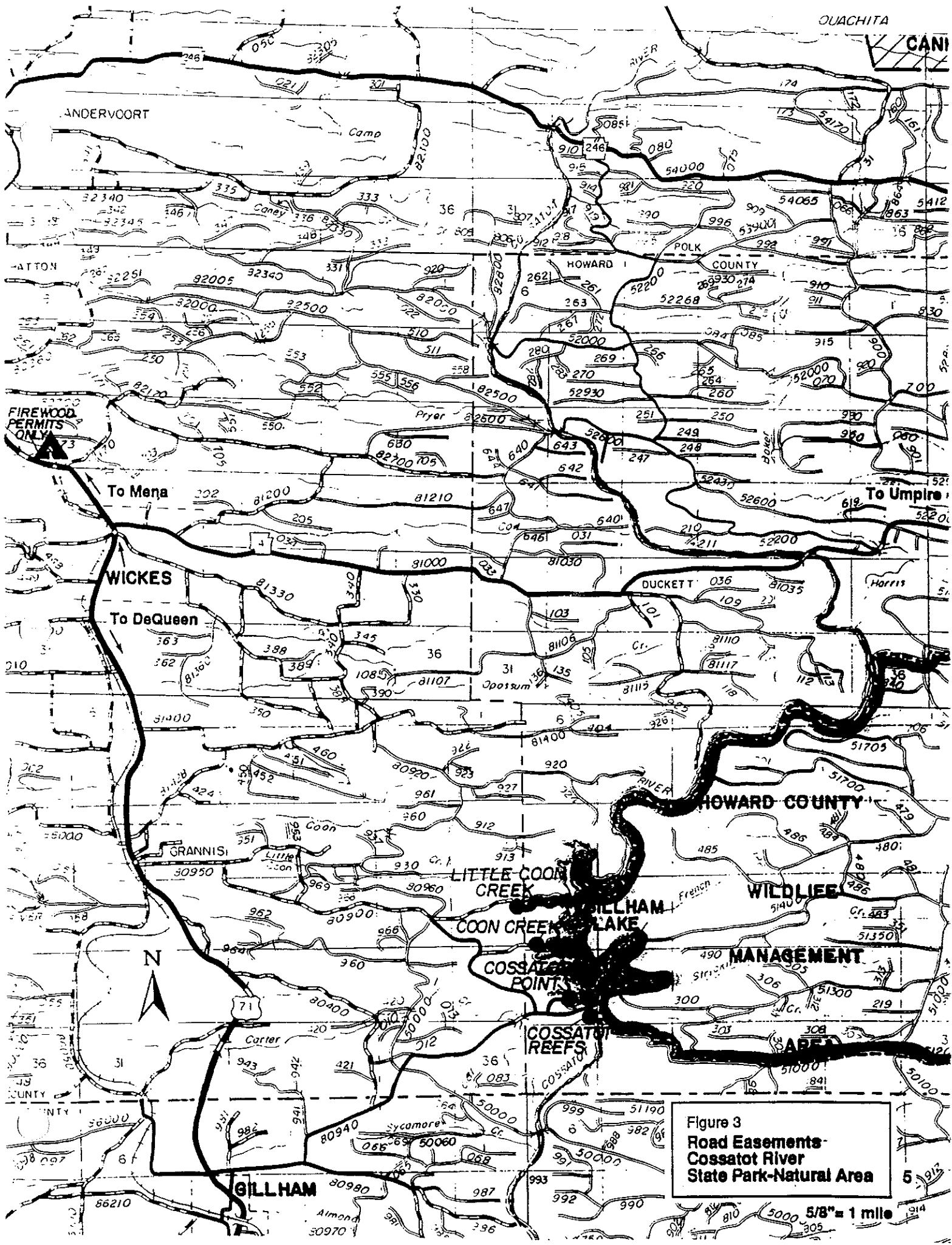


Figure 3  
 Road Easements  
 Cossatot River  
 State Park-Natural Area

## • Project and Resource Summaries

ability to manage the property. Once a tentative sale agreement was reached, the ANHC requested that the Arkansas Nature Conservancy assist with negotiations and acquisition. The Conservancy agreed to acquire and hold in trust the acreage identified for the proposed Cossatot River State Park-Natural Area until funding was available for its purchase.

Negotiations culminated on November 19, 1988, with Governor Clinton's announcement at a joint meeting of the State Parks, Recreation and Travel Commission and the Natural Heritage Commission that the State of Arkansas, in cooperation with The Nature Conservancy, would acquire an 11-mile segment of the upper Cossatot River. On December 23, 1987, the Conservancy acquired title to the 4,254-acre park-natural area. Final approval of state park designation was granted by the Legislative Council, per Act 512 of 1975, on February 19, 1988. In May of 1987 the Arkansas Natural and Cultural Resources Council approved a multi-year grant for the purchase of CRSPNA. The Council also awarded a first-year stewardship grant for the project.

The Conservancy transferred management responsibility for the area to the State in July, 1988. State Parks and the Natural Heritage Commission entered into a cooperative management agreement intended to serve until the management plan is approved and deed transfers are complete.

## Social and Economic Conditions in Polk and Howard Counties

The two counties in which CRSPNA lies are sparsely populated and their economies are dependent on agricultural and timber production. Statistics supplied below were taken from the *1980 Census, Agricultural and Socio Economic Perspectives of Arkansas (1987)*, and the *1988 City-County Data Book*.

Of the 4414.2 acres presently included within CRSPNA, 1129.62 lie within Polk County. Polk County was established November 30, 1844, with territory taken from Sevier County. It was named after James Polk, then President-elect of the United States.

The county has a land area of approximately 860 square miles (550,400 acres) and a population density of 19.9 people per square mile. More than 75 percent

of the people (13,379 out of 17,007) live on farms and other rural locations. Polk County has experienced a high rate of growth over the last 20 years. Between 1960 and 1980 the total population increased 41.9 percent, and between 1970 and 1980 it increased 27.9 percent.

The 1985 per capita income (PCI) for Polk County was \$7,924 per person, 18.6 percent below the state PCI (\$9,734). In 1988 twenty-three percent of individuals and 18.8 percent of families were at or below the 1979 poverty level (the federal standard). For individuals that level is \$3,686, and for families, \$7,356.

There are six municipalities in Polk County: Vandervoort (pop. 98), Wickes (pop. 464), Cove (pop. 464), Grannis (pop. 349), Hatfield (pop. 410), and Mena, the county seat (pop. 5,154). Over 40 percent of the county's population resides in these municipalities.

A major component of the Polk County economy is agricultural production. Approximately 99 percent of the value of agricultural products sold there are associated with livestock and poultry, the highest percentage in Arkansas. About 84 percent of these agricultural sales are from poultry production. Swine production in the county increased 971.4 percent between 1971 and 1986.

The lumber and wood products industry is also a major force in the county economy, employing 225 people (second only to the poultry industry). The value of timber products sold in 1988 was estimated at \$6,629,800. Timber lands make up 69.3 percent (381,600 acres) of Polk County. More than 41.4 percent (158,100 acres) of this land is managed by the U.S. Forest Service; 5.7 percent (21,900 acres) is owned by the state or county; 21.4 percent (81,800 acres) is managed by major forest industry companies, principally WEYCO; 7.2 percent (27,300 acres) is farm timber land; and 24.3 percent (92,700 acres) is under small corporation or private (non-farm) ownership, principally the latter.

The tourism industry in Polk County has shown a significant increase since 1980. Travel expenditures in 1988 (\$9,983,975) were up 263 percent when compared to similar expenditures in 1980 (\$4,923,000).

Most of CRSPNA (3,284.58 acres) lies within Howard County, the 73rd county to be formed in Arkansas. It was established on April 7, 1873 from parts of

Hempstead, Pike, Polk and Sevier counties and named for James Howard, a State Senator from the district and the President Pro-Tem of the 19th General Assembly. Howard County covers 600 square miles (367,100 acres) and has a density of 23.5 people per square mile. The population is primarily rural and farm (10,064 people out of 17,700, or 74.5 percent), much like Polk County. Howard County has experienced steady growth, the population having increased 17.9 percent between 1970-80.

The 1985 PCI for Howard County was \$11,698 per person, 120.2 percent of the state PCI. Sixteen percent of individuals and 12.1 percent of families were at or below the 1979 poverty level.

Four municipalities lie within Howard County: Dierks (pop. 1,249), Mineral Springs (pop. 936), Tollette (pop. 407), and Nashville, the county seat (pop. 4,554). Together these towns comprise 53.1 percent of the county's population.

Agricultural production is the largest industry in Howard County. About 99.1 percent of the value of agricultural products sold there in 1982 was from livestock and poultry production (principally the latter). Howard County's livestock and poultry production that year was the third highest in Arkansas.

The timber and wood products industry is also very important in the county economy, employing over 340 people. The value of timber sold there in 1988 was estimated at \$6,718,500. Of the county's total land base, 68.3 percent (250,700 acres) is considered timber land. Nearly 21 percent (52,000 acres) of the timber land is in federal ownership, principally the Corps of Engineers; 64.5 percent (161,900 acres) is owned by timber companies (principally WEYCO); 25 percent

(62,700 acres) is farm timber land, and 8.3 percent (20,900 acres) is corporate and/or private (non-farm) timber lands (principally private).

Tourism as a component of the Howard County economy has decreased 5.7 percent in the period 1980-1988. Travel expenditures totalled \$3,170,000 in 1980; in 1988 they fell to \$2,989,574.

## Economic Impact of CRSPNA

CRSPNA could have far-reaching affects on area economies via park visitor dollars spent in nearby communities. Only a small portion of visitor expenditures will actually take place within the park-natural area. Most of the money will be spent at private businesses for gas, food, lodging and other goods and services. Once baseline visitation data is available and further research has been conducted, estimates of the actual economic benefits to the area will be calculated.

## Physiography and Geology

As it flows southward, the Cossatot River cuts through all three subprovinces of the Ouachita Mountains Physiographic Region (the Central Ouachitas, the Fourche Mountains, and the Athens Piedmont Plateau) before it enters the West Gulf Coastal Plain. Most of CRSPNA is located in the Athens Piedmont Plateau, but its upper portions fall within a transition zone between the Fourche and Central Ouachita mountains.

The principal geologic formation in the park-natural area is the Stanley Shale, which is composed of hard, fine-grained quartzite, sandstone and hard siliceous shales of late Mississippian to early Pennsylvanian Age. Eons of downcutting through this formation have produced a rugged narrow canyon with steep side slopes. Within CRSPNA the highest elevation of these slopes is about 1020 ft. above mean sea level (MSL).

Normal river elevations within CRSPNA range from 750 ft. MSL to 530 ft. MSL. The width and depth of the Cossatot vary widely, with maxima of about 100 feet and 15 feet, respectively. Within CRSPNA the river cuts through a series of east-west oriented ridges, producing numerous magnificent rapids, cascades and small waterfalls. In certain stretches, the stream gradient may exceed 40 feet per mile, but the average gradient is 13 feet per mile. This portion of the

Photo #1

• **Project and Resource Summaries**

Cossatot has a high riffle-to-pool ratio.

The river's substrate consists of bedrock, rubble, and boulders. Only a small fraction of the substrate is sand and gravel, and less than one percent of the river channel contains logs, brush and other debris, indicative of a swiftly draining stream. The staff of the Natural Heritage Commission considers the Cossatot "an outstanding example of a free-flowing upland river in the Ouachita Mountains."

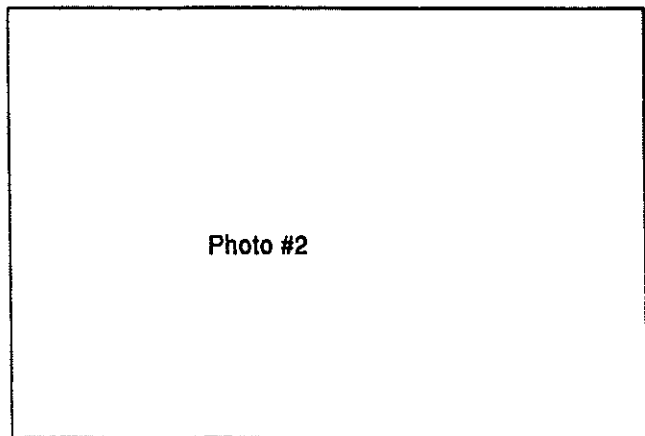
■ **Watershed Area**

By the time the Cossatot River enters CRSPNA, its drainage area totals 89.6 square miles (U.S. Geological Survey Water-Data Report AR-87-1). This figure increases more than four-fold between the Highway 246 and 4 bridges so that by the time the river is near the southern boundary of CRSPNA it is draining 385 square miles or 246,400 acres.

Major tributaries to the Cossatot are Mine Creek, Sugar Creek, Short Creek, Caney Creek, Brushy Creek, Flat Creek, Pryor Creek, Cow Creek and Harris Creek. The last five named streams enter the river within or immediately adjacent to the boundaries of CRSPNA.

■ **Streamflow**

The Cossatot is free-flowing between its headwaters and Gillham Dam: There are no man-made dams, diversion structures, or other flow-regulating devices on this 38-mile segment, 10.4 miles of which pass through CRSPNA. Mean, maximum and minimum monthly flows measured at the Highway 246 hydro-logic benchmark station for the period 1969-1988 are



**TABLE 1. Mean, Maximum and Minimum Monthly Stream Flows (cfs), Measured at the Arkansas Highway 246 Bridge, 1967-1988\***

MONTH	MEAN	MAXIMUM	MINIMUM
October	118	6,730	9
November	217	5,380	16
December	325	32,000	22
January	186	7,370	18
February	240	4,380	31
March	391	7,720	32
April	291	4,090	24
May	241	3,650	14
June	160	3,820	8
July	65	3,130	8
August	30	617	7
September	60	3,260	8

\*—USGS, Water Resources Division

shown in Table 1. The maximum computed flow at this location is 32,000 cubic feet per second (cfs), measured December 2, 1982; a discharge rate of 48,000 cfs is estimated to have occurred during the flood of May 6, 1961. The minimum recorded flow is 7.2 cfs, measured August 28-31, 1972.

Flow data is not available for the watershed between Highways 246 and 4 but, given the four-fold increase in the drainage area between the two highway bridges, it is safe to assume that maximum flows are substantially higher in the middle and lower portions of CRSPNA. More detailed streamflow data is on file at State Parks and the Natural Heritage Commission.

Streamflow adequate for float boating (canoeing, kayaking and rafting) is primarily available in the late fall and spring, when flows are most likely to exceed 500 cubic feet per second (cfs). The river rises and falls rapidly following significant rainfall.

■ **Water Quality**

The Cossatot River generally has very high water quality. In recognition of this fact it is classified by the State of Arkansas as 1) an Extraordinary Resource Water, 2) a Natural and Scenic Waterway, 3) an Ecologically Significant Waterbody, 4) a Primary Contact Recreation Stream, 5) a Domestic, Industrial and Agricultural Water Supply and 6) a Fishery Stream. Regulation No. 2, as amended, of Section 3 of the

Arkansas Water and Pollution Control Act (Act 472 of the Acts of Arkansas for 1949, as amended; A.C.A. Sec. 8-4-101 et seq.) and the Federal Water Pollution Control Act, as amended, establish water quality standards for all surface water in the State of Arkansas.

Arkansas Water Quality Standards (1988) for water bodies with the above classifications are as follows:

Criterion	Standard
Temperature	30 degrees C (maximum allowable temperature from man-induced causes)
Turbidity	10 NTU (maximum)
Fecal Coliform	200 units/100 ml (maximum)
Dissolved Oxygen	6.0 mg/ml (minimum)

The Arkansas State Water Quality Standards state that for Extraordinary Resource Waters and Natural and Scenic Waterways the fecal coliform content shall not

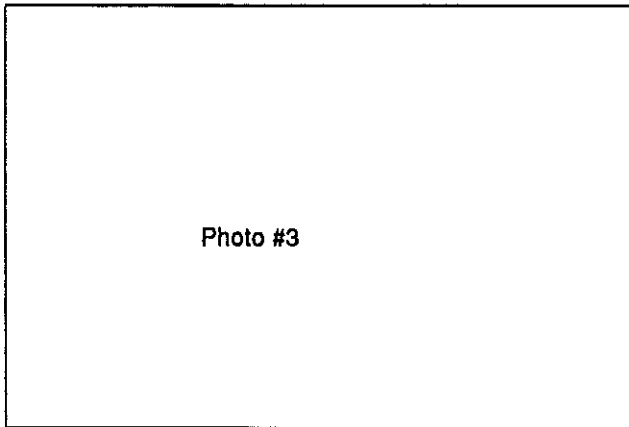


Photo #3

leopard darter (above), and  
Ouachita Mountain shiner (below)

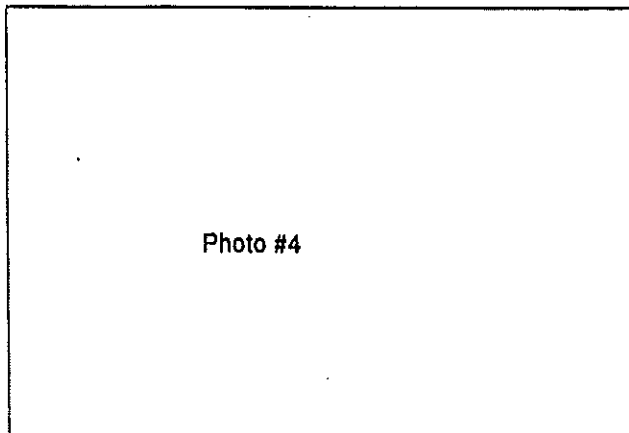


Photo #4

**TABLE 2. Water Quality Record\***  
Cossatot River at the Arkansas Highway 246 Bridge  
October '85-September '86

Date	PH	Temp. Deg.C	Turbidity NTU	Fecal Coliform Cols/100ml	Dissolved Oxygen mg/l
Nov. 85	6.4	13.0	5.3	210	8.4
Jan. 86	7.3	5.5	0.5	0	12.6
Mar. 86	7.3	14.0	0.6	22	10.5
May 86	7.2	24.0	2.8	23	8.4
July 86	7.9	30.5	1.5	42	8.5
Aug. 86	7.2	28.0	1.1	10	8.2

\*—U.S. Geological Survey, 1989

be raised above natural background levels, and at no time shall the fecal coliform count exceed a geometric mean of 200/100 ml in any size of watershed. These measurements are based on a minimum of not less than five samples taken over not more than 30 days.

Table 2 summarizes water quality measurements at the Arkansas Highway 246 Bridge from October, 1985, through September, 1986.

## ■ Fish and Wildlife

A wealth of game and nongame animals are found within CRSPNA. Though extensive animal surveys have not yet been conducted, the area offers suitable habitat for dozens of forest-inhabiting species.

The river does not receive heavy fishing pressure except at major access points—the Highway 246 Bridge, the Falls area, and the Highway 4 Bridge. Spotted and smallmouth bass, bream and goggle-eye are the most common fish taken.

The leopard darter (*Percina pantherina*), listed by the Department of the Interior as Threatened, lives in at least one segment of the Cossatot River within CRSPNA's boundaries. According to a recent inventory conducted by the Oklahoma Cooperative Fish and Wildlife Unit at Oklahoma State University, leopard darters are found in the 2.3-mile segment of the river extending upstream from the Highway 4 bridge. The status of another fish species occurring within CRSPNA, the Ouachita Mountain shiner (*Notropis snelsoni*), currently is under review by the USFWS. This species has been found in the entire stretch of the river within CRSPNA and to the north as well.

## • Project and Resource Summaries

A third special animal species that inhabits the park-natural area is the Caddo Mountain salamander (*Plethodon caddoensis*). This amphibian, like the two fish species just mentioned, is found only in the Ouachita Mountains, and it is under review for listing by the Department of the Interior as Threatened or Endangered.

## ■ Vegetation

Most of the plant cover at the river's edge and on gravel bars consists of shrubs, stunted trees and a few herbaceous plants. Gravel bar communities are abundant and well developed here due to marked fluctuations in water level, which alternately saturate the rock substrate and leave it dry and exposed. Nine bark (*Physocarpus opulifolius*), vernal witch hazel (*Hammelmis vernalis*), sycamore (*Platanus occidentalis*), and silky dogwood (*Cornus amomum*) are the principal woody plants on the gravel bars. River birch (*Betula nigra*), deciduous holly (*Ilex decidua*), persimmon (*Diospyros virginiana*), and buttonbush (*Cephalanthus occidentalis*) also appear, but these are far more abundant on the banks of the river than on the bars. Two common, persistent herbaceous plants of the riparian zone are water willow (*Justicia americana*) and royal fern (*Osmunda regalis*). Most of the riparian vegetation in the Cossatot drainage is of very high quality, having been influenced primarily by natural forces.

Oak-hickory and oak-hickory-pine forests clothe most of the slopes above the highwater mark. Shortleaf pine (*Pinus echinata*) is most common on south- and west-facing slopes, while pure hardwood stands are more likely to be encountered on east- or north-facing slopes. White oak (*Q. alba*), southern red oak (*Q. falcata*), chinquapin oak (*Q. muhlenbergii*), post oak (*Q. stellata*), and mockernut hickory (*Carya tomentosa*) are the hardwood canopy dominants. Both the oak-hickory and oak-hickory pine types have been subjected to selective cutting throughout the Cossatot River canyon, but many stands have recovered well and are now approaching old-growth stature.

Some of the slopes above the river support vegetation adapted to very dry (xeric) conditions. The soils there are shallow and have low water-holding capacity. Where the shale bedrock is particularly close to the surface, usually on the steepest slopes, a xeric woodland community of eastern red cedar (*Juniperus virginiana*) and post oak prevails. Openings between the

trees have patches of grass intermixed with nearly bare, stony areas, the latter providing excellent habitat for the endemic twistflower (*Streptanthus squamiformis*). Several fine examples of this vegetation type occur in the stretch between the Ouachita National Forest and Cossatot Falls.

Perhaps the least common kind of vegetative cover in this area is the ash-elm forest, a river-influenced type best represented by a small stand just south of Cossatot Falls. Here, massive white ash trees (*Fraxinus americana*) and elms (probably American elm, *Ulmus americana*) thrive on sandy soil.

Also occurring within the corridor are 812 acres of loblolly pine (*Pinus taeda*) plantations (Figure 4). These plantations occur primarily on the gently-sloping to moderately steep land high above the river but occasionally extend downslope to within a few feet of the water.

## ■ Special Plants

At least eight plant species native only to the Ouachita Mountains occur in the Cossatot River Canyon. Two of these—Waterfall's sedge (*Carex latebracteata*) and a type of twistflower (*Streptanthus squamiformis*)—are under review by the U. S. Fish and Wildlife Service for possible listing as Threatened or Endangered. The sedge and the twistflower are currently listed by the Arkansas Natural Heritage Commission as Threatened. Both species are found in abundance within CRSPNA.

The other Ouachita Mountain endemics present at CRSPNA are Lettermann's ironweed (*Vernonia*

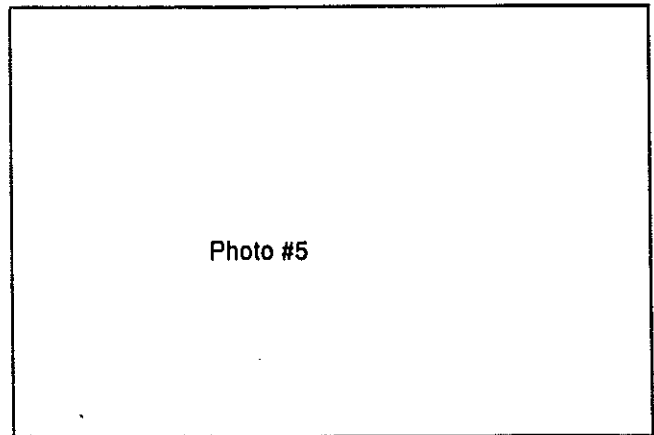


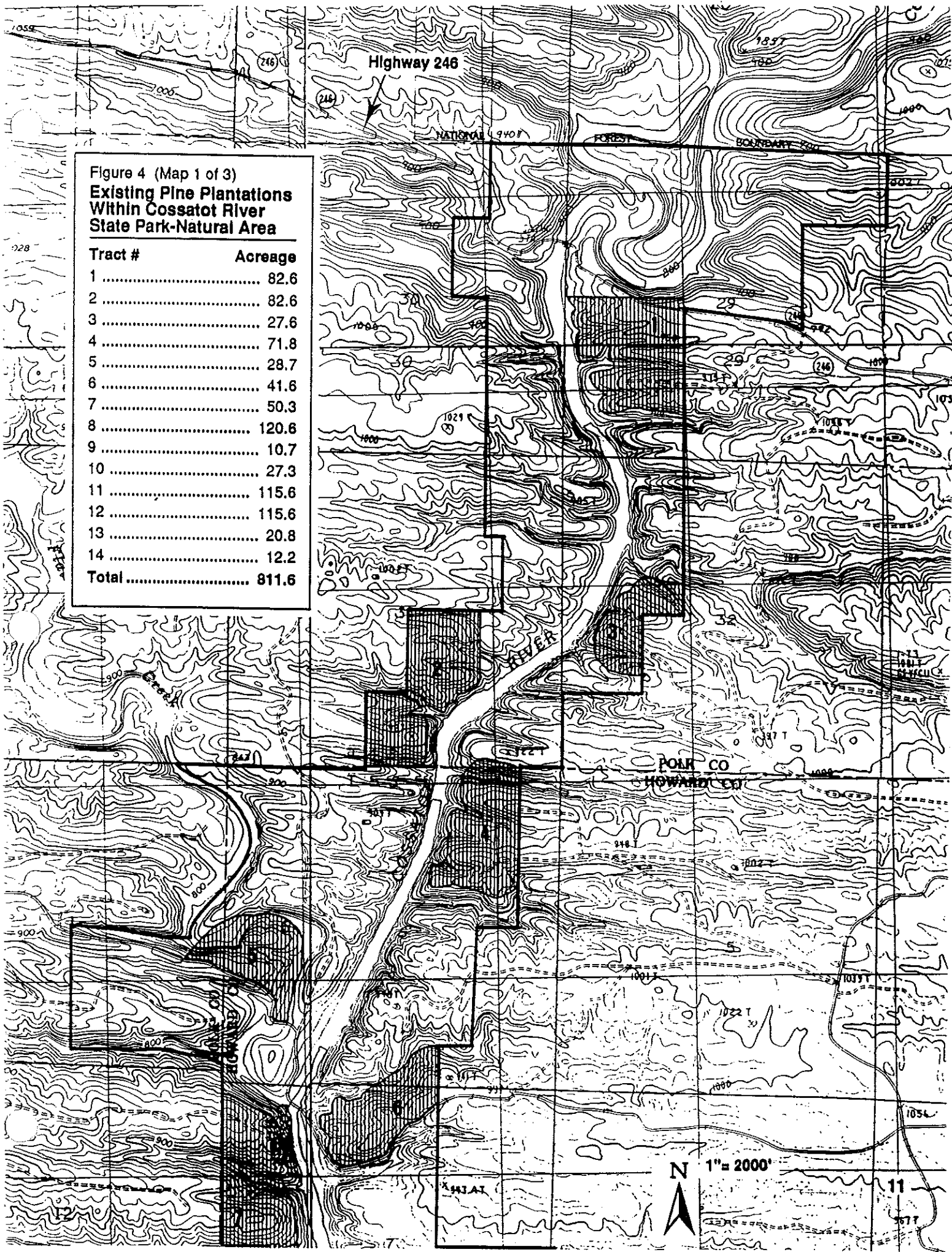
Photo #5

Waterfall's sedge

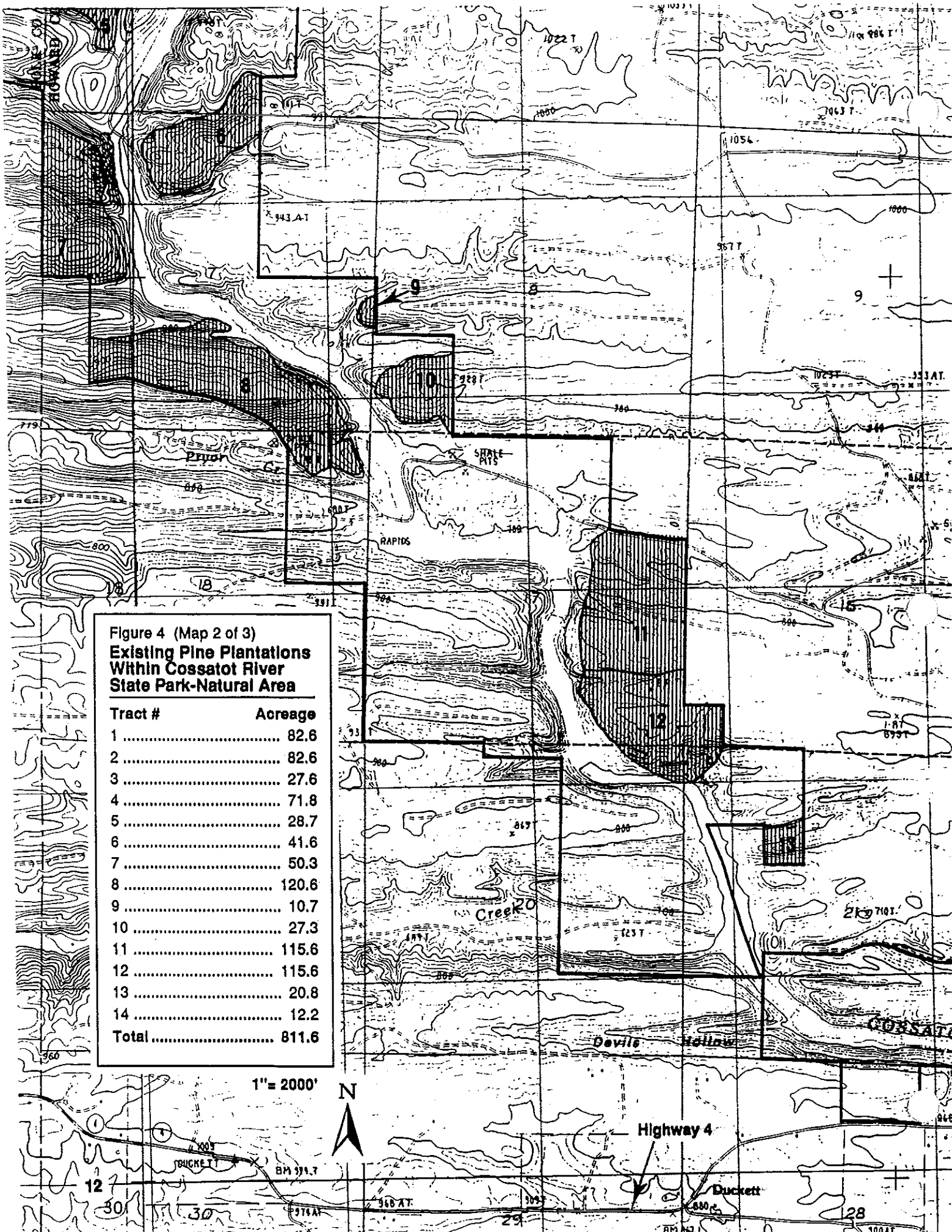


Figure 4 (Map 1 of 3)  
**Existing Pine Plantations  
 Within Cossatot River  
 State Park-Natural Area**

Tract #	Acreeage
1 .....	82.6
2 .....	82.6
3 .....	27.6
4 .....	71.8
5 .....	28.7
6 .....	41.6
7 .....	50.3
8 .....	120.6
9 .....	10.7
10 .....	27.3
11 .....	115.6
12 .....	115.6
13 .....	20.8
14 .....	12.2
<b>Total .....</b>	<b>811.6</b>



N 1" = 2000'



**Figure 4 (Map 2 of 3)  
Existing Pine Plantations  
Within Cossatot River  
State Park-Natural Area**

Tract #	Acreage
1 .....	82.6
2 .....	82.6
3 .....	27.6
4 .....	71.8
5 .....	28.7
6 .....	41.6
7 .....	50.3
8 .....	120.6
9 .....	10.7
10 .....	27.3
11 .....	115.6
12 .....	115.6
13 .....	20.8
14 .....	12.2
<b>Total .....</b>	<b>811.6</b>

1" = 2000'  
N

Highway 4

Duckett

COSSATOT

Devils Hollow

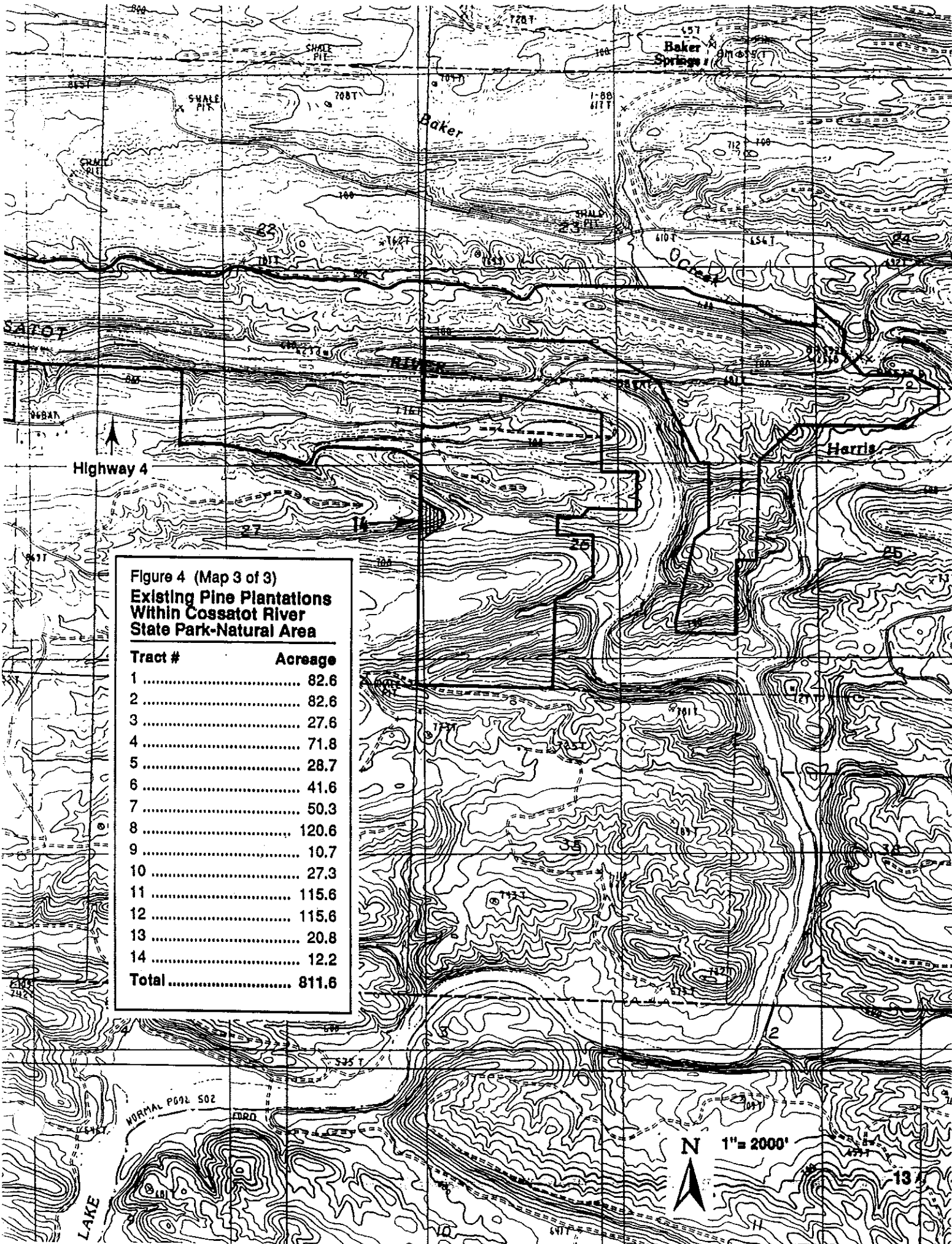
Creek

RAPIDS

SHALE  
PITS

Priory

ROAD OF  
TOWARD



• Project and Resource Summaries

**TABLE 3. Special Plants of CRSPNA**

<i>Acer leucoderme</i> .....	chalk maple
<i>Acer nigrum</i> .....	black maple
<i>Astragalus crassicaarpus</i> var. <i>crassicaarpus</i> .....	ground plum
<i>Astragalus distortus</i> var. <i>engelmannii</i> .....	milk vetch
<i>Calamovilfa arcuata</i> .....	a sandgrass
<i>Carex gracilescens</i> .....	a sedge
<i>Carex latebracteata</i> .....	Waterfall's sedge
<i>Carex stricta</i> .....	a sedge
<i>Cypripedium kentucklense</i> ....	southern lady's slipper
<i>Deschampsia flexuosa</i> .....	crinkled hairgrass
<i>Draba aprica</i> .....	open-ground whitlow grass
<i>Hedyotis ouachitana</i> .....	Ouachita hedyotis
<i>Hydrophyllum tedbrownell</i> .....	Browne's waterleaf
<i>Ilex longipes</i> .....	Georgia holly
<i>Liatris squarrosa</i> var. <i>compacta</i> .....	blazing star
<i>Luzula acuminata</i> var. <i>carolinae</i> .....	a wood rush
<i>Ribes curvatum</i> .....	granite gooseberry
<i>Sanicula smallii</i> .....	Small's sanicle
<i>Saxifraga virginlense</i> .....	early saxifrage
<i>Stachys eplingii</i> .....	Epling's stachys
<i>Streptanthus obtusifolius</i> .....	a twistflower
<i>Streptanthus squamiformis</i> ....	a twistflower
<i>Valerianella palmeri</i> .....	Palmer's corn salad

*lettermani*), Ouachita sedge (*Carex ouachitanensis*), a monarda (*Monarda stipitatoglandulosa*), a valerian (*Valerianella palmeri*), Ouachita hedyotis (*Hedyotis ouachitana*), and Browne's waterleaf (*Hydrophyllum tedbrownell*). The latter three are rare enough to be considered "special species" by the Natural Heritage Commission. Eighteen more special plants have been

located within CRSPNA, bringing the total to 23 (see Table 3). In addition to the two endemics already mentioned as candidates for federal listing as threatened or endangered, three of the 15 special species listed in Table 3 that are not endemic to the Ouachitas are candidates for listing: a sandgrass (*Calamovilfa arcuata*), open-ground whitlow grass (*Draba aprica*), and southern yellow lady-slipper (*Cypripedium kentucklense*). Another candidate species—Moore's delphinium (*Delphinium newtonianum*)—has been tentatively identified on the property. Yet another species worthy of mention is grass-of-parnassus (*Parnassia grandifolia*) which, while not rare in Arkansas as a whole, is very uncommon in the Ouachitas.

**STATUS CODES**

**Federal Status**

**C1 (Category 1)**—The FWS states it currently has substantial information on hand that supports listing these species as Threatened or Endangered.

**C2 (Category 2)**—The FWS states that further biological research and field study will be necessary in order to determine if those species should be listed as Threatened or Endangered.

**State Status**

**ST (State Threatened)**—The Arkansas Natural Heritage Commission applies this term to native taxa which are likely to become endangered in Arkansas in the foreseeable future.

**SP (Special Plant)**—The Arkansas Natural Heritage Commission currently maintains these plants on a list of Arkansas species considered either endangered, threatened, rare, peripheral, or status undetermined.

**Recreational Activities**

Current recreational activities within CRSPNA include fishing, hunting, photography, canoeing, kayaking, rafting, swimming, picnicking, camping, sunbathing, and wading. The area receives moderate use on weekends during the summer months, and heavy use on holiday weekends. Floating opportunities, however, are limited to periods of high flow during the winter and spring. During these periods, floaters congregate on the area in large numbers.

The National Park Service describes the Cossatot as "probably the most challenging" whitewater float in the state. It is also considered by many floaters to be the best whitewater between the Appalachians and the

Rockies. Not much floating occurs above the Arkansas Highway 246 bridge (the water is usually too low), but the stretch from Forest Road 31 crossing to the 246 bridge can produce Class II and III rapids (see Chapter 8, Floating Use section, for information about the international class scale). The Cossatot Falls section is rated Class IV-V and is only for the most experienced floaters.

## ■ Land Ownership and Use

About half of CRSPNA is owned by the State of Arkansas; the remaining acreage is leased from The Nature Conservancy but will be acquired (in stages) by late 1991. The total acreage managed jointly by Arkansas State Parks and the Arkansas Natural Heritage Commission is 4,414.2. Title to the property ultimately will be held by Arkansas State Parks, with the Natural Heritage Commission retaining conservation easements on the most ecologically-sensitive areas.

The segment of the Cossatot River that flows through CRSPNA is part of the Arkansas System of Natural and Scenic Rivers (A.C.A. 15-23-313). This designation makes it unlawful for anyone to impound, channelize or realign the river.

Near the Highway 4 bridge the U.S. Army Corps of Engineers holds flowage easements on 59.33 acres of CRSPNA property (Figure 5). Rights-of-way for Highways 4 and 246 cross the park-natural area, and WEYCO holds road easements allowing them to run log trucks on several CRSPNA roads. Utility rights-of-way are shown in Figure 5 and discussed in Chapter 5.

Three private inholdings totalling approximately 100 acres constitute the only river frontage not controlled by the State of Arkansas between the southern boundary of the Ouachita National Forest and the Corps of Engineers' Gillham Lake property. At present these inholdings are used by their owners and, to some extent, by the public for recreational purposes.

CRSPNA is bordered on the north by the Mena District of the Ouachita National Forest and on the south by federal lands above Gillham Lake, a reservoir managed by the U. S. Army Corps of Engineers. To the east and west of CRSPNA are many thousands of acres of privately-owned and corporate lands devoted to intensive timber management and/or cattle grazing.

## ■ Historic and Cultural Resources

The Arkansas State Historic Preservation Officer has reviewed maps of the corridor for possible historic resources of national or local significance or which may be listed on or eligible for the National Register of Historic Places. None were found.

Prehistoric sites immediately adjacent to what is now CRSPNA were documented in pre-inundation studies conducted between 1960 and 1976 for the U.S. Army Corps of Engineers in conjunction with the construction of Gillham Dam. Some sites of archeological interest also exist within CRSPNA, but a thorough inventory is needed.

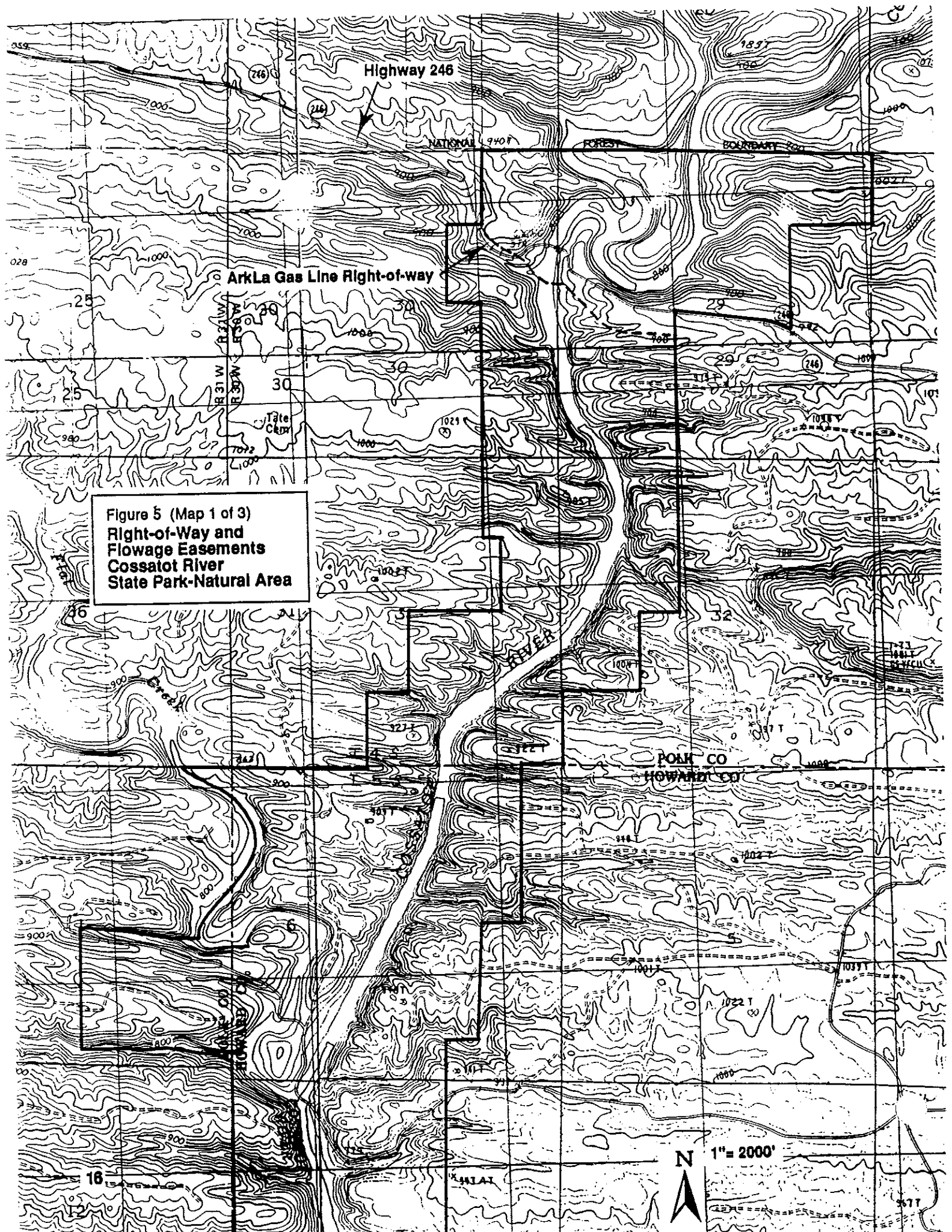


Figure 5 (Map 1 of 3)  
Right-of-Way and  
Flowage Easements  
Cossatot River  
State Park-Natural Area

Highway 246

ArkLa Gas Line Right-of-way

NATIONAL FOREST BOUNDARY

POKIA CO  
HOWARD CO

N 1" = 2000'

16

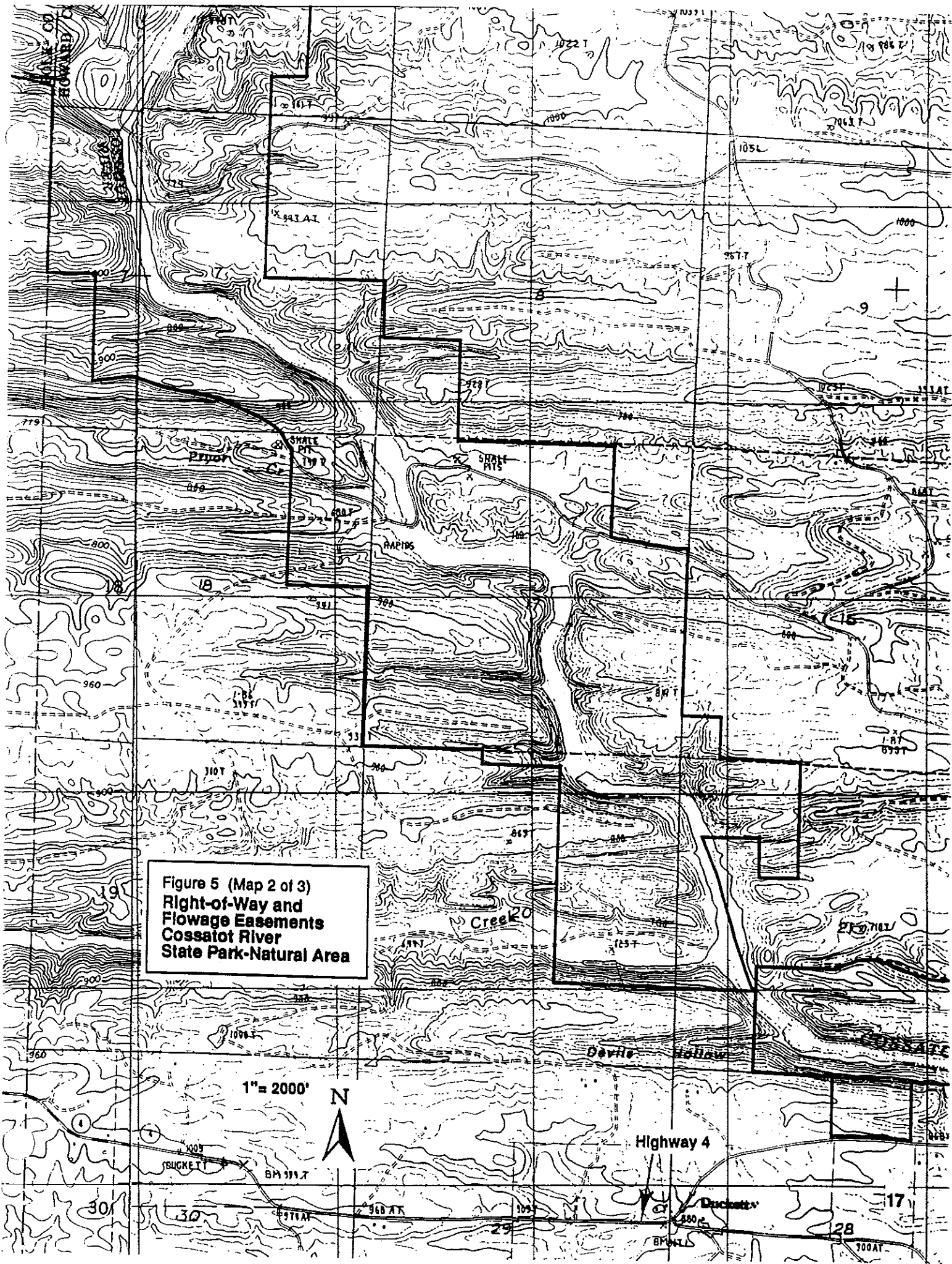
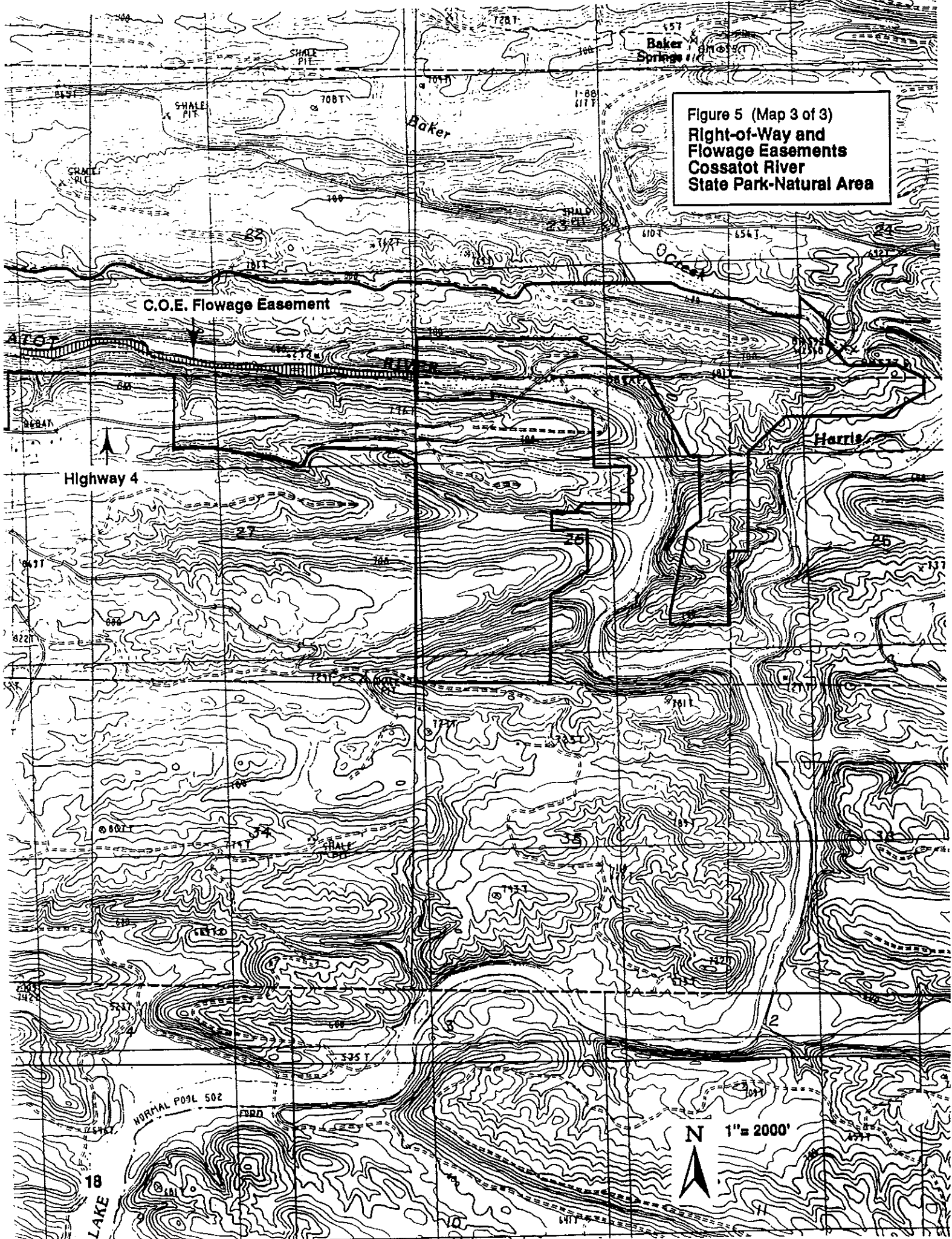


Figure 5 (Map 2 of 3)  
Right-of-Way and  
Flowage Easements  
Cossatot River  
State Park-Natural Area

Figure 5 (Map 3 of 3)  
Right-of-Way and  
Flowage Easements  
Cossatot River  
State Park-Natural Area





# 3

## Summary of Public Concerns /Comments

Before the draft plan was written, public listening sessions were held in Wickes on the evening of October 27, 1988, and in Little Rock on November 2, 1988, to determine public concerns and expectations for the park-natural area. Approximately 90 people attended the public listening session in Wickes and about 30 attended the Little Rock session. Written comments were received from thirteen individuals, three of whom indicated they were representing an organization. Transcripts of the two listening sessions and copies of all letters received concerning management, development and use of CRSPNA are contained in the publication entitled *Public Preferences for Management and Use (Cossatot River State Park and Natural Area)*, provided earlier to all respondents and a number of other interested individuals. Copies of this document are available upon request. Each concern expressed at the two listening sessions or by mail is addressed below. For purposes of discussion, comments have been grouped into general areas of concern. (Note: two more listening sessions were held after the draft plan was made available to the public. A summary of comments and concerns received at the later sessions is presented in the last half of this chapter.)

### ■ Timber Management

Eight comments stating there should be no timber cutting within CRSPNA were received; eleven more emphasized "keeping it natural." One comment was received supporting removal of diseased or dying trees, and another was made in favor of selective timber harvesting in certain areas.

**RESPONSE:** Timber management activities will be limited to those necessary to support the goals and objectives for CRSPNA set forth in Chapter 4; also see Chapter 6.

### ■ Litter and Pollution

Eleven comments were received regarding existing or potential problems involving litter, sewage, and sediment runoff. The managing agencies were encouraged in each case to deal firmly with the problems.

**RESPONSE:** State Parks and Natural Heritage intend to improve and then maintain the environmental quality of CRSPNA. Litter and pollution problems will be addressed vigorously. See Chapters 6, 7 and 8.

Photo #6

Litter is a major problem at use sites.

### ■ Development

Fourteen comments were received stating that there should be no development or only limited development of trails and other facilities within CRSPNA. Four additional comments were more favorable toward development, but still stressed the need for careful siting and limited disruption of the natural environment. One person noted that campgrounds should be located away from the river and another

## • Summary of Public Concerns/Comments

hoped that "motor homes" would be excluded.  
**RESPONSE:** The primary goal for CRSPNA is maintenance and, in some situations, enhancement of the area's natural qualities. Some recreation facilities will be provided, but any major construction (visitor center, housing, Class A campgrounds) will be located well off the river and will be well screened from visitors on the river or on trails. See Chapter 9.

### ■ Signs

Three comments were received regarding the need to provide adequate signing.

**RESPONSE:** Signs will be provided to direct visitors to various destinations within the park-natural area, to inform them of safety considerations and rules and regulations, and to interpret natural features. See Chapter 8.

### ■ Road Crossings

Two individuals stated that no more roads or bridges should be constructed within CRSPNA.

**RESPONSE:** No additional bridges will be constructed. The only additional roads that might be needed would be to serve campgrounds, a visitor center and other facilities that may eventually be developed; these access roads very likely will be short and well removed from the river. See Chapter 6.

### ■ Environmental Education

Two comments were received in favor of promoting outdoor or environmental education at CRSPNA.

**RESPONSE:** CRSPNA will be an environmental education center for the western Ouachita Mountain region. See Chapter 10.

### ■ Special Species

Five comments were received in support of maximum protection for special species of plants and animals on the property.

**RESPONSE:** Such protection is one of the goals outlined in the management plan. See Chapter 6.

### ■ Historical Names

One comment was received regarding the need to retain all names historically used within the area that is

now CRSPNA.

**RESPONSE:** Names printed on the topographic maps covering CRSPNA or in floating guides to the Cossatot will be retained. Staff will attempt to collect other locally-used or historical place names from interested individuals.

### ■ Floating Safety

Four individuals requested that minimal or no regulations be imposed on floaters; several individuals suggested that certain regulations should be established to protect public health and safety.

**RESPONSE:** No permit system to control launch frequencies or restrictions on use at high flows are proposed. Floaters will be provided sufficient information to make intelligent decisions on whether to float the river at various stages and degrees of difficulty. Flow gauges and/or reference devices will be placed at access points to give floaters river level information. Single chamber air rafts and tubes will be prohibited, and helmets and life preservers will be required above as-yet-to-be-determined flow levels (the Arkansas Canoe Club has recommended 100 cfs and 250 cfs, respectively); this level will be determined after further consultation and study. Safety recommendations will be posted by mid-1990 in conspicuous locations at each river access point. Requests for competitive events will be evaluated on a case-by-case basis. See Chapter 8 for further information.

### ■ Swimming

Although not raised specifically as an issue, many respondents mentioned use of the Cossatot River for swimming.

**RESPONSE:** Parking and access to traditional swimming locations will be made safer and safety recommendations will be posted. The managing agencies will not supervise or regulate swimming within CRSPNA. See Chapter 8.

About a month after the draft plan was made available, public listening sessions were held in Wickes on October 31, 1989, and November 1, 1989, in Little Rock. Approximately 20 people attended each session. In addition to oral comments, the managing agencies received 19 letters commenting on various aspects of the Plan. At least half a dozen individuals expressed general support for the Plan or specific parts of the Plan. In most cases, due to their generality, these statements of support are not included in the following

summaries of comments and concerns received. Criticism of the Plan tended to focus on specific areas of concern.

## ■ Development

Eight individuals questioned the need for all or specific parts of the proposed park development scheme. The overlook planned for the Cossatot Falls area was singled out three times. One respondent questioned eliminating primitive camping in the Cossatot Falls area.

**RESPONSE:** Although a few individuals indicated a preference for no development whatsoever, the majority favored limited development to provide for and effectively manage visitor use. Most of the planned development will be restricted to an area south and west of Highway 4, and a good portion of it will actually be outside CRSPNA boundaries on Corps of Engineers land. At present, public campsites and cabins are not readily available in the immediate area, the closest campgrounds being those at Shady Lake (at least 14 miles away) and Gillham Lake (23 miles). Shady Lake is open only from May through September. The visitor information center will be built well back from the river on cut-over land and will help the managing agencies achieve one the major goals of the Plan: to provide environmental education opportunities for the western Ouachita Mountain region of Arkansas. Careful assessments of recreation demand and carrying capacity will be conducted prior to implementation of any development beyond Phase I. The visual impact of the planned overlook near Cossatot Falls would be minimal. The primary purpose for providing an overlook on a ridge well above the Falls is to allow people with physical disabilities an opportunity to enjoy this spectacular area. Primitive camping will be provided within one-half mile of the Falls but out of the floodplain. The impetus for phasing out camping at the traditional use site is the need for resource protection.

## ■ Herbicides

One individual, representing the Sierra Club, objected to the use of herbicides at CRSPNA.

**RESPONSE:** There may be instances where utilization of herbicides is the best means to control exotic plants or speed restoration of native forest on the extant plantations. Aerial spraying will not take place. Precautions will be taken to ensure that no contamination of streams or groundwater takes place.

## ■ Special Species

One respondent questioned the absence in the Plan of any discussion about the red-cockaded woodpecker, an Endangered species, or the Cossatot leafcup, a rare plant apparently restricted to the Ouachitas.

**RESPONSE:** There are no records of red-cockaded woodpeckers nesting, roosting, or foraging within CRSPNA and little suitable habitat at this time. Many years ago this species probably did live in the vicinity. The Plan calls for restoration and maintenance of old-growth forests, including shortleaf pine-dominated stands. If red-cockaded woodpeckers return to CRSPNA, special management practices will be implemented and the Plan will be revised accordingly. The Cossatot leafcup is known only from novaculite talus in the Cossatot Mountains northeast of CRSPNA. Because this kind of habitat is not present within CRSPNA, the plant very likely does not occur there either. The discoverers of the Cossatot leafcup spent many days in 1989 conducting botanical inventories within CRSPNA and did not locate this species there.

## ■ Fishing

One individual strongly recommended the managing agencies establish a catch-and-release policy for CRSPNA.

**RESPONSE:** Fishing regulations are established and enforced by the Arkansas Game and Fish Commission. Game and Fish staff have conducted a fisheries study within CRSPNA and will be making recommendations for regulations in 1990.

## ■ Floating

Six comments were received on various aspects of floating safety. All respondents who addressed this issue suggested that floating regulations be changed to recommendations.

**RESPONSE:** Most "regulations," including those pertaining to personal flotation devices, have been revised and changed to recommendations. Equipment recommendations have been modified in the final Plan too. Boating guides and safety recommendations will be posted at each access point. The Plan recommends that helmets be used at flows above 250 cfs and at all times in kayaks. Competitive events will continue to be considered on a case-by-case basis. With regard to the old Highway 4 (low-water) bridge, the managing agencies will work with the Corps of Engineers,

## • Summary of Public Concerns/Comments

owners of the bridge in question, and with the Fish and Wildlife Service, who will be concerned about any action that might impact leopard darters, to remove this structure.

### ■ Litter and Pollution

Three respondents expressed strong concerns about litter and pollution within CRSPNA.

**RESPONSE:** The managing agencies, in cooperation with the Scenic Rivers Commission, the Department of Pollution Control and Ecology, and other agencies, will address trash/litter and pollution problems throughout CRSPNA. Composting or enclosed chemical toilets will be placed in remote locations, and a sewage plant will not be needed until the visitor center and campground are completed. The managing agencies are exploring the feasibility of a land application method for sewage and, in any case, will not build a sewage treatment plant until a totally satisfactory means of dealing with sludge and treated water is worked out. No direct discharge to the Cossatot River will take place. By designating a few parking lots above the floodplain and closing the badly-eroded informal parking areas that exist today, the managing agencies hope to actually reduce non-point source pollution.

### ■ Grazing

One individual pointed out that cattle continue to wander throughout CRSPNA, and are even seen along the river itself.

**RESPONSE:** Once boundary surveys are completed, livestock owners will be expected to keep their animals off state property. The major leaseholder of grazing land adjacent to CRSPNA has indicated that he plans to erect fencing along the joint Weyerhaeuser/CRSPNA boundary.

### ■ Wild and Scenic River Proposal

Two individuals suggested that the Plan spell out more clearly the intentions of State Parks, Natural Heritage, the Forest Service and the Corps of Engineers regarding designation of specific components of the Cossatot River for inclusion in the national system.

**RESPONSE:** Tentative classification of the entire 26+ mile proposed wild and scenic river is provided in the final Plan.

### ■ Zoning

One individual recommended changing the label "Primitive Zone" to "Restoration Zone" to more clearly indicate what visitors could expect to encounter there.

**RESPONSE:** The Primitive Zone has been renamed the Forest Restoration Zone.

### ■ Recreation Management/ Law Enforcement

Two individuals had questions concerning the ability of the managing agencies to carry out law enforcement; another wondered how State Parks would assess visitor use.

**RESPONSE:** The CRSPNA superintendent is a certified law enforcement officer of the State of Arkansas. In that capacity, he and his successors have (or will have, in the case of successors) the authority to enforce all laws of the State, including special State Park and Natural Heritage Commission regulations that have been approved in accordance with the Administrative Procedures Act. A visitor use survey will be conducted within the next three years.

### ■ Additional Land Needs

Three respondents encouraged the managing agencies to acquire additional land in the vicinity of CRSPNA. One individual was concerned about inclusion of part of his property on a map showing desirable additions to CRSPNA.

**RESPONSE:** Additional land needs are discussed in Chapter 9. The highest priorities for protection are tracts with river frontage or within viewing distance of the river. Landowners will be encouraged to maintain their properties in a manner compatible with the primitive and aesthetic character of CRSPNA.

### ■ Wildlife Management and Hunting

Game and Fish Commission staff have recommended that the managing agencies allow archery hunting within CRSPNA and that they cooperate with the state's turkey restoration program.

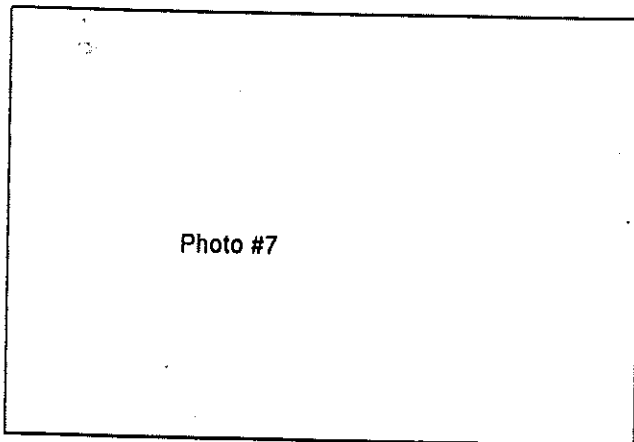
**RESPONSE:** By law, State Parks are considered wildlife refuges, and hunting normally is prohibited. However, if wildlife populations show signs of ex-

ceeding the area's carrying capacity or of damaging special plant or animal populations, control measures—including hunting—may be instituted. The managing agencies will work with Game and Fish Commission staff to monitor wildlife populations, particularly deer and turkey, and will cooperate, to the extent feasible, with the turkey restoration program.

## ■ Forest Management

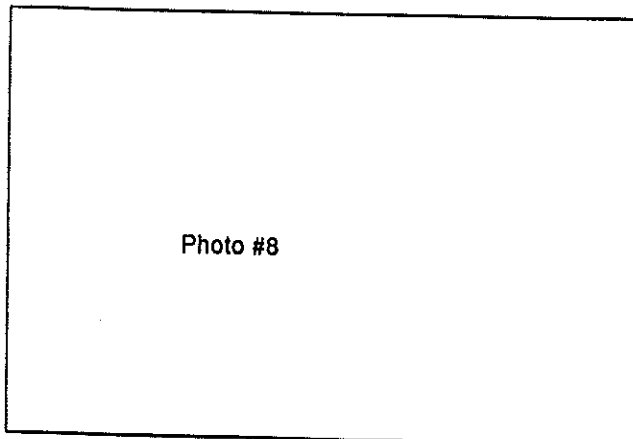
In addition to comments supporting the overall goal of restoring native forests to former pine plantations, the managing agencies received one comment regarding mapping of existing communities and two concerning restoration goals.

**RESPONSE:** The Natural Heritage Commission is in the process of mapping existing forest types. Once completed, this map will be included in the appendices to the Plan. The recommendation to determine in



(above) Pine plantation

(below) The goal for existing pine plantations is to restore them to mature forests.



advance whether the goal of restoration at a given site is hardwood forest, pine forest or mixed forest certainly has merit. However, restoration of native forests on loblolly pine plantation sites has not, to our knowledge, been attempted before. We suspect that the staffs of the managing agencies will need to remain flexible regarding the exact outcome on each particular site. Restoration of the full measure of natural diversity a site would naturally exhibit is implicit in the managing agencies' goal of restoring native forest wherever possible.

## ■ Utilities

Two individuals indicated support for restricting utility lines to the designated corridors; one was concerned about possible degradation of scenic values due to construction of the proposed pipeline bridge over the river.

**RESPONSE:** The pipeline bridge will interfere with the scenic qualities of the river no more (probably less) than the existing highway bridge, located 70 feet upstream from the proposed location for the pipeline crossing. Of all locations on the 26.1-mile proposed wild and scenic river, this is probably the best site for a pipeline crossing. The bridge will be large enough to accommodate additional utility lines, thereby minimizing any future losses due to utility construction.

## ■ Concessions, Fees and Economic Development

Three respondents expressed concerns about these subjects.

**RESPONSE:** Permitting for commercial river guides and/or outfitters will not be taken up until a clear need is apparent. Fees will not be charged for use of the river. The park-natural area's natural and primitive qualities will be maintained, not developed to exploit its resources for economic gain.

• **Summary of Public Concerns/Comments**

( )

( )

( )

# 4

## Goals and Objectives

### Legal and Administrative Requirements

The Natural Heritage Commission receives its mandate from the Arkansas Environmental Quality Act et seq., which was enacted by the Arkansas General Assembly in 1973. This act established as policy of the State of Arkansas to "preserve, manage, and enhance the lands, waters, and air of the state with full recognition that this generation is a trustee of the environment for succeeding generations." The rights, powers, and duties of the Commission are described in Sections 15-20-301 through 319 of the Arkansas Code, Annotated (A.C.A.), which includes a paragraph stating that the Commission has the power "to establish and, from time to time, to amend such policies, rules, and regulations for the selection, acquisition, management, protection, and use of the system [lands protected by conservation easement or held by the Commission in fee title] as it may find necessary or appropriate to preserve the lands or interests therein acquired..."

The Parks Division was created in 1927 "to protect and preserve in its original habitat and native beauty and flora, fauna and wildlife therein and preserve the same for all future generations, thereby promoting health and pleasure through recreational places, resorts, and scenic playgrounds for the people of the State and to attract visitors, homeseekers and tourists to the State..." Arkansas State Parks also has powers to establish policies, rules, and regulations on lands it manages ( A.C.A. Sec. 22-4-104).

Two key federal laws affecting management of certain portions of CRSPNA are the Land and Water Conservation Act (L&WCF) and the Endangered Species Act.

Grant money from the L&WCF, a program administered by the National Park Service (NPS), was used to cover part of the cost of acquiring a 120-acre tract in the Cossatot Falls area (see Figure 4). Properties acquired with L&WCF assistance, in the words of the L&WCF Grants Manual, "must be retained and used for public outdoor recreation. Any property so acquired or developed shall not be wholly or partly converted to other than public outdoor recreation uses without the approval of the NPS Regional Director pursuant to Section 6(f)(3) of the L&WCF Act and 36 CFR Part 59. The Regional Director has authority to disapprove conversion requests and/or reject proposed property substitutions."

The Endangered Species Act requires that all species listed by the Department of the Interior as Endangered or Threatened be protected from harm, which includes both direct damage to organisms and degradation of their habitat. Because the Threatened leopard darter occurs within CRSPNA, all management actions must be considered in light of their potential impacts on this species. Further information about the Endangered Species Act is presented in Chapter 6.

Some of the most important state regulations affecting CRSPNA, aside from the rules and regulations of the two managing agencies, are the Arkansas State Water Quality Standards. Fecal coliform levels in the Cossatot River, for example, must not be raised above natural background levels, and at no time may they exceed a geometric mean of 200 coliforms/100 ml, based on a minimum of five samples collected over 30 days or less. Further information concerning water quality is contained in Chapter 6.

## • Goals and Objectives

### ■ Park Classification

Each state park is managed to offer a range of experiences to park visitors. For planning and management purposes, Arkansas State Parks are placed in one of four categories (Natural Park, Recreation Area, Historic/Cultural Site, or Museum). Classification helps define the overall goals of a particular park, guide development, and direct the focus of interpretive activities in that park. Because CRSPNA is a cooperative effort between State Parks and Natural Heritage, it has been classified as a Natural Park, a designation also in harmony with public comments and the input of state and federal agencies. Natural parks are established to protect outstanding resources and to promote environmental education and public recreation in natural environments. General criteria for this classification include: 1) area greater than 2,500 acres; 2) unique and/or scenic resources; and 3) more than 60 percent of the land in an essentially undeveloped natural condition, affected primarily by the forces of nature. Experiences available in such areas include solitude, observation and study of natural features, communion with nature, outdoor exercise, and camping or lodging in natural surroundings.

The main attractions at CRSPNA are scenery and outdoor recreation opportunities, including swimming, fishing, solitude, photography, and—on a periodic basis—whitewater canoeing and/or rafting. The topography and vegetation of the area give it visual diversity and offer a challenging setting for trail activities.

### ■ Management Goals and Objectives

State Parks and Natural Heritage have striven to integrate the mandates of both agencies, the advice of an interagency planning team, all pertinent laws and regulations affecting management of CRSPNA, and the comments and concerns of the public in order to establish goals and objectives for the project.

The result of this effort is a simple statement: The overall goal of the managing agencies is to protect the ecological diversity, environmental quality and natural beauty of Cossatot River State Park-Natural Area and yet simultaneously make the area available for educational purposes and a variety of compatible outdoor recreation activities. The three specific goals for CRSPNA are:

#### GOAL 1

To maintain and, in some situations, enhance the natural and scenic qualities of CRSPNA.

#### GOAL 2

To offer high-quality outdoor recreation experiences compatible with the carrying capacity of the resource base.

#### GOAL 3

To provide environmental education opportunities for the western Ouachita Mountain region of Arkansas.

Management objectives for each of these goals are presented below:

##### GOAL 1 OBJECTIVES

Provide permanent protection to identified natural areas, including the river itself, all special species habitats, and outstanding natural communities.

Implement a hardwood reforestation and wildlife enhancement program on the pine plantations within CRSPNA.

Maintain high water quality throughout the management area.

Maintain the scenic qualities of the river corridor in accordance with the guidelines of the National Wild and Scenic Rivers Act.

Seek designation of National Wild and Scenic River for the segment of the Cossatot River within CRSPNA; support designation of selected segments of the river managed by the Forest Service and Corps of Engineers.

##### GOAL 2 OBJECTIVES

Provide recreation experiences compatible with the resource base and responsive to user demand, as detailed in the following sub-objectives:

- Provide high-quality, river-oriented recreational opportunities.
- Provide high-quality camping, picnicking, hiking and other outdoor recreation opportunities.
- Establish a joint federal-state greenway from Caney Creek Wilderness Area (U.S.F.S.) to Gillham Lake (C.O.E.).



**GOAL 3 OBJECTIVES**

Provide an outdoor environmental education laboratory for school children and adults.

Increase environmental awareness and promote a stewardship ethic through CRSPNA interpretive programs.

- **Goals and Objectives**

( )

( )

( )

# 5

## Land Classification Zoning System

Some portions of CRSPNA, particularly its sensitive habitats, steep slopes, and old-growth forests, require greater protection than others. Most kinds of development are inappropriate and recreational activities may have to be limited in these areas. Other portions of CRSPNA are suitable for camping, trails, interpretive facilities and even certain wildlife/vegetation management efforts. The river itself is not only the most ecologically-sensitive feature on the property but also its most outstanding recreational attraction, which points to a need to provide carefully-planned access and parking for the public. In order to integrate protection needs, land characteristics, and area-specific suitability for development and/or recreation activities, Arkansas State Parks and the Arkansas Natural Heritage Commission have developed a zoning system and applied it to the entire park-natural area. The zoning system provides a clear picture of potential park development sites, protected natural areas, access corridors and other important features of CRSPNA.

Four levels of protection (or appropriate levels of development/activity) are recognized in this zoning system. These levels span a range of management strategies—from minimum impact management in the natural areas (ecological protection zone) to intensive management and use in the development zone. Each management zone is paired with a very broad management “prescription,” as shown below.

Most of the zone boundaries depicted on the accompanying map (Figure 6) are subject to some change, especially where new resource inventory data emerges or new management needs arise. Once portions of the “Ecological Protection Zone” are dedicated into the state system of natural areas, however, they will remain dedicated natural areas in perpetuity. Although

no lands as yet have been classified “Historic/Cultural,” this category will be used as inventory findings warrant. Following are descriptions of each of the four zone types presently recognized and mapped, plus the (unmapped) Historic/Cultural Zone.

### ■ Ecological Protection Zone

(including dedicated natural areas)—The primary criterion for including lands and waters in this category is the presence of outstanding natural communities and/or habitat for special species. Examples of outstanding natural communities at CRSPNA are the stands of old growth oak-pine and oak-hickory forest, undisturbed cedar glades, and the entire stretch of free-flowing upland river within the park-natural area. Special species and communities found within the management area are noted and described in Chapter 2.

Lands that buffer the more sensitive areas from disturbance are included in this zone where the buffering function is essential. Some young pine plantations and cut-over forests, for example, are included in the Ecological Protection Zone simply due to their proximity to the river or to key tributaries: Further soil disturbance in these areas would result in degradation of water quality and reduction in the wild and scenic values of the corridor. On the other hand, roads within the park-natural area that cannot or will not be closed are excluded from the Ecological Protection Zone, even where they descend below the ridgeline and/or cross the river (see Road/Utility Zone). Similarly excluded are four relatively small areas along the river, one of which will be developed as an access and primitive camping area. The remaining three will be developed as canoe/kayak/raft launches or take out

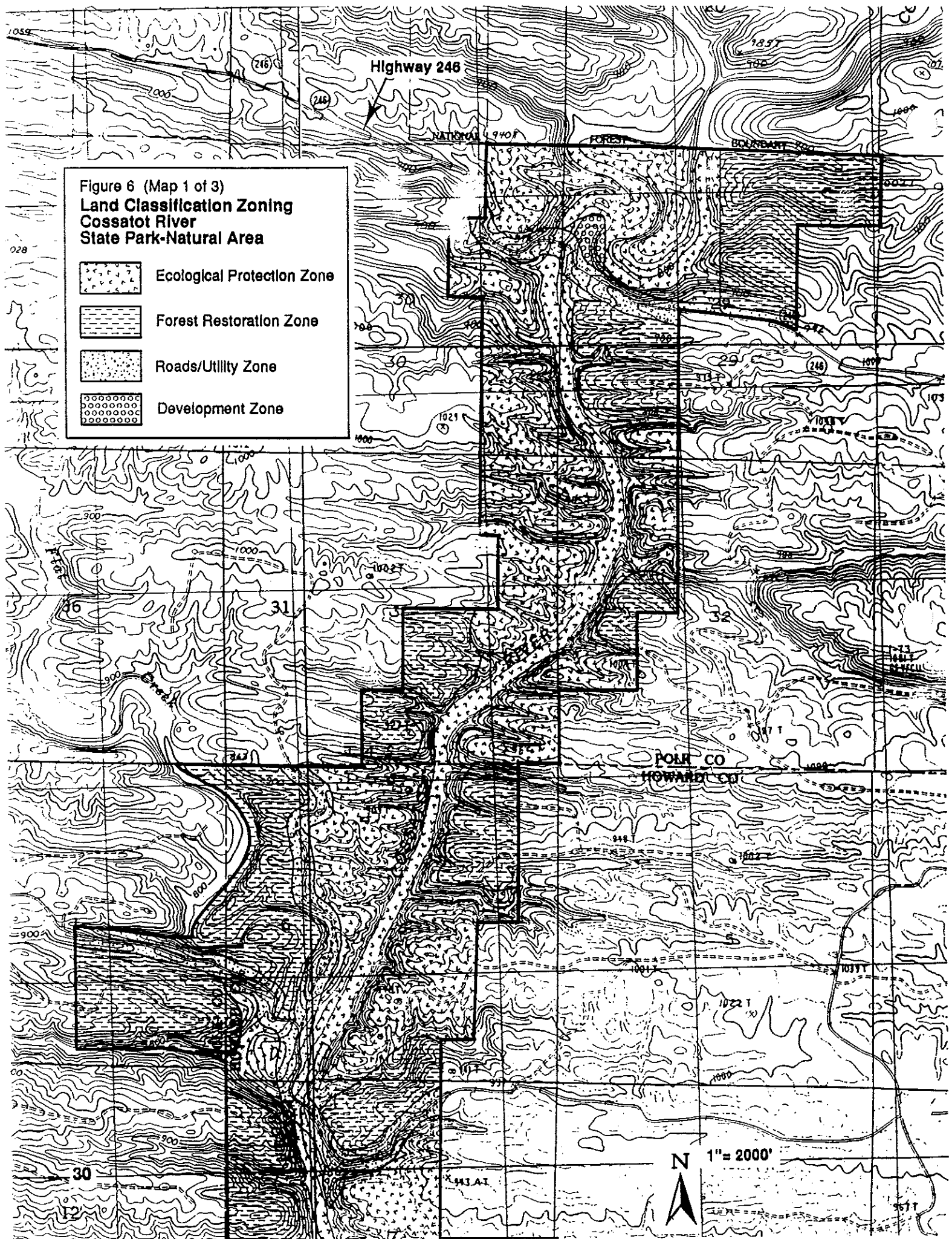


Figure 6 (Map 1 of 3)  
Land Classification Zoning  
Cossatot River  
State Park-Natural Area

-  Ecological Protection Zone
-  Forest Restoration Zone
-  Roads/Utility Zone
-  Development Zone

Highway 246

POLK CO  
HOWARD CO

N 1" = 2000'

30

41 A1

571

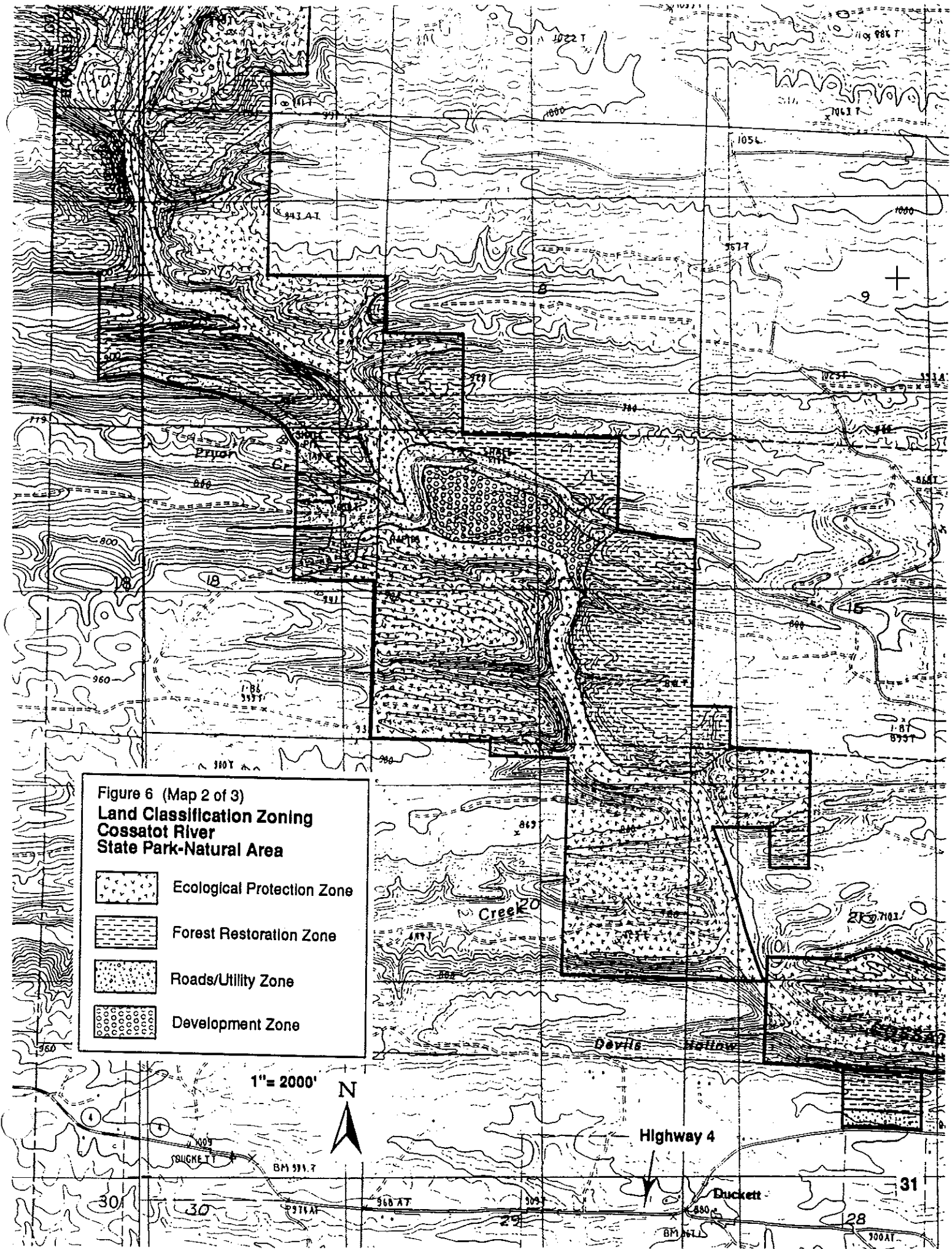






Figure 6 (Map 2 of 3)  
**Land Classification Zoning**  
**Cossatot River**  
**State Park-Natural Area**

-  Ecological Protection Zone
-  Forest Restoration Zone
-  Roads/Utility Zone
-  Development Zone

1" = 2000'



Highway 4

Duckett

31

28

30

30

30

30

30

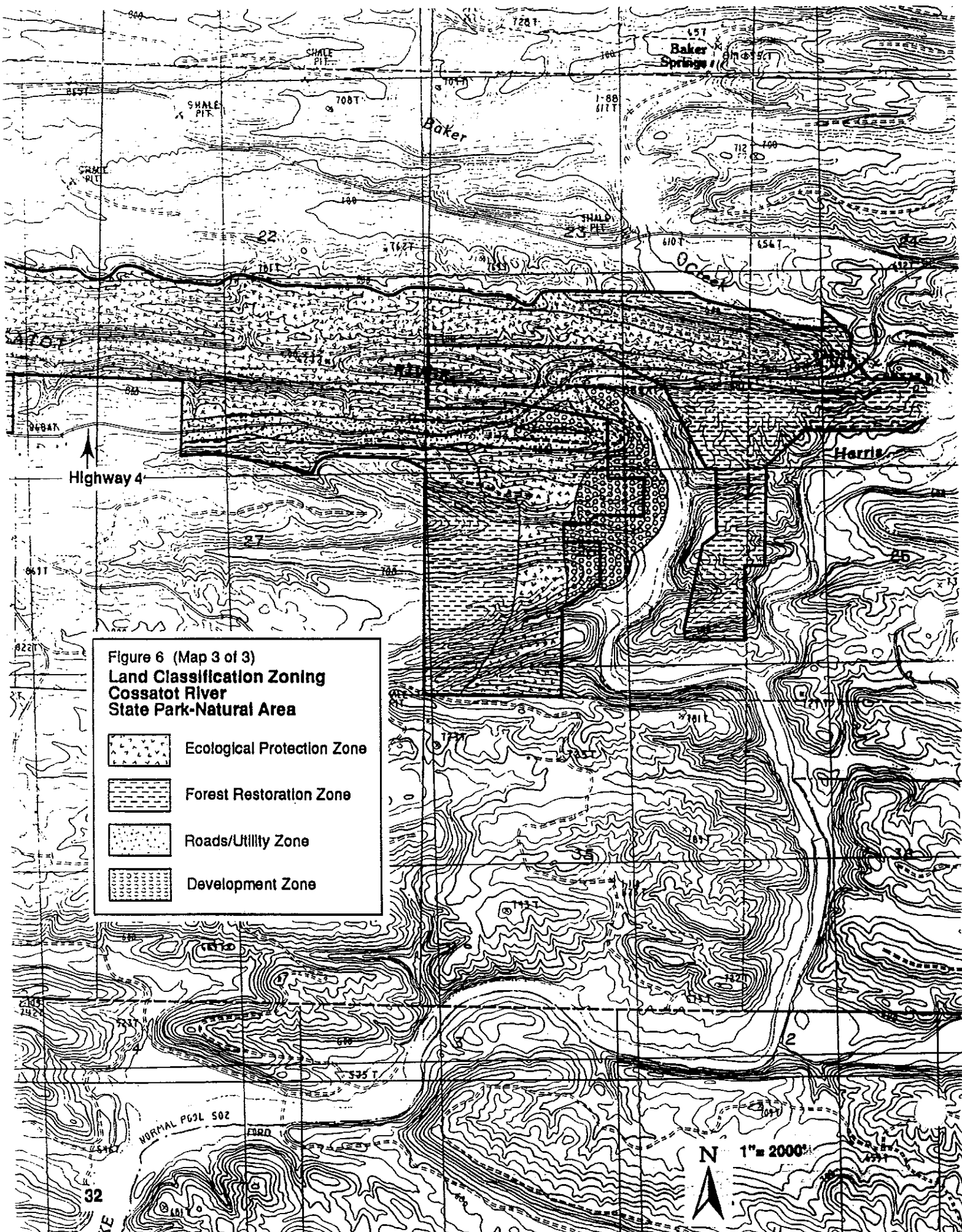






Figure 6 (Map 3 of 3)  
Land Classification Zoning  
Cossatot River  
State Park-Natural Area

-  Ecological Protection Zone
-  Forest Restoration Zone
-  Roads/Utility Zone
-  Development Zone

N 1" = 2000'

points. In each of the just-named cases, every effort will be made to avoid degradation of environmental quality.

Within the Ecological Protection Zone, the only development activity that will be permitted is trail construction, and all trails will be built to careful specifications and well maintained. No new roads, transmission lines, or buildings will be constructed. Management activities will be limited to prescribed burning, necessary fire and pest control, boundary marking and maintenance, management thinning to accelerate restoration of hardwood or mixed pine-hardwood forests, monitoring of special plant and animal populations, monitoring of human use, and trail maintenance (management activities are described in more detail in Chapters 6, 7 and 8). Salvage of burned or downed trees will be considered on a case-by-case basis (see Chapter 6, Outstanding Natural Communities section).

## ■ Road/Utility Zone

Excluding boundary roads and spurs that extend from main arteries to dead-ends, four main thoroughfares pass through CRSPNA: Highways 246 and 4, and WEYCO-numbered roads 52600/82600 and 52000/82000 (Figure 2). Short segments of WEYCO-numbered roads 52200, 82640 (640 on map), 82800 and 82500 also pass through the property, and #81035 provides access to the low-water bridge below the Highway 4 bridge. All portions of the above-cited roads (road rights-of-way) are placed in the Road/Utility Zone. Most of the remaining spurs will be closed off, pending further analysis.

Generally the maintenance of highways and utility corridors is controlled by outside agencies or private entities, imposing obvious restrictions on resource management and creating part of the need for recognizing a road/utility zone in the first place. Within the Road/Utility Zone the Arkansas Highway and Transportation Department is responsible for Highways 4 and 246; WEYCO has the right to maintain and use for logging traffic those portions of WEYCO-numbered roads 52600/82600, 52000/82000, 52200, 82800, 82500, and 82640 that pass through CRSPNA; and two individuals jointly hold a road easement for the CRSPNA portions of WEYCO-numbered roads 82800 and 82000.

Two utility transmission rights-of-way cross portions

of CRSPNA: a Southwest Arkansas Electric Power Cooperative (SWEPCO) powerline adjacent to Highway 4 and an Arkla Energy Resources (AER) right-of-way near Highway 246. To minimize any potential environmental or aesthetic damage due to such crossings—and at the same time to make room for those transmission lines that are clearly in the public interest and for which there are no feasible or prudent alternatives—the following utility corridors have been designated: the Highway 4 and 246 rights-of-way, plus those portions of a 100-foot-wide strip near Highway 246 (Figure 5) that fall outside the right-of-way for that highway. Except for transmission lines needed to provide utilities to CRSPNA recreation sites, all utility lines crossing the property must be restricted to the designated corridors. Provisions for addressing proposals to place transmission lines through these corridors are included in Chapter 6 in the Section entitled "Utility Transmission Lines."

## ■ Development Zone

The Development Zone includes lands where major park development and/or intensive use are anticipated. To qualify for inclusion in this category, sites must: 1) have the physical characteristics necessary to support proposed development and 2) lack special habitats or outstanding natural communities (see Ecological Protection Zone). Generally, lands placed within this zone are well removed from the river itself, so that visual and other impacts will be minimized. Exceptions are the day-use area at Cossatot Falls and the put in/take out areas along the river.

Management emphasis in this zone will be on providing and maintaining levels of recreation development sufficient to serve the needs of park visitors, and on providing administrative and maintenance facilities, without degrading water quality, scenic values or natural features.

## ■ Forest Restoration Zone

Included within the Forest Restoration Zone are areas somewhat removed from the main corridor that lack outstanding natural features and are not included in plans for major recreational development. All lands included in this category have been subject to commercial timber harvests and/or clearing in the past. Development within the Forest Restoration Zone will be limited to construction and maintenance of trails,

## • Land Classification Zoning System

primitive campsites, and other low-to medium-impact recreational activities. The primary focus of resource management activities will be restoration of native plant communities, prevention of major pine beetle outbreaks and wildlife management.

## ■ Historic/Cultural Zone

(no areas within CRSPNA currently so classified) This zone is established in case sites of historic or archeological significance are discovered within CRSPNA. Management of areas placed in this zone will be aimed at retention and enhancement of historic/cultural values.



# 6

## Resource Management

The zoning system described in the preceding chapter provides a framework or perspective for viewing all resource management actions that will affect CRSPNA. For many purposes, a glance at the zoning map and the appropriate prescription will be enough to indicate what is planned for a particular area and what kinds of actions or activities are permitted there. More detailed information regarding specific management actions is provided in this and the following sections. Annual action plans, in place by the beginning of each fiscal year (July 1), will address each of the subject areas discussed below.

### Management for Wild and Scenic River (national) and Natural and Scenic River (state) Status

CRSPNA includes one of the last truly wild river segments in the Ouachitas. Because this segment of the Cossatot possesses "outstandingly remarkable scenic, recreational, geologic, fish and wildlife, and other resource values," it has been deemed eligible for National Wild and Scenic River status. It is already part of the Arkansas Natural and Scenic Rivers System.

In recognition of the Cossatot's outstanding natural and scenic qualities the managing agencies will ask the Governor of Arkansas to recommend to the U.S. Department of the Interior that the state-managed segment of the river be included in the National Wild and Scenic Rivers System (NWSRS). This recommendation will advance a long-standing state-federal effort to protect this stretch of the Cossatot River. The Forest

Service has already proposed that 15.5 miles of the river and a tributary immediately upstream from CRSPNA be designated a National Wild and Scenic River. Corps of Engineers personnel have expressed support for similarly designating all or part of 12.8 miles of the Cossatot and tributaries above the normal pool of Gillham Lake.

The two federal agencies just named have been working closely with State Parks and Natural Heritage since early 1987 to insure that these streams are protected for future generations. Toward that end these four agencies entered into a statement of intent in 1988 (see Appendix A).

A tentative classification of all river segments proposed for national recognition is presented in Figure 7. The managing agencies will request that the river corridor within CRSPNA be classified "Scenic" under NWSRS standards. This classification was selected

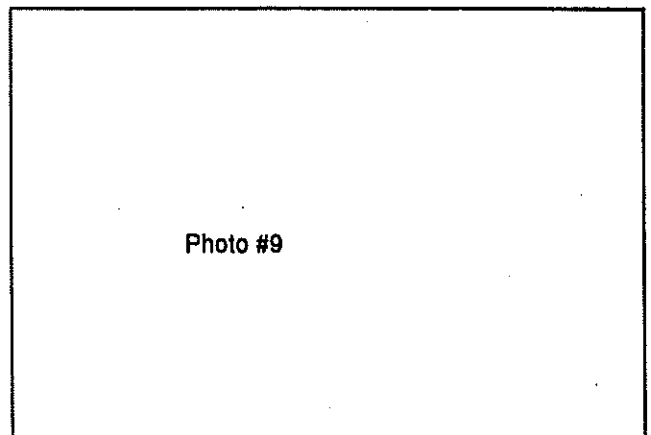


Photo #9

The Cossatot is one of the most outstanding float streams in mid-America.

Figure 7 (Map 1 of 2)  
**Cossatot River Wild and Scenic River Proposal**

Agency*	Classification in Miles			
	Scenic	Recreation	Wild	Sub-totals
U.S.F.S.	6.9 Cossatot 4.4 Brushy Creek	4.2 Cossatot	0	15.5
C.O.E.	4.6 Cossatot 8.2 Harris & Baker Creeks	0	0	12.8
S.P./N.H.C.	10.4 Cossatot 0.3 Brushy Creek	0	0	10.7
Sub-totals	34.8	4.2	0	39.0**

\* Agency abbreviations:

\*\*Total Wild & Scenic Corridor

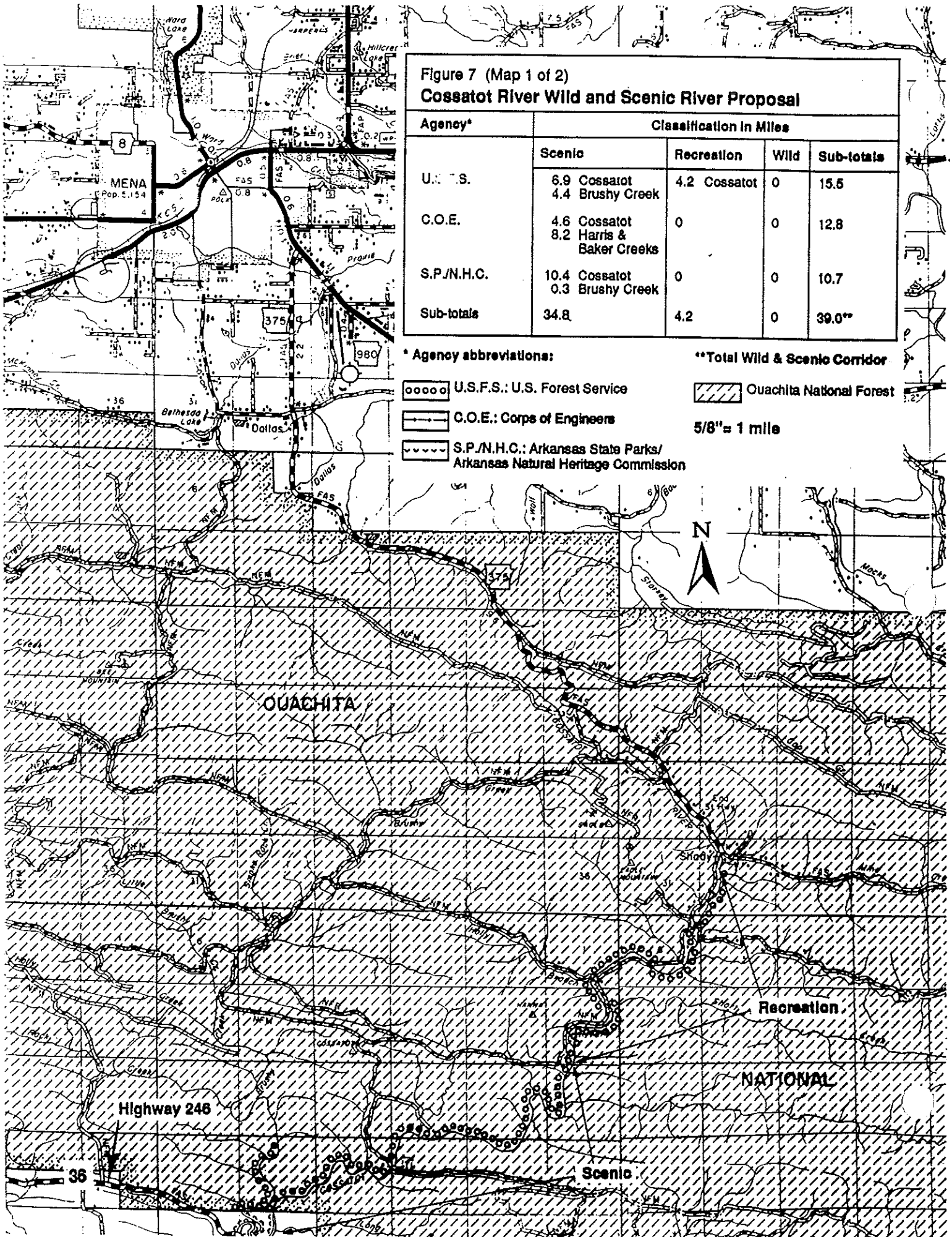
o o o o o U.S.F.S.: U.S. Forest Service

 Ouachita National Forest

 C.O.E.: Corps of Engineers

5/8" = 1 mile

 S.P./N.H.C.: Arkansas State Parks/  
Arkansas Natural Heritage Commission



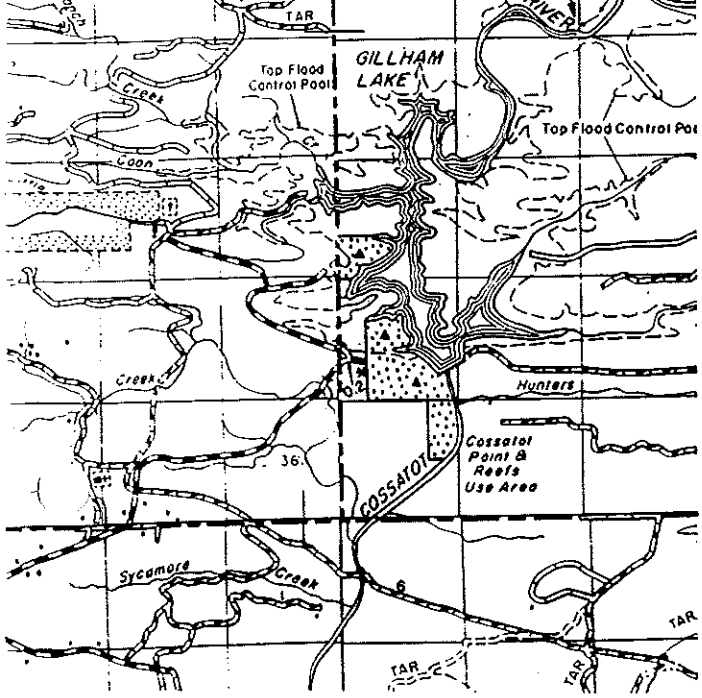
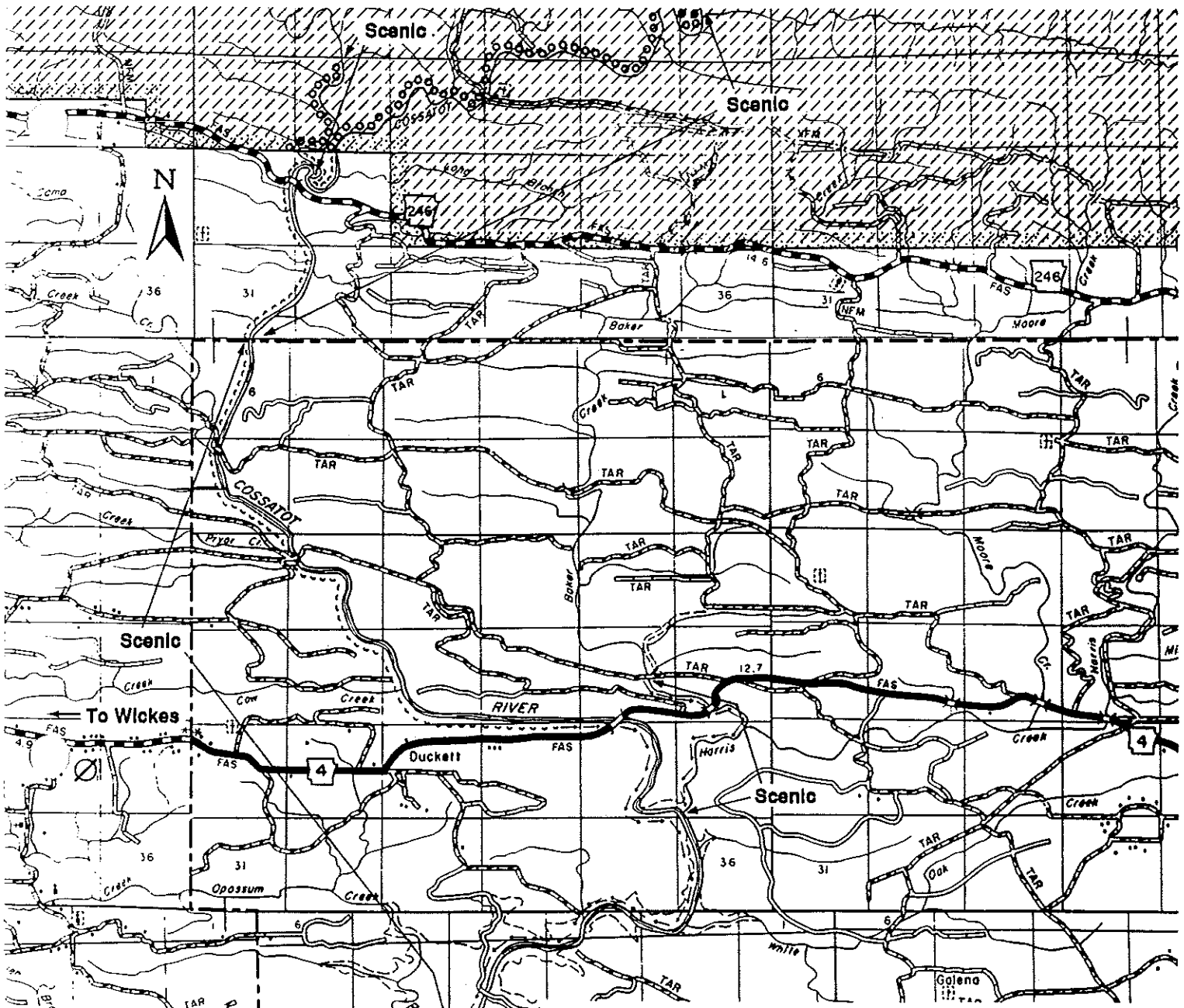


Figure 7 (Map 2 of 2)  
Cossatot River Wild and Scenic River Proposal

Agency*	Classification in Miles			
	Scenic	Recreation	Wild	Sub-totals
U.S.F.S.	6.9 Cossatot 4.4 Brushy Creek	4.2 Cossatot	0	15.5
C.O.E.	4.6 Cossatot 8.2 Harris & Baker Creeks	0	0	12.8
S.P./N.H.C.	10.4 Cossatot 0.3 Brushy Creek	0	0	10.7
Sub-totals	34.8	4.2	0	39.0**

\* Agency abbreviations:

\*\*Total Wild & Scenic Corridor

ooooo U.S.F.S.: U.S. Forest Service

Ouachita National Forest

— C.O.E.: Corps of Engineers

5/8" = 1 mile

----- S.P./N.H.C.: Arkansas State Parks/  
Arkansas Natural Heritage Commission

## • Resource Management

over "Wild" because the hardwood reforestation projects to be conducted on pine plantations within one-quarter mile of the river (see Section on Forest Restoration later in this chapter) will conflict with management guidelines for "Wild" rivers. Under the "Wild" classification, the only timber management or timber cutting activities allowed are those needed to protect the environment (e.g., control wildfires), maintain trails, provide for visitor safety or carry out other essential recreation management activities associated with primitive recreation experiences.

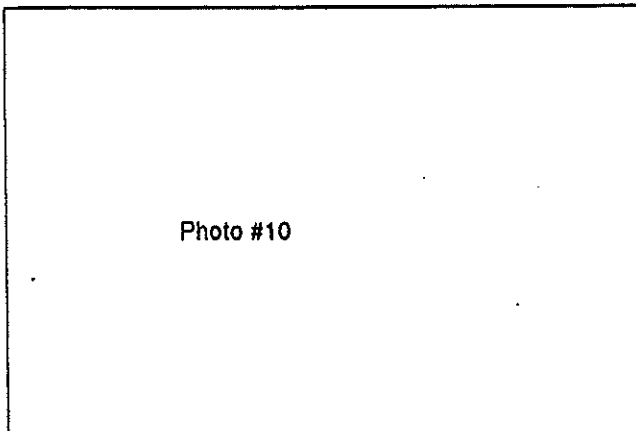


Photo #10

State-federal interagency cooperation on this project is unprecedented.

Despite the proposed "Scenic" classification, State Parks and Natural Heritage will to the extent possible manage the river corridor as if it were classified as "Wild." Once hardwood reforestation is completed—approximately by the year 2017—major timber management activities will cease, and the managing agencies will request reclassification of most of the CRSPNA river corridor as "Wild." Pending action by the Department of The Interior, State Parks and Natural Heritage will treat the river as if it were already a component of the Wild and Scenic Rivers System. The managing agencies will also work with the Arkansas Natural and Scenic Rivers Commission to ensure that the Cossatot continues to merit the state "natural and scenic" designation. The following sections were developed with both state and national wild and scenic river guidelines in mind.

## ■ Water Management

Except for personal use (i.e., for boiling or bathing) or lawful use by riparian landowners (of inholdings), water withdrawals from the Cossatot River and its

tributaries will not be permitted within CRSPNA. No dams, weirs or diversion structures will be installed within the park-natural area. Except for certain essential facilities (e.g., short trail segments near Cossatot Falls, accesses) no permanent development will take place in the floodplain of the river.

Consistent with the federal Clean Water Act, as administered by the Arkansas Department of Pollution Control and Ecology, the managing agencies will take all necessary actions to prevent degradation of water quality, including regular water quality monitoring (see Chapter 7) and stringent sewage and erosion controls. Because the soils at CRSPNA are unsuitable for septic systems, composting or closed chemical toilets will be required at several locations. Self-contained sewage plant systems with de-chlorinating capabilities may be necessary to handle waste from campgrounds and the planned visitor center.

Landfills and dumping sites will not be permitted within CRSPNA. All refuse that cannot be recycled will be hauled to approved local landfills or dumping sites.

No matter how effectively the managing agencies avoid water quality degradation within CRSPNA, the Cossatot River may nonetheless be threatened both by chemical spills from roads, highways or bridges on or near the property and by land uses in the greater watershed. Procedures are being formulated for responding to spills of hazardous materials that might threaten the river or other portions of CRSPNA. These procedures, to be developed in cooperation with the Arkansas Highway and Transportation Department and the Office of Emergency Services, will be included in an update to the plan.

The state park-natural area occupies only 1.7 percent of the watershed north of Highway 4. Within that watershed many thousands of acres of land are dedicated to silviculture and/or agriculture. A high percentage of the watershed between the Ouachita National Forest and Highway 4 is managed intensively for timber. In addition to the danger of chemical pollution from timber management activities, there is an even greater threat from increased sediment loading. The main source of sediment pollution in the watershed is the extensive network of timber access roads.

Agricultural activities in the watershed include not only cattle farming but also swine and poultry opera-

tions. Where animal waste or food processing are not managed properly, the water quality of streams that feed into the Cossatot can be degraded.

As problems are identified in the greater watershed, State Parks and Natural Heritage will work closely with owners of lands that appear to be the source of the problem(s) to insure that the Cossatot remains one of the cleanest streams in Arkansas.

## Endangered/Threatened and Other Special Species

Within CRSPNA the only species determined by the Department of the Interior to be Endangered or Threatened is the leopard darter (*Percina pantherina*), listed as Threatened since 1978 (50 CFR 17.11 and 17.12). As such this fish is protected by the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 *et seq.*), which made it unlawful "to take endangered wildlife within the United States." The definition of "taking" includes harassment—"an intentional or negligent act which creates the likelihood of injury to wildlife by annoying it to such an extent as to significantly disrupt normal behavioral patterns"—and harm—"an act which actually kills or injures wildlife." The act of "harming" includes significant habitat modification or degradation "where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering."

The leopard darter is protected by the provisions against taking (see above). Aside from regular monitoring, no active management of the leopard darter population within CRSPNA is anticipated. Habitat degradation will be avoided scrupulously. Any fish surveys that take place at CRSPNA must stay within the guidelines contained in the Leopard Darter Recovery Plan (U.S. Fish and Wildlife Service, 1984).

Two other inhabitants of CRSPNA—the Ouachita Mountain shiner (*Notropis snelsoni*), and the Caddo Mountain salamander (*Plethodon caddoensis*)—were included by the Department of the Interior on its January, 1989, list of "Category 2" species (50 CFR 17). Plants and animals placed in Category 2 may well prove to be Endangered or Threatened, but available data on biological vulnerability and threat are not conclusive. Within CRSPNA the management actions previously specified for the leopard darter should also

benefit the Ouachita Mountain shiner. The Caddo Mountain salamander requires undisturbed forest habitat, which will be provided amply at CRSPNA.

The five plants that are considered by the Department of the Interior to be candidates for Endangered or Threatened status (see p. 21) are also protected from taking. Waterfall's sedge is considered a "Category 1" species, meaning the U. S. Fish and Wildlife Service currently has sufficient information on hand to list the species as Threatened or Endangered. The remaining four are Category 2 species. Another Category 1 species, a shrubby legume named *Amorpha ouachitensis*, likely occurs in CRSPNA but conclusive information is lacking.

Insofar as possible, all occurrences of these plants and the eighteen others occurring within CRSPNA that are considered to be of special concern by the Arkansas Natural Heritage Commission (see Chapter 2) will be protected from development, trampling, collecting and other disturbances. Since most special species populations are found within the Ecological Protection Zone, they will be afforded adequate protection. Occurrences near roads and heavily used paths outside that zone cannot be considered protectable. No active management of special plant habitats is called for in the foreseeable future, since those habitats appear to be self-maintaining.

Collection of plant, animal and other specimens from CRSPNA may be authorized for scientific or conservation purposes only. A collecting permit authorized by both agency directors is required (see Chapter 7 for further information).

## Outstanding Natural Communities

Like special plant and animal populations, outstanding natural communities need to be protected from degradation due to overuse, inappropriate development and other threats. Most of this protection is provided by including all such communities within the Ecological Protection Zone. Additional protection will be provided through regular monitoring, careful siting of trails and maintenance of buffer areas. Two forms of active vegetation management may be employed in forest stands that have a significant shortleaf pine component: 1) prescribed burning and 2) cutting and/or removal of pine-beetle infested "spots" in the forest.

## • Resource Management

Both of these techniques and protocols for their use are described in following sections. Hardwood and predominately hardwood forests very likely will require no active vegetation management.

Normal trail maintenance (see Chapter 10) will be conducted where trails pass through outstanding natural communities, but before trees or limbs may be cut they must meet at least one of the following conditions: 1) be across the trail, 2) occur within the eight-foot vertical trail corridor or 3) present a clear and present danger to trail users.

Blow-downs and other wind damage, fires within prescription, browsing (herbivory) by native animals and other "disturbance events" contribute vitally to the ecological dynamics of natural communities. Such natural disturbances normally will be allowed to run their course when they occur within outstanding natural communities, and no salvage work will be authorized. Normal trail maintenance may be conducted following blow-downs, subject to the limitations described in the preceding paragraph. The sole exception to the no-salvage policy within the Ecological Protection Zone is where tree salvage is conducted in conjunction with authorized treatment of a southern pine beetle outbreak. Limited tree-cutting to control catastrophic fires may be authorized.

The main reasons southern pine beetle outbreaks will be treated differently than other natural disturbances are as follows: a) salvage is often the most effective way to control spread, b) damage could spread quickly to adjacent, privately-owned properties and c) so little old-growth pine-hardwood forest remains in the Ouachitas, particularly in the Athens Piedmont Plateau, that extraordinary measures to maintain it are justified.

## ■ Pest Insect Control

Native insects are vital components of the ecosystems of the Cossatot River corridor and will not be controlled unless they present significant threats to outstanding natural communities, endangered or threatened species, park facilities, adjacent property values or public health and safety. The major insect species occurring within CRSPNA that might require control are the southern pine beetle (SPB) (*Dendroctonus frontalis*), the black turpentine beetle (*Dendroctonus terebrans*), and *Ips* beetles. All are invaders of pine bark.

Outbreaks of SPB's, the major potential pest within CRSPNA, can be catastrophic. But this native insect plays a natural role in southern pine forests and, within any given segment of its range, causes little damage most years. Major outbreaks of SPB's tend to occur about every ten years (U.S.D.A. Tech. Bull. 1631, undated).

Wherever the threat of spread or major outbreak is low, i.e., where isolated individual trees have died, no action beyond regular monitoring of SPB "spots" is called for (see section on problem species monitoring). When beetle populations reach or threaten to reach a certain "critical mass," indicating the likelihood of mass destruction of pine trees, stringent control measures will be put into play. Within the Forest Restoration, Utility/Road, and Development zones, the usual treatment will be to cut and remove infected pines and pines within a designated buffer area; the option to "cut and leave" is available also. The latter option is more likely to be used in the Ecological Protection Zone. In all cases, the Arkansas Forestry Commission will advise the managing agencies regarding treatment of SPB problems. The black turpentine beetle and *Ips* beetles will be monitored and controlled in much the same manner SPB's are.

Outbreaks of SPB's and other bark borers are most common in stands of stressed pine trees. However, SPB's can and will kill healthy, vigorous trees when beetle populations reach epidemic size.

## ■ Fire

Fire is a natural component of most terrestrial ecosystems in the Ouachitas, including those on the slopes above the Cossatot River. Active fire suppression, agricultural activities, and roads, however, have served over the years to reduce the frequency of natural fires. One likely but unproven consequence of this lower frequency of burning is an increase in the fuel load—leaf litter, dead twigs, etc.—on forest floors and in cedar glades along the Cossatot. The effect of such buildups is to increase the chances of a catastrophic (crown) fire occurring on the property.

Where analyses of shortleaf pine-mixed oak forest stands or glades indicate that prescribed fire would be beneficial, particularly for reducing fuel levels, staff from the Natural Heritage Commission and State Parks, together with Forestry Commission personnel, will conduct carefully controlled burns. These three

agencies will also develop prescriptions and contingency plans in order to allow low intensity lightning-set fires to burn naturally, especially within the Ecological Protection Zone.

Wildfires, by definition, are those fires that are "out of prescription," that is, occurring under weather conditions or with fuel loads that are outside the range(s) considered safe or acceptable. Such fires, of course, pose great danger to life and property and, regardless of ignition source, will be suppressed on CRSPNA. Wildfire suppression actions will be coordinated with adjoining landowners, volunteer fire departments and the Arkansas Forestry Commission.

## ■ Wildlife

The modern concept of "wildlife" embraces all non-domesticated plants, animals and other organisms. Within the context of most state parks and natural areas, and certainly within CRSPNA, the most important kind of wildlife management is that which is directed toward maintenance of special plants and animals in their natural settings (see pertinent section earlier in this chapter).

Since hunting will not be permitted within the park-natural area (see following "Hunting" section) management of game species is not a high-priority management objective. Should populations of wild turkey or white-tailed deer exceed the carrying capacity of CRSPNA, however, removal of the excess population may be authorized by joint decision of the directors of the managing agencies, in consultation with the Arkansas Game and Fish Commission.

The Game and Fish Commission has expressed interest in managing a total of 200 to 400 hundred acres of cut-over tracts within the Forest Restoration Zone for upland game—particularly turkey and quail—and periodically removing any harvestable surplus for restoration purposes elsewhere in Arkansas. This proposal would not conflict with management efforts directed toward establishment, improvement and maintenance of hardwood forests.

State Parks and Natural Heritage support this proposal in principle and will work toward a cooperative management agreement to achieve these ends. Within the next two years, staff members of these three agencies and the Arkansas Forestry Commission will propose suitable areas for this project.

The managing agencies at CRSPNA also are presented with an excellent opportunity to benefit a large group of non-game species that require certain forest conditions for their livelihood. The state-managed portion of the Cossatot River corridor is one of the very last islands of mature forest in that part of the Ouachitas, and therefore serves a vital function for the many animals that depend on that habitat. Table 4 lists 50 species that will benefit or are likely to benefit from maintenance and expansion of old-growth forests within CRSPNA.

In addition to existing old-growth, the 812 acres of pine plantations and much of the remainder of the Forest Restoration Zone could eventually support mature native forest if properly managed. This same acreage, of course, could also be maintained in early successional stages—i.e., open areas, thickets and young forests. Analysis of vegetation types, owner-

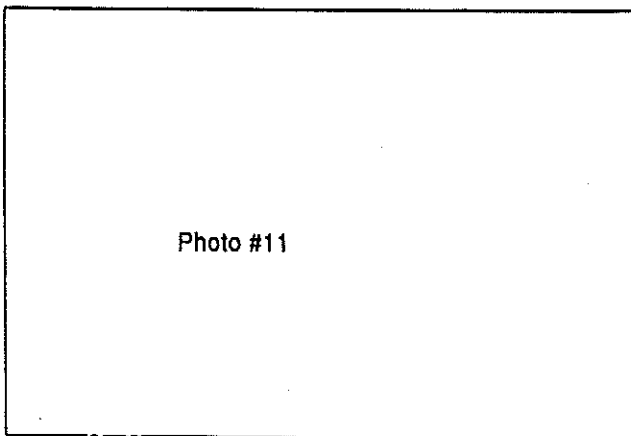


Photo #11

bald eagle

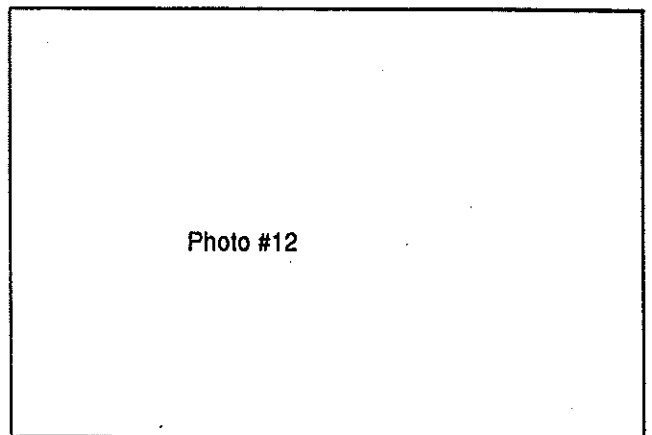


Photo #12

Caddo Mountain salamander

• Resource Management

**Table 4. Vertebrate Wildlife Species Likely to Benefit From Old-Growth Forest Habitat Within Cossatot River State Park-Natural Area**

<b>breeding and permanent resident birds</b>	<b>wintering birds</b>
broad-winged hawk	dark-eyed junco
sharp-shinned hawk	white-throated sparrow
Cooper's hawk	red-breasted nuthatch
wild turkey	brown creeper
eastern screech owl	hermit thrush
chuck-will's-widow	golden-crowned kinglet
pileated woodpecker	winter wren
red-bellied woodpecker	fox sparrow
hairy woodpecker	rufous-sided towhee
great-crested flycatcher	
Acadian flycatcher	<b>mammals</b>
brown-headed nuthatch	eastern pipistrelle
Carolina wren	evening bat
wood thrush	Mexican free-tailed bat
Swainson's warbler	eastern chipmunk
blue-gray gnatcatcher	eastern grey squirrel
yellow-throated vireo	eastern fox squirrel
black & white warbler	southern flying squirrel
worm-eating warbler	eastern woodrat
cerulean warbler	
pine warbler	<b>reptiles and amphibians</b>
Louisiana waterthrush	Caddo Mountain salamander
American redstart	broad-headed skink
scarlet tanager	timber rattlesnake
summer tanager	American toad
Carolina chickadee	spotted salamander
tufted titmouse	marbled salamander

ship pattern and management practices within one mile of the CRSPNA boundary shows that much of the surrounding landscape currently supports commercial pine plantations scheduled for harvest by age 35 and other young (early successional) vegetation. Thus there is no shortage in the area of the kinds of open or early successional habitats favored by some wildlife species. Further, there is no reason to expect management of these surrounding lands to change significantly in the coming decades. The compelling need, then, is for a more mature forest habitat, and over the years CRSPNA can provide just that.

Wildlife biologists from the Ouachita National Forest and the Arkansas Game and Fish Commission have pointed out that CRSPNA very likely is going to be the

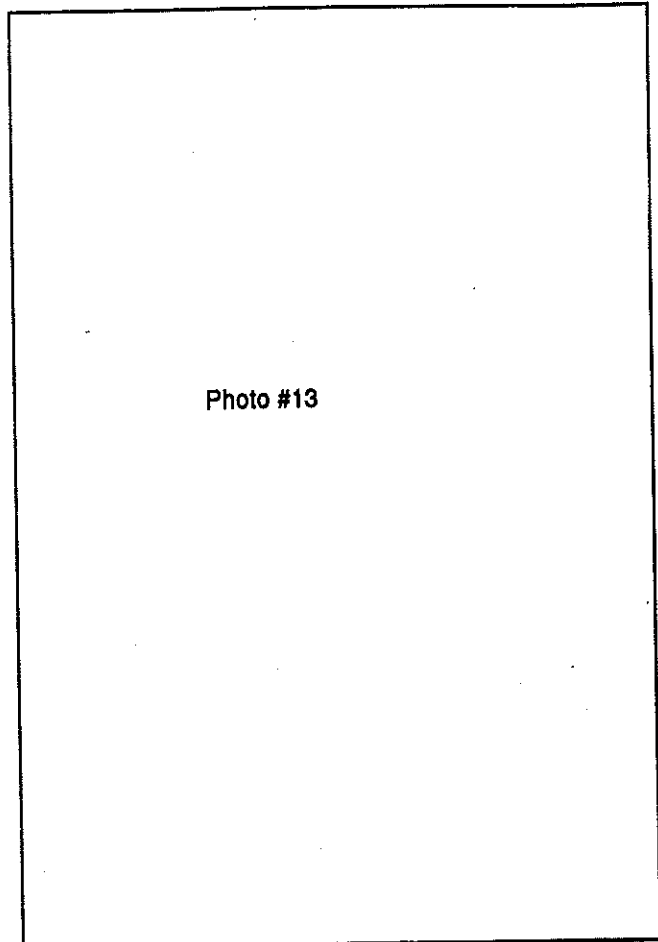


Photo #13

**white-tail deer**

only land in the vicinity—that is, over much of the Athens Piedmont Plateau—that will support mature or old-growth hardwood and mixed pine-hardwood forests after the year 2000. These biologists have recommended that CRSPNA be managed to maximize the extent of mature forest habitat. Based on the managing agencies' own analysis and the recommendations of other professionals, the compelling need appears to be restoration of native forest on most of the acreage currently occupied by pine plantations or cut-over woodland (Forest Restoration Zone).

Fishing in the Cossatot River will be regulated in accordance with Arkansas Game and Fish Commission regulations. No fish stocking that might interfere with the leopard darter or Ouachita Mountain shiner will be permitted within CRSPNA, and no non-native species will be stocked in any case. Any fish stocking action must be compatible with the goals and objectives of CRSPNA.



## ■ Hunting

Hunting has been a traditional activity in what is now CRSPNA. Due to the reasons noted below, however, hunting is considered an incompatible use in state parks.

The mission of Arkansas State Parks includes protecting all fauna on lands it manages. Also, many visitors to state parks are there to commune with nature and experience peace and solitude. Park visitors expect to enjoy the area without worrying about the noise and potential dangers of gunfire. Due to these considerations, hunting normally will be prohibited within CRSPNA. If wildlife populations exceed the carrying capacity of the land or threaten special plant or animal populations, the land managers may take corrective action, even to the point of authorizing limited hunting.

The 4,414.2 acres removed from hunting opportunities represent a small fraction of the land area available for hunting in this part of the state. North of CRSPNA more than 190,000 acres are available on the Mena Ranger District of the Ouachita National Forest. To the South is the 26,000-acre Howard County Wildlife Management Area, jointly managed by WEYCO, the U.S. Army Corps of Engineers, and the Arkansas Game and Fish Commission. There are also thousands of acres of WEYCO lands immediately surrounding the state park-natural area that are currently open to hunting. Closing CRSPNA to hunting should not have a significant impact on hunting opportunities in the region.

The actual date hunting is no longer permitted will depend upon completion of the boundary survey and marking, projected for mid-1990. The closing date will be advertised through appropriate media and posted conspicuously at various locations throughout CRSPNA.

## ■ Exotic and Feral Animal Control

No non-native species will be introduced to CRSPNA. The managing agencies may elect at any time to control any exotic or feral animal problems that develop on the property, and by whatever means necessary. Feral goats, for example, may be removed because of their

destructive impact on native vegetation. No nuisance animal problems are known to exist currently.

## ■ Non-Native and Introduced Plants

Several non-native plant species have been introduced to CRSPNA, directly or indirectly by human action: privet, Japanese honeysuckle, various species of *Lespedeza* and Asiatic dayflower are obvious examples. Several of these, particularly privet and Japanese honeysuckle, can be so aggressive that they displace native vegetation over large areas. In order to reduce the likelihood of such take-overs by introduced plants and to give the native plants every advantage throughout CRSPNA, non-native species will be clipped and/or burned, as feasible. No additional non-native plants will be introduced except where required as part of site reclamation efforts, as (for example) on the bare, eroded ground near Cossatot Falls. Any non-native plants utilized for reclamation purposes will be annuals, primarily annual grasses, or other species which would provide temporary cover but not persist over time.

While loblolly pine is native to Polk and Howard counties, its natural occurrence along the Cossatot is restricted to lower elevations, near the river itself (Bates and Pittman, pers. comm.). The appearance of loblolly pine in plantations on the slopes and plateaus high above the river is entirely due to human introduction. As stated elsewhere in the Plan, loblollies will be removed from the plantation sites over time; no loblolly pine seedlings will be planted within CRSPNA.

## ■ Forest Restoration

Included within CRSPNA are 14 pine plantations of various ages and sizes, totalling approximately 811 acres (Table 5). These plantations are scattered throughout the property, as shown earlier in Figure 4, but all are included within the Forest Restoration Zone. The long-term management objective for the plantations is to reestablish hardwood, shortleaf pine-grass, and shortleaf pine-hardwood forests, then maintain them over time as old-growth stands. Some of these restored forest areas will be managed in cooperation with the Arkansas Game and Fish Commission, the Arkansas Forestry Commission and other state and federal land-managing agencies for wildlife enhance-

## • Resource Management

**Table 5. Plantation Data - CRSPNA**

No.	T-R-S	Age*	Acres
1	4-30-29	9	86.2
2	4-30-31	6	82.6
3	4-30-32	6	27.6
4	5-30-06 (E of R.)	6	71.8
5	5-30-06 (W of R.)	6	28.7
6	5-30-06/07 (E)	6	41.6
7	5-30-07 (W)	6	50.3
8	5-30-07/18 (W)	6	120.6
9	5-30-08	8	10.7
10	5-30-08	12	27.3
11	5-30-17	7	115.6
12	5-30-20/21/17/16	13	115.6
13	5-30-21	7	20.8
14	5-30-26	4	12.2

(total acres) 811.6

\* Age as of August 1989

ment purposes (see "Wildlife" section in this chapter). Stands within 300 feet of the river will be managed primarily for visual and water quality objectives. Small portions of some plantation areas may eventually be used for campgrounds or parking areas.

Restoration of natural forest cover will require management cuts to harvest the (non-native) loblolly pines over the next 28 years and to thin overdense stands. Management cuts will take place when the planted pines reach the 15-year and 30- to 35-year age classes. Prescribed fire and limited use of approved herbicides may be used to achieve restoration objectives. Some hardwood tree-planting may be necessary too, though many hardwoods will sprout or invade naturally. Compartment-specific management prescriptions for the plantations have been drafted in cooperation with Arkansas Forestry Commission and Weyerhaeuser Company personnel. Net revenues derived from man-

agement cuts will be retained for resource management and development purposes at CRSPNA, per Act 524 of 1975 (A.C.A. Sec. 22-5-802).

Within the remaining portions of the Forest Restoration Zone, as in the Ecological Protection Zone, the management objective is to allow natural processes to occur, thereby reestablishing native forest communities. Therefore, trees in these areas will not be harvested except in conjunction with pest control efforts, recreation development or management projects, and/or fire management operations.

## ■ Pesticide Use

Pesticides will be utilized within CRSPNA only where no better alternative exists. Potential uses include protection of structures and control of plants impeding hardwood reforestation efforts. Only EPA-approved, environmentally safe chemicals will be utilized in management operations. Herbicides used in conjunction with reforestation efforts will be applied almost exclusively by the individual tree injection method. No aerial application (plane or helicopter) of chemicals will be authorized.

## ■ Visual Resources

Visual resources within the park-natural area will be managed to maintain and, where possible, enhance their diversity and high quality. Development projects will be located and designed for minimum intrusiveness. All structures will be placed so that they are screened by vegetation and/or topography and cannot be seen from the river and other key viewing stations (trails, selected roads, observation decks).

Recreation visitors will find a relatively unmodified natural landscape within the Ecological Protection Zone. Modifications throughout the property will be restricted to management activities and practices which protect and enhance visual quality, i.e., restoration of old growth and naturally-regenerating hardwood and mixed hardwood/pine forests. The overall visual resource management objective for CRSPNA is "preservation," meaning existing conditions will be retained and, in certain cases, enhanced; ecological changes will continue to take place without human interference.

Management objectives in all forest restoration areas are "partial retention" and "retention" for the next 28

years, meaning management activities will not be visually evident and will remain subordinate to the present scenic landscape character. In restoration areas in close proximity to the river, objectives will initially be "retention." Once the pine plantations are completely removed, and the naturally regenerating hardwood and mixed hardwood-pine forest is restored, these areas will have an objective of "preservation." At that time many of these areas will be reclassified as part of the Ecological Protection Zone and added to the Arkansas System of Natural Areas.

Along roads and trails within CRSPNA, the management objective will be somewhere between preservation, retention and partial retention on a location-by-location and area-by-area basis. Key determinants of the particular objective will be the presence or absence of native species vs. pine plantations, scenic viewpoints, and management objectives. There will be no maximum modification, i.e., clearcuts or seed tree cuts, anywhere within CRSPNA. The overriding factor in any timber management activity will be the protection, enhancement and/or restoration of old-growth forest.

## ■ Cultural Resources

The Antiquities Act, the National Historic Preservation Act of 1966, and the Archeological Resource Protection Act of 1979 are the major federal acts which provide guidance to Arkansas State Parks and the Arkansas Natural Heritage Commission in protecting cultural resource values. State laws further expand and delineate this preservation and protection mandate.

The CRSPNA has not been inventoried for cultural resource values. In the next three years, the managing agencies will prepare and maintain an inventory of historic and archeological resources within CRSPNA. Areas which are most likely to be developed will be given first priority in the inventory process. If cultural resources are found, their inventory and protection will be coordinated with the appropriate state and federal agencies.

Surface disturbance of cultural sites will not be allowed without consultation and direction from the State Historic Preservation Officer. Utilizing the inventory as a base of information, interpretive programs will be developed to help provide the public with an awareness of the importance of cultural resources and their susceptibility to degradation.

Photo #14

## ■ Soils

The Soil Conservation Service (SCS) has classified the soils of most of CRSPNA as Sherwood-Pickens or Pickens-Sherwood Rockland Association. These soils are well drained, runoff is rapid, and erosion is a very severe hazard if the plant cover is disturbed.

The managing agencies will locate development projects at locations where the soils can sustain such use. The extreme topographic relief and minimal amounts of level land necessitate accurate field work and the utmost care in design prior to the placement of any facilities and/or trails.

## ■ Minerals, Rocks and Fossils

The State of Arkansas does not own subsurface rights to CRSPNA. WEYCO reserved all oil, gas and other minerals, and the right to gain access to those minerals as part of the purchase by The Nature Conservancy for the State of Arkansas. Fortunately the potential for commercial deposits of oil and gas in CRSPNA and surrounding lands is considered very low. Also, much of CRSPNA is too steep and rugged for conventional oil and gas extraction.

If mineral extraction and/or oil and gas development ever became cost effective the potential for adverse impacts on the visual and biological resources of CRSPNA would be high. Extractive activities could seriously conflict with the river's planned future designation as a component of the National Wild and Scenic River System (NWSRS).

## • Resource Management

The deed transferred to the State of Arkansas does not give WEYCO the right to use any mining methods which would destroy or substantially damage the natural values and the conservation purposes of the property. If pursued, mineral or oil and gas exploration and development would have to be conducted with minimal impact to the area, and affected sites would have to be restored to prior condition following termination of such activities. The managing agencies would work with WEYCO and private and governmental entities to ensure that mineral exploration and development on CRSPNA lands and adjacent lands had no permanent negative impact.

Rocks and fossils may not be collected from CRSPNA without express written permission from the managing agencies. Approval will be granted only for legitimate scientific research projects.

### ■ Utility Transmission Lines

The issue of transmission line crossings was introduced previously in Chapter 5 (Land Classification Zoning System), to the extent that potentially usable corridors crossing CRSPNA were identified. Presented below are CRSPNA policies for considering individual proposals to cross the property with a utility transmission line.

Any proposal for transmission facilities across CRSPNA property must be supported by a thorough environmental analysis, including assessment of a range of alternatives.

Transmission crossings must be restricted to the designated corridors near Highways 4 and 246 (See Road/Utility Zone section in Chapter 5), and all disturbed surface area must be restored to conditions prescribed by the directors of the managing agencies (subject also to standards that may be imposed by federal or state agencies). Transmission lines are to be placed underground except at actual river crossings, where lines may be attached to the existing highway bridges or placed within the pipeline bridge at the Highway 246 location.

Transmission lines must be placed underground except at or within 150 feet of actual river crossings where the alternatives are: a) for river crossings near Highway 246, within the pipeline bridge or attached to the highway bridge or b) for river crossings in the Highway 4 right-of-way, attached to the bridge.

In addition to the main corridors just discussed, some park development areas will require utility services. All utility transmission lines servicing park facilities (within areas classified for development) will be placed underground.

### ■ Quarry Restoration

Restoration or utilization of shale pits on CRSPNA property is another management challenge. Some of these unreclaimed areas will be recontoured and used for parking and trailheads. Others need to be partially filled-in with soil and/or organic material and revegetated or excavated further and converted into wildlife ponds. In cases where plantings are necessary for restoration purposes, native species will be used.

### ■ Grazing

Grazing by livestock is counter to the purposes for which CRSPNA was established and therefore is not allowed on the premises. By eliminating grazing, vegetation structure and composition will be enhanced and wildlife habitat will be improved. Further improvement in habitat will be gained through elimination of competition for scarce winter forage. Also, greater protection for ground-nesting animals will be provided. Lastly, soil compaction and erosion potential will be reduced, and bacterial contamination of feeder streams and the Cossatot River will be greatly reduced.

Holders of grazing leases on adjacent lands will be required to keep their livestock from entering the state property. Fences now on CRSPNA property will be removed unless they contribute in some way to the goal of preventing grazing.

# 7

## Resource Inventory, Monitoring and Research

### ■ Biological Inventory Needs

The most pressing need for biological inventory data concerns the Threatened leopard darter. Relatively little of the Cossatot River has been searched for this species, a situation that should be remedied as soon as possible. Second in importance is a breeding bird survey for the entire park-natural area.

Special plant, natural community, and non-game inventories will be expanded as funds and/or additional staff become available. Fish and game surveys will be conducted by the Arkansas Game and Fish Commission.

### ■ Research and Collecting Permits

Collection of specimens at CRSPNA is prohibited unless authorized in writing by the directors of both managing agencies. Collectors and researchers must have a current, authorized permit in their possession while on the property.

Completed applications detailing the purpose(s) of the proposed collecting and/or research must be submitted to the directors of both agencies at least 6 weeks prior to planned commencement of work. Proposed work should be consistent with the overall management goals and objectives outlined earlier in this plan. A final report describing disposition of specimens, research results and management recommendations

must be submitted to the managing agencies no later than six months following expiration of the special use permit.

### ■ Problem Species Monitoring

The Arkansas Forestry Commission (AFC) uses light aircraft to monitor southern pine beetle and other problem insect populations throughout the West Gulf Coastal Plain and Ouachita Mountain provinces. Regular flights generally begin in June and end in the autumn when the danger of outbreaks is past. Where insect problems appear to be developing, the AFC makes more frequent aerial inspections and reports findings to affected landowners. Maps of the the CRSPNA property have been provided to the AFC.

### ■ Element Occurrence Monitoring

Leopard darter populations should be checked at least every five years, and more often, if possible. Monitoring techniques for this species, the Ouachita Mountain shiner, and the Caddo Mountain salamander will be worked out with the assistance of professional zoologists.

The federal candidate plants within CRSPNA will be monitored every five years in remote locations. Where human traffic is heavy, known populations should be checked every year and corrective actions taken, as

## • Resource Inventory, Monitoring and Research

needed. At each special plant location, estimates of population size, vigor and overall condition will be made. Other special plants will be monitored regularly once their locations are clearly identified and mapped.

## ■ Environmental Monitoring

The U.S. Department of the Interior, Geological Survey (USGS), maintained a water flow and water quality monitoring station at the former Highway 246 bridge from 1966 to 1988, when the old bridge was replaced with a new one located several hundred feet downstream. USGS has constructed a replacement gauging facility near the old bridge location and has resumed sampling and data collection. Flow is measured in cubic feet per second (cfs), with historic data available as cfs/day. The new facility will be capable of providing instantaneous flow data via a computer modem.

Water quality parameters measured monthly by the USGS at this location include temperature, color, specific conductance, pH, dissolved carbon dioxide, carbonate, bicarbonate, noncarbonate hardness, total hardness, total phosphate, dissolved solids, nitrate nitrogen, manganese, iron, total phosphorous, sodium adsorption ratio, sodium, dissolved sodium, and the following (additional) dissolved minerals: calcium, potassium, chloride, sulfate, fluoride, silica, and magnesium.

Because the Highway 246 gaging/sampling station location is close to the northern boundary of the park-natural area, data collected there may reveal water quality problems that originate upstream of the state property. The USGS data will also serve as a basis or "control" for assessing possible impacts of downstream areas, including the park-natural area itself, on water quality. Some comparisons can already be made, because there is a second water quality monitoring station 10.4 miles downstream (at Highway 4 bridge). This station is near the southern CRSPNA boundary. Unfortunately the sampling and analysis routines at the two bridges are not identical, and the only comparisons that can be made at this time are for pH, temperature, noncarbonate hardness, dissolved solids, dissolved sulphate, dissolved chloride, total phosphorous, and dissolved sodium.

At the Highway 4 bridge location, where samples have been collected since November, 1983, the Arkansas Department of Pollution Control and Ecology

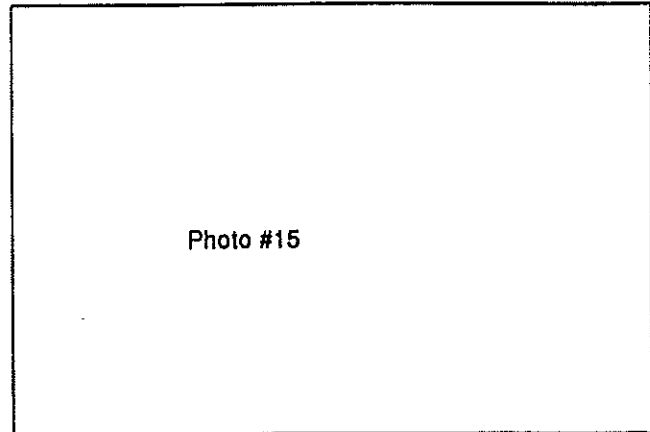


Photo #15

### Aquatic monitoring

(DPC&E) takes monthly samples and produces data on temperature, turbidity, dissolved oxygen, biological oxygen demand, pH, suspended residue at 105 degrees Celsius, ammonia nitrogen, total nitrogen, organic phosphorous, orthophosphorous, total phosphorous, noncarbonate hardness, dissolved chloride, dissolved sulfate, dissolved sodium, dissolved solids, total arsenic, total recoverable cadmium, chromium, copper, lead, zinc, and selenium, fecal coliform, and the pesticides aldrin, DDE, DDT, dieldrin, endrin, toxaphene, methylparathion, and lindane.

The information collected over the years from both stations provides invaluable baseline data needed to interpret future water quality changes. State Parks and Natural Heritage will receive water quality and flow data as it becomes available, and will continue to consult with the USGS and DPC&E on water issues. Efforts will be made to improve the compatibility of data from the two highway bridge stations.

There is a critical need to establish a comprehensive water quality monitoring system for CRSPNA, including determination of baseline values at selected sampling stations between the state highway bridges. The guidance of professional hydrologists and other stream management experts will be solicited as the managing agencies develop this system. Minimally, fecal coliform levels in the river should be monitored at intensive use sites, particularly in the Cossatot Falls and Sand Bar Bridge areas during low flow periods. A program to assess turbidity in tributaries to the river will be established, and problem streams will receive extra attention.

Resource damage near trails and campgrounds will be

monitored frequently (at least once a month for campgrounds and heavily-used trails, at least quarterly on more remote segments of trails), and corrective actions will be initiated as soon as visible damage is noted.

- **Resource Inventory, Monitoring and Research**



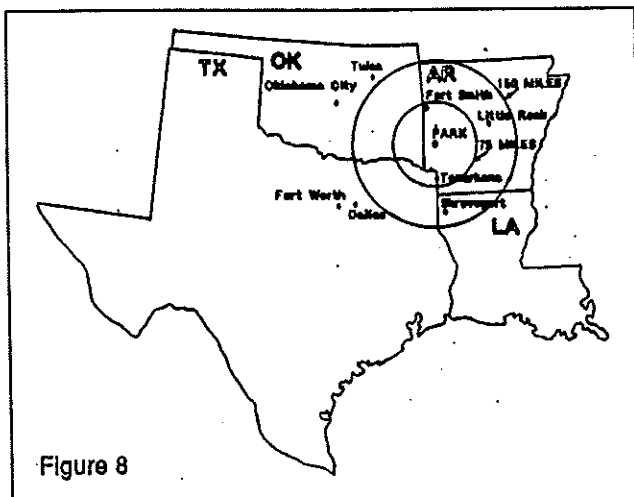
# 8 Recreation Management

## Draw Zone and Projected Visitation

Because of its accessibility, primitive character, wild-life, fisheries, and excellent whitewater opportunities the land now within CRSPNA has been a popular recreation destination for decades. The popularity of the area has resulted in ever-increasing recreation use, a trend which very likely will continue—and even accelerate—now that it is a state park-natural area and candidate for national wild and scenic river status.

State Parks projects that CRSPNA will have primary draw zones with radii of 75 miles and 150 miles for day and overnight (single night) use, respectively (Figure 8). Most visitors who stay for extended periods will travel up to 300 miles to reach the area.

Following completion of all planned development,



first-year visitation is estimated to reach 30,000. It is expected that a good percentage of these visitors would come to CRSPNA primarily to float the river (November through June, the period when there are minimally sufficient flows for that activity).

The majority of CRSPNA visitors will utilize the park-natural area for environmental education and non-floating recreational purposes, including interpretive programming, photography, hiking, camping, swimming and fishing. Thirty-five percent of these "non-floating" recreation visitors will be from out-of-state, principally from Texas, Louisiana, Oklahoma and Missouri; the remaining sixty-five percent will come from within Arkansas.

## Avoiding Overuse and Damage

In the face of increased recreational use, avoiding significant damage to CRSPNA's vulnerable natural and scenic resources will be a complex management challenge. Some traditional use areas have already been severely impacted by recreational activities and need to be rehabilitated. Impacts in these areas include litter, soil compaction and erosion, loss of vegetation, and sanitary problems. These same problems may arise at other sites if CRSPNA is not managed effectively.

The recreation management actions detailed in the following sections are intended to meet the resource protection goals and objectives outlined in Chapter 4, provide for public safety, and offer primitive recreation experiences with minimum evidence of management presence. The managing agencies will closely monitor recreation use and will adjust management

## • Recreation Management

actions and regulations, as needed, to meet the aforementioned objectives. All park and natural area regulations will be enforced.

Information concerning visitors attitudes and perceptions will be gathered via State Parks' visitor comment card system. Also, surveys similar to the National River Recreation Questionnaire will be conducted at least once every six years to ascertain visitors' attitudes about CRSPNA and its management. These survey systems and the agencies' own monitoring efforts may point to additional research needs.

## ■ Floating Use

During periods of high flow, the Cossatot River is an extremely dangerous float stream, with rapids rated Class III to Class V (see Table 6). Inexperienced and/or poorly-equipped floaters risk serious injury or death when they use the river at these times. Therefore it is imperative that sufficient information be provided to floaters that they can make rational decisions concerning their recreational activities.

The managing agencies' goal is to provide all floaters with sufficient information to make intelligent deci-

---

**Table 6. Degree of Difficulty Classification for Streams**

---

**Class I: EASY.** Moving water with few riffles and small waves. Few or no obstructions. Correct course is easy to determine.

**Class II: MEDIUM.** Fairly frequent, but unobstructed rapids. Course generally easy to recognize. Some maneuvering is required.

**Class III: DIFFICULT.** Numerous rapids with high and irregular waves. Narrow passages that often require complex maneuvering. Course not always easily recognizable.

**Class IV: VERY DIFFICULT.** Long rapids characterized by high and irregular waves with boulders directly in swift current. Course often difficult to recognize requiring some scouting from bank.

**Class V: EXCEEDINGLY DIFFICULT.** Continuous rocky rapids with high and irregular broken water which cannot be avoided. Extremely fast flow, abrupt bends, and strong cross currents. Difficult rescue conditions. Frequent inspections from bank necessary.

**CLASS VI: LIMIT OF NAVIGABILITY.** Class V difficulties increased to the upper limits of skill and equipment. Extremely dangerous. Only for teams of experts.

---



Photo #16

sions about whether to float the river at various stages and degrees of difficulty. Flow gauges and/or reference devices will be placed at access points to give floaters river level information. Potential pitfalls and hazards (including the dangerous hydraulic conditions present during medium to high flows at low-water bridges) equipment needs, and necessary experience levels will be included on information boards and in a float guide to be prepared by late 1991. This information is being prepared with the assistance of the Arkansas Canoe Club and the American Red Cross.

No permit system to control launch frequencies or restrictions on use at high flows will be imposed at this time. Most floaters using the river during these periods are experienced—or in the company of experienced individuals—and are well equipped. These people float the river at these times for the whitewater challenge the Cossatot offers. Requests for competitive use will be evaluated on individual merit and, if deemed acceptable and appropriate by the managing agencies, a special use permit will be issued by the Director of Arkansas State Parks.

Single chamber air rafts and tubes are not suited for running rapids on the river and should not be used for this purpose. Use of such devices by swimmers in "pools" during low flow periods is relatively safe. U.S. Coast Guard Approved Personal Flotation Devices (PFDs) should be worn at all times by individuals engaged in whitewater and other boating activities. Helmets designed for whitewater use are strongly

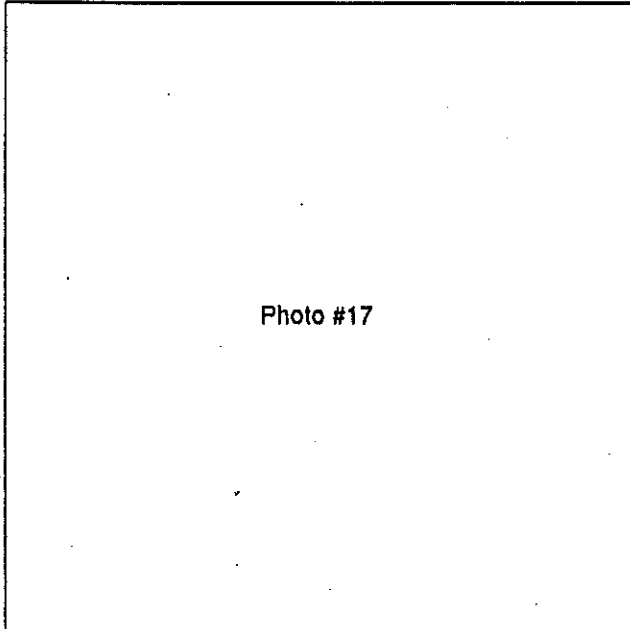


Photo #17

At low flows, people can float, tube and swim.

recommended. The managing agencies strongly recommend that rafts, canoes and kayaks used within CRSPNA be designed and outfitted for whitewater use. Many aluminum, fiberglass and john boats, while suited for use in pool areas, are generally not suitable for whitewater use. Motorized craft are prohibited within CRSPNA. These and other safety recommendations will be posted by mid-1990 in conspicuous locations at each river access point.

A special cadre of volunteers will be established to promote river safety and ethics. Members of this group, which is to be comprised of experienced floaters, will offer advice to individuals at put-ins and/or actually on the river. They will also render assistance in case of emergency. All volunteers will be certified.

State Parks has received inquiries concerning the possibility of commercial outfitting on the Cossatot. However, because flows suitable for floating are infrequent and unpredictable, outfitting is considered to have only limited economic potential. Permitting for commercial guides and/or outfitters will not be taken up until a clear need arises.

## ■ Swimming, Bathing

At low flow much of the Cossatot is relatively safe for swimming. Swimming will be permitted as long as state and local health standards are maintained, and the

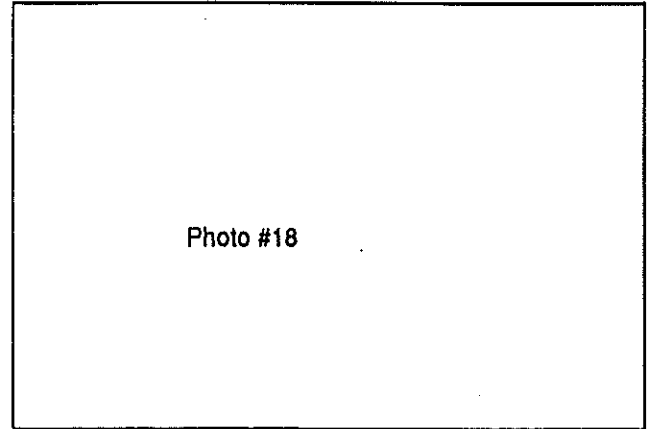


Photo #18

The Arkansas Natural and Scenic Rivers Commission provides free mesh litter bags for floaters.

river's biota is not adversely affected. Lifeguards will not be provided, and swimmers who enter the river do so at their risk. Use of soap, shampoo, detergents and other cleaning agents while in the river is prohibited. Individuals who wish to bathe are encouraged to collect water in a container, move at least 20 feet away from the river bank to wash and rinse, and to use biodegradable soap.

## ■ Signs and Printed Information

Direction signs will be placed at key points on Highways 4 and 246 and along access routes to the interior of CRSPNA. Other signs will be added at various use locations, along access routes and at CRSPNA entrances. These non-directional signs will emphasize resource protection, visitor safety, and other information needs.

In January of 1990 the managing agencies provided a general visitor guide on regulations, recreational opportunities, natural resources, and visitor services. A float guide will be printed and made available late in that same year. Other guides will be developed as funding and needs warrant.

## ■ Human Waste and Litter

Human waste and litter present obvious detriments to the natural resources, the aesthetics of the area, the recreational experience and, lastly, constitute a health and safety hazard. To address the human waste problems at CRSPNA appropriate facilities will be pro-

## • Recreation Management

vided at key locations. These facilities will meet or exceed state and federal water quality control standards.

The "Carry-In/Carry-Out" philosophy will be encouraged throughout CRSPNA by use of signs and brochures. Arkansas litter laws will be enforced. Designated trash collection points will be established in 1991. Glass containers are prohibited on or within 50 feet of the river's banks and on trails, both for aesthetic and safety purposes (Park Directive 3215).

### ■ Access and Parking Facilities

Vehicular access routes are identified in Figure 2. Existing public access for float boating is also indicated on this map. Concept drawings for planned improvements at these sites are provided in Chapter 9.

A canoe launch/day-use area will be developed on the east side of the river just north of the new Highway 246 bridge. Parking will be provided near two other traditional boat launch/swimming sites—low-water bridges at Ed Banks and Sand Bar—to minimize conflicts between logging traffic and visitor use. A third traditional use site, the low-water bridge below Highway 4, also needs access and parking improvements; development at this site will be coordinated with the Corps of Engineers. All parking areas will be vegetatively screened to maintain the primitive recreation experience and will not be visible from the river itself. In addition to improving access and public safety, a major reason for completing these projects is to minimize resource damage in traditional use areas.

### ■ Camping and Day Use

Until developed camping areas are made available, use of the traditional primitive camping sites within CRSPNA will not be prohibited. Three steps will be taken to minimize resource damage in these areas and throughout the park-natural area. The managing agencies will promote minimum impact camping techniques through standard public information methods, i.e., brochures and signs; close dead-end roads to camping use; and, ultimately, restrict camping to designated areas. Specific camping and other use regulations will be put in force once these designated areas are made available.

Some traditional use areas within CRSPNA have been seriously degraded by unmanaged recreational use. The Cossatot Falls area is probably the most heavily impacted of these. Ground cover and trees have been damaged or destroyed. Soils are compacted and/or severely eroded in places, and litter and sanitation problems are evident. Measures to stabilize and correct these resource problems, while continuing to provide for recreation use, are high priorities.

As described in previous sections of this chapter, parking will be provided near the intersection of WEYCO Road #52600 and the Falls access road; compacted and gullied areas will be reclaimed; a restroom will be installed; the trash/litter problem will be addressed; and trails with footbridges will be built to provide better access to the Falls. The primitive camping site will be improved and designated for walk-in use, with access from the parking area. To reduce camping impacts, carefully located pads, fire rings or pits, trails, lantern posts and picnic tables will be installed. Additional primitive camping sites will be provided on the north side of Weyco-numbered Road 52600.

### ■ Trails

Hiking, interpretive and portage trails will be constructed and maintained. Initial emphasis will be on short interpretive and portage trails. A trail development plan will be proposed by mid-1991. This plan will address the concept of a greenway trail extending from Caney Creek Wilderness to Gillham Lake. Trail locations shown in Figure 9 are highly tentative.

Trails will be carefully designed and constructed to minimize erosion and avoid sensitive areas. No motorized travel, bicycle use or equestrian use will be permitted on trails. Once open to the public, trails will be monitored at least once each quarter for trail repair needs, safety hazards and resource damage. Appropriate corrective actions will be taken.

### ■ Hunting and Fishing

In keeping with standard park management policies, hunting will be prohibited once CRSPNA boundary lines are surveyed and signed (scheduled for late 1990). Regulated hunting is permitted in the interim.

Fishing will be regulated in accordance with Arkansas

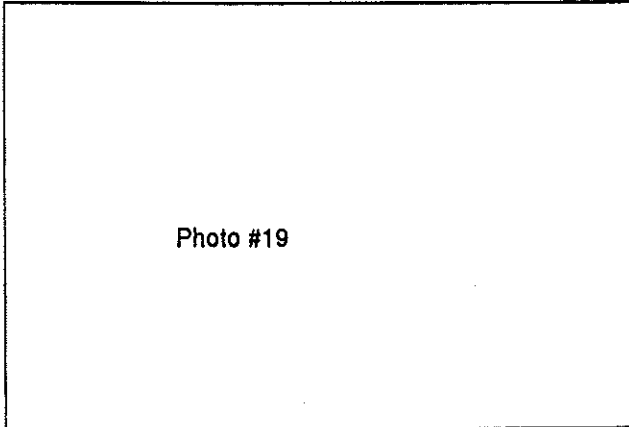


Photo #19

Over the next ten years, a network of trails will be established that will extend from the Caney Creek Wilderness to Gilliam Lake.

Game and Fish Commission regulations. State Parks and Natural Heritage may recommend special regulations based on fisheries research data.

## **Other Recreation Management Policies**

Collection of wild plants and animals without a permit issued jointly by the managing agencies is prohibited. Cutting of living trees by park-natural area visitors is prohibited; downed, dead timber may be collected for firewood, except where posted otherwise. Nails, spikes and other objects may not be driven into trees and lanterns may not be suspended from such objects or by any other means which brings the lantern in direct contact with the trunk of a tree.

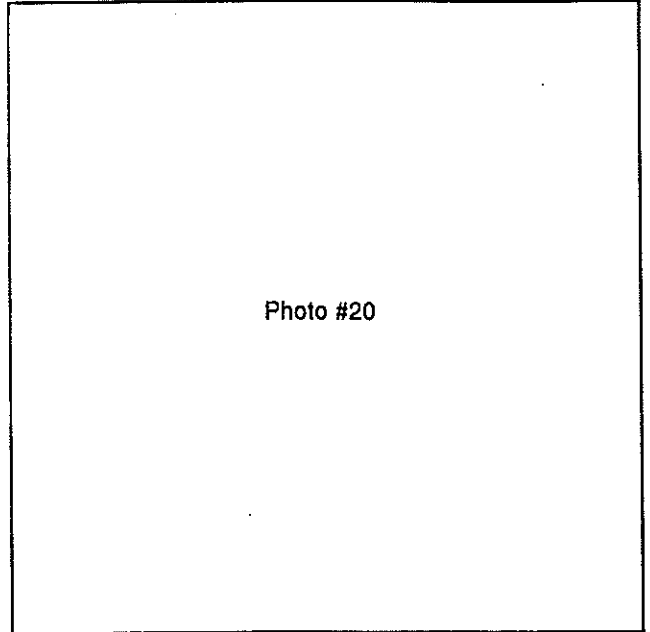


Photo #20

There are some fishing opportunities on the Cossatot.

• **Recreation Management**

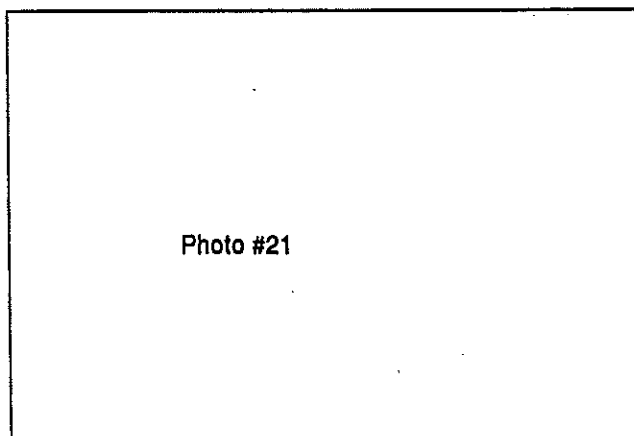
# 9

## Development and Additional Land Needs

### ■ Background

The development plan has three general objectives, the first of which is to provide facilities and an atmosphere in which visitors can relax, enjoy and learn about the natural resources of CRSPNA and the Ouachitas as a whole. The second objective is to minimize visitor impacts on the Ecological Protection Zone by situating most development in areas that have already been impacted and are capable of sustaining recreational development and use. The third objective is to work within a design scheme that emphasizes harmony with the natural surroundings.

At the present time, CRSPNA has no developed facilities. Proposed development during the next eight years will be consistent with the overall goals and objectives outlined in Chapter 4 and with public attitudes and preferences revealed in the public listening sessions



One of the primary goals for CRSPNA is environmental education.

and the 1982 Department of Parks and Tourism research study on recreation use on the Mulberry, Big Piney, Cossatot, and Little Missouri whitewater streams. The overwhelming preference expressed by the public was for primitive park facilities that did not diminish the scenic and natural values of the river(s).

### ■ Capital Improvements

Development at CRSPNA will include a system of trails and scenic overlooks, campgrounds, picnic areas, a Visitor Information Center (V.I.C.) and park management facilities (employee quarters, maintenance complex, sewage and water treatment facilities, etc.); long-range plans include construction of ten cabins. General locations for each component of the development plan are shown in Figure 9. Figures 10-16 provide concept drawings for major use areas. The principal development area will be west of the river and south of Highway 4 (Figure 10). This area will include the V.I.C., maintenance complex, employee residences, Class A campsites, cabins and a float-boating access.

On a temporary basis, primitive camping will be allowed at the traditional use areas. Resource problems at these sites will be remedied as quickly as possible, beginning with the Cossatot Falls area. At this site (Figure 11), erosion and traffic control measures will be taken, parking and camping sites will be designated, and toilet facilities will be provided. State Parks will construct a permanent primitive campground nearby during planned Phase I development, and the temporary campground will be removed. The entire area south of WEYCO-numbered Road #52600 will then become solely a day-use area.

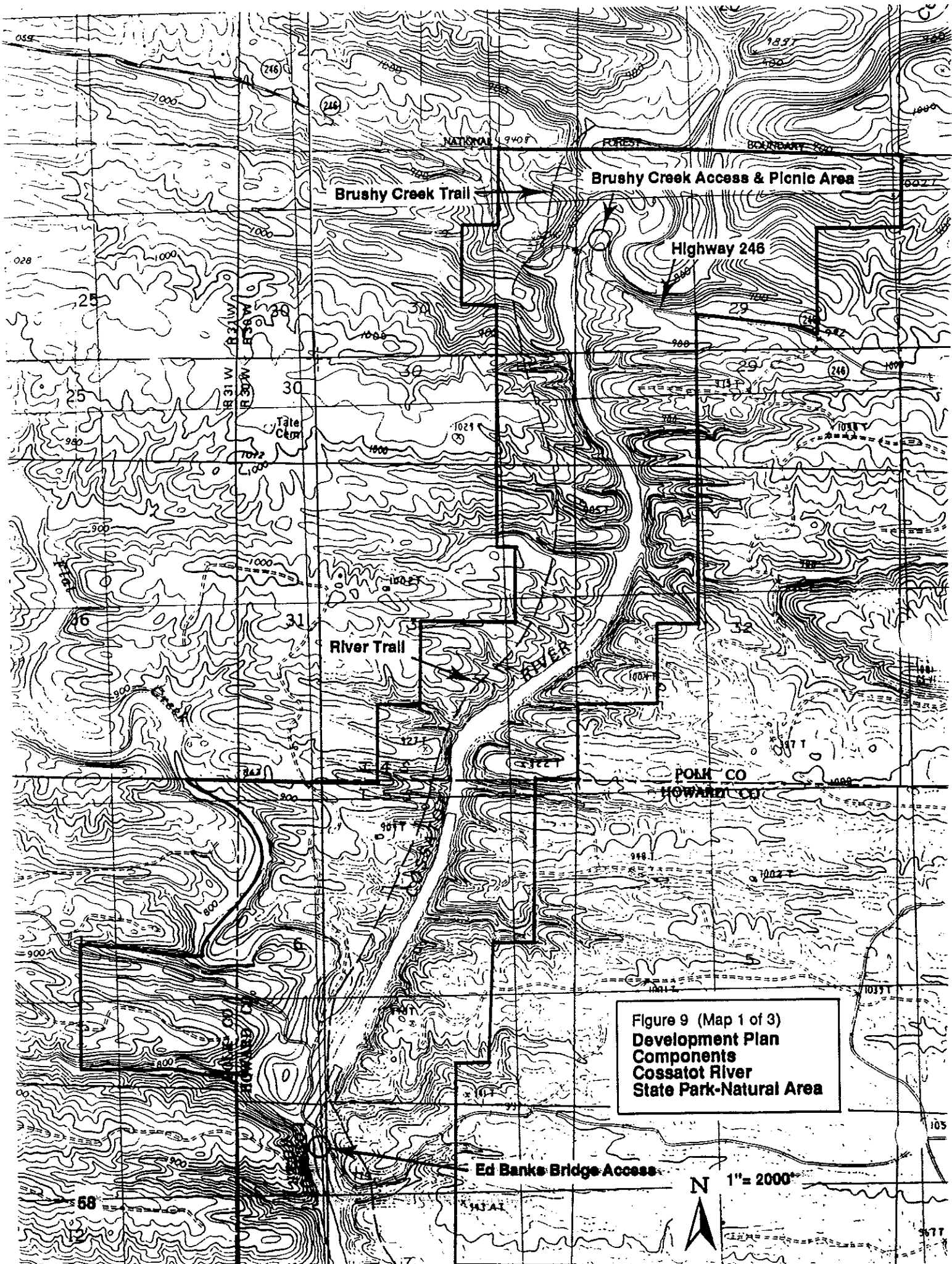


Figure 9 (Map 1 of 3)  
Development Plan  
Components  
Cossatot River  
State Park-Natural Area

N  
1" = 2000'

Ed Banks Bridge Access

Brushy Creek Trail

Brushy Creek Access & Picnic Area

Highway 246

River Trail

POLK CO  
HOWARD CO

68

105

3577



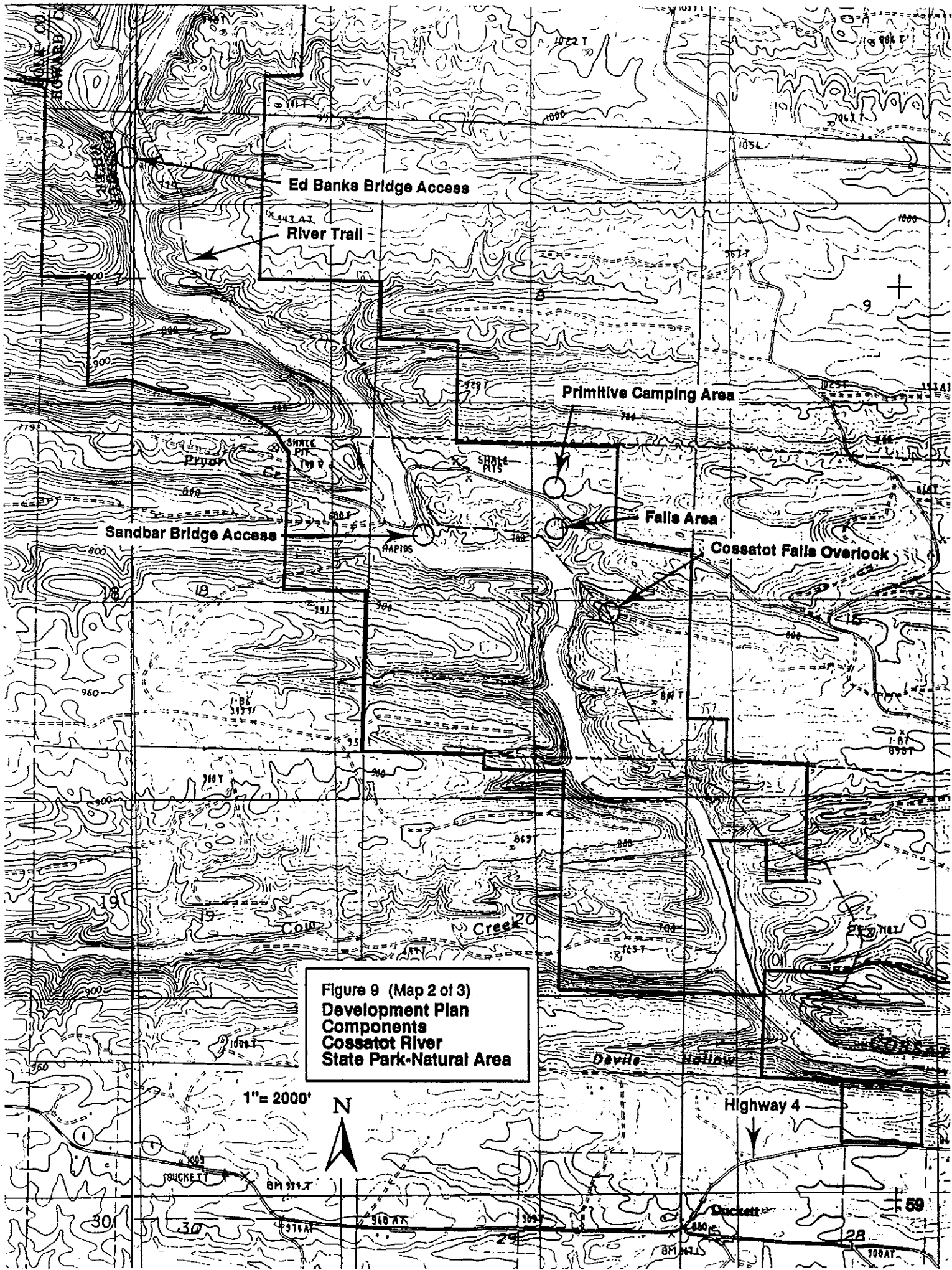


Figure 9 (Map 2 of 3)  
 Development Plan  
 Components  
 Cossatot River  
 State Park-Natural Area

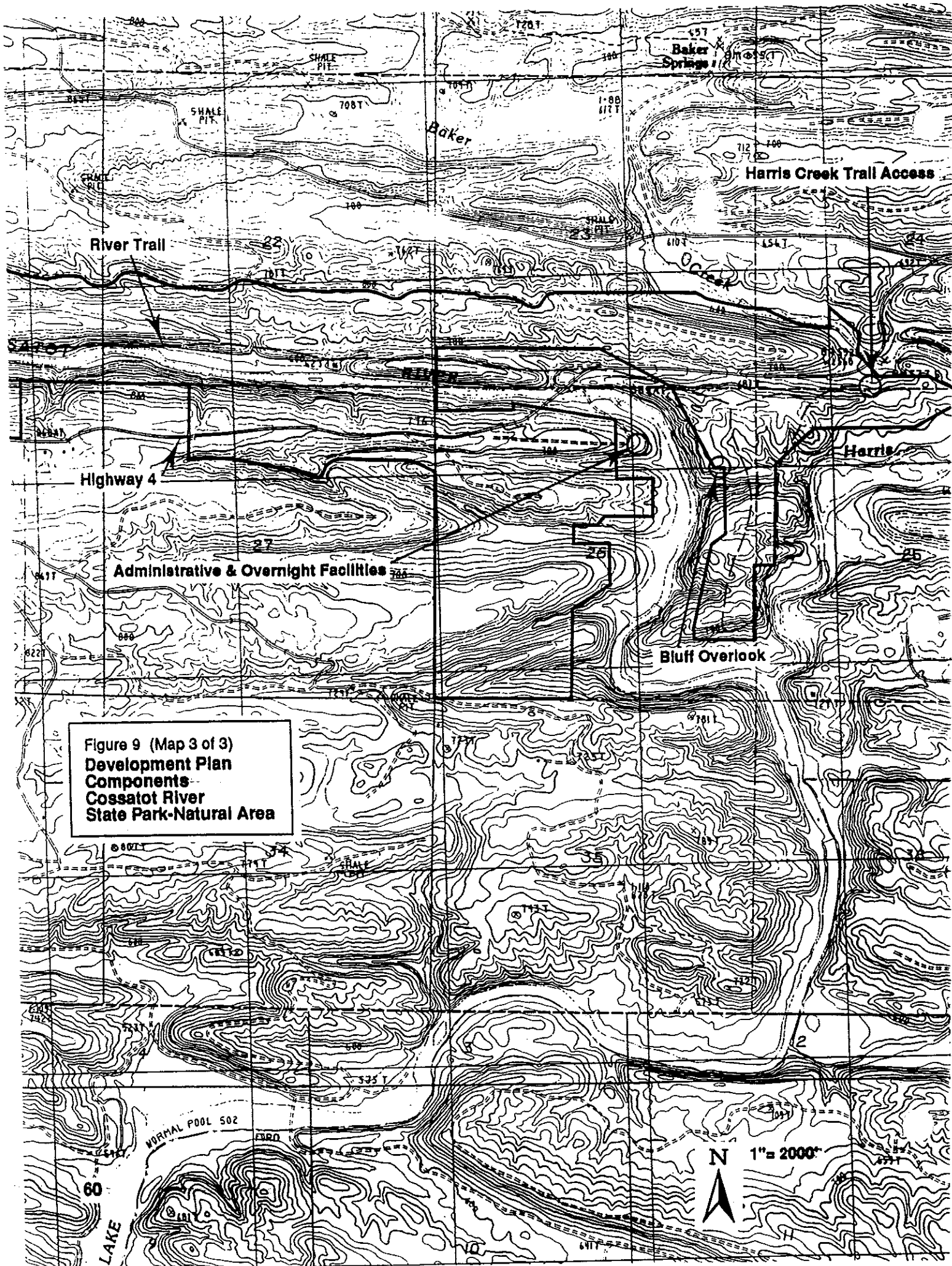


Figure 9 (Map 3 of 3)  
Development Plan  
Components  
Cossatot River  
State Park-Natural Area

N 1" = 2000'



Figure 10

ADMINISTRATIVE & OVERNIGHT FACILITIES  
 Scale 1" = 500'

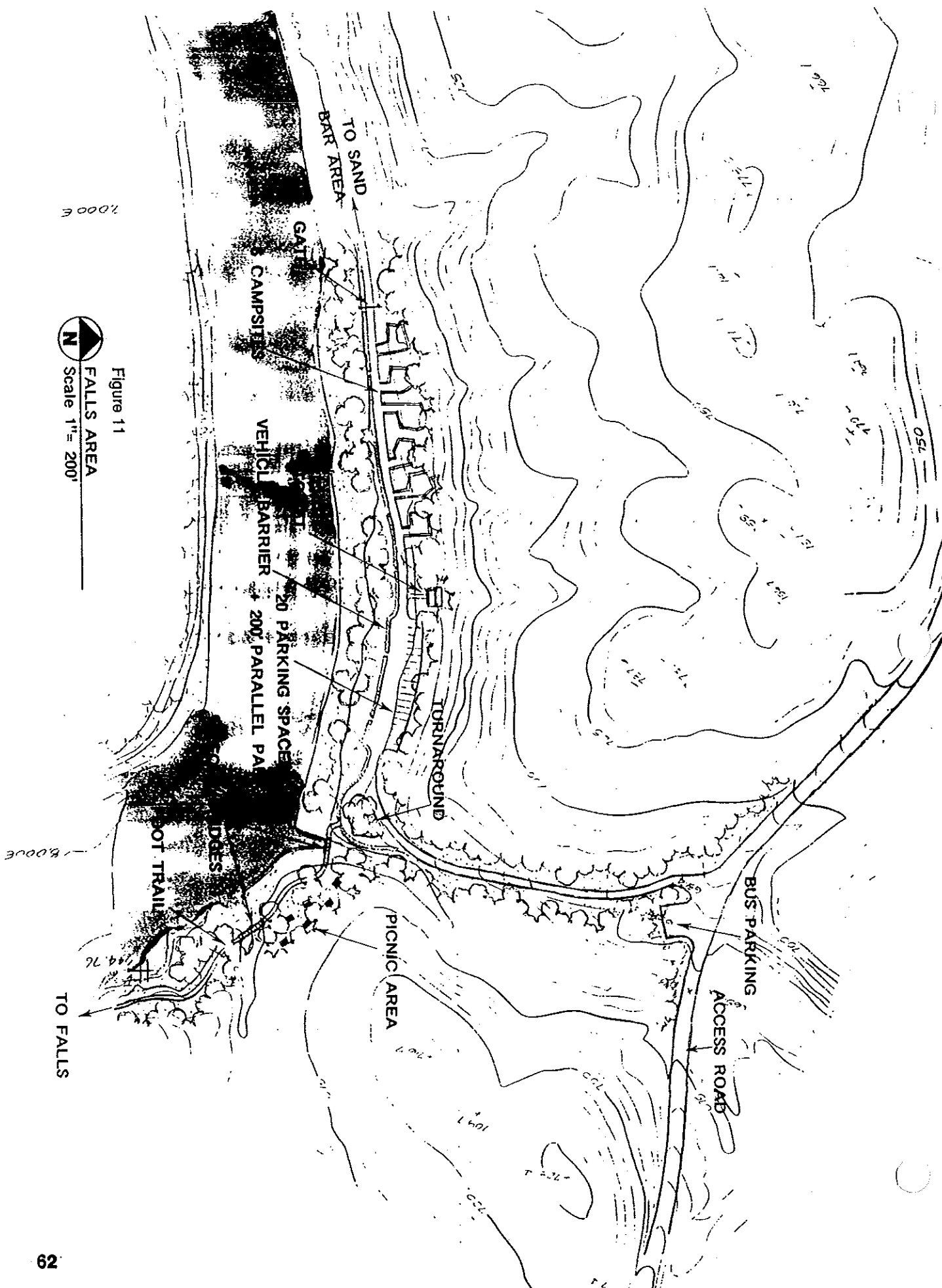


Figure 11  
 FALLS AREA  
 Scale 1" = 200'

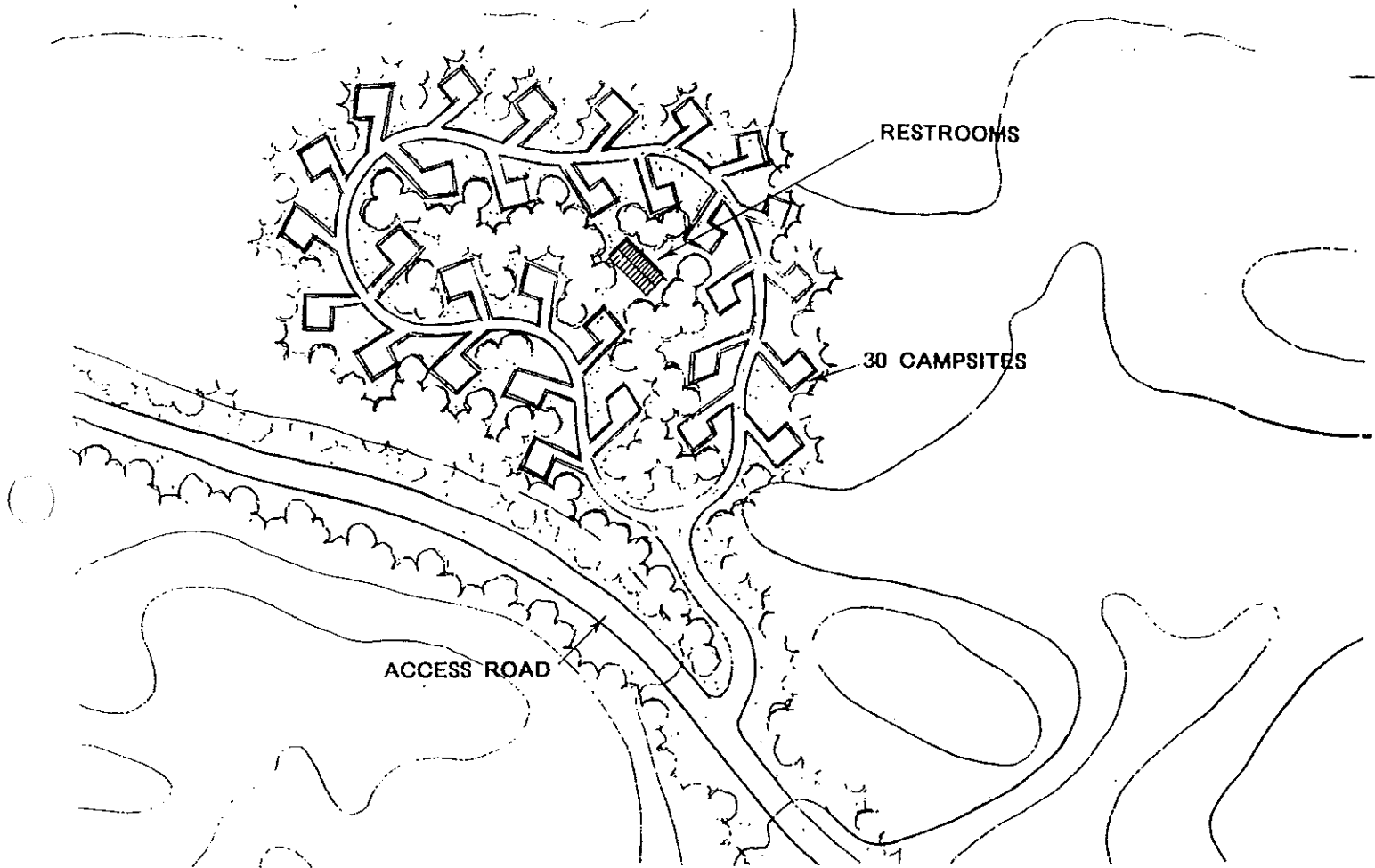
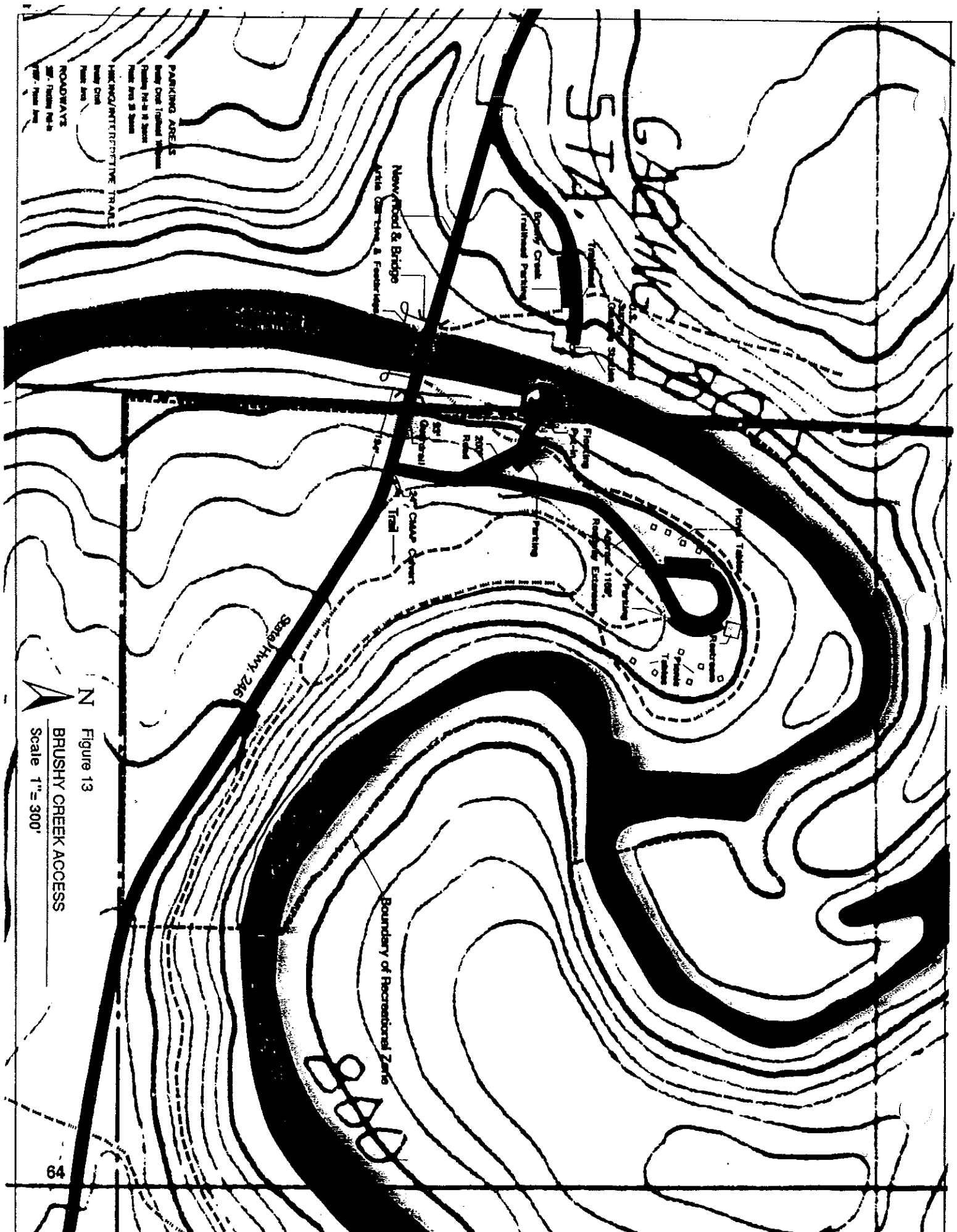


Figure 12



**PRIMITIVE CAMPING AREA**

Scale 1" = 200'



**PARKING AREAS**  
 Heavy Dotted Line  
 Dashed Line in Square  
 Thin Line in Square

**ROADWAYS**  
 Heavy Line  
 Thin Line

**TRAILS/INTERPRETIVE TRAILS**  
 Heavy Dotted Line  
 Thin Line

N  
 Figure 13  
 BRUSHY CREEK ACCESS  
 Scale 1" = 300'

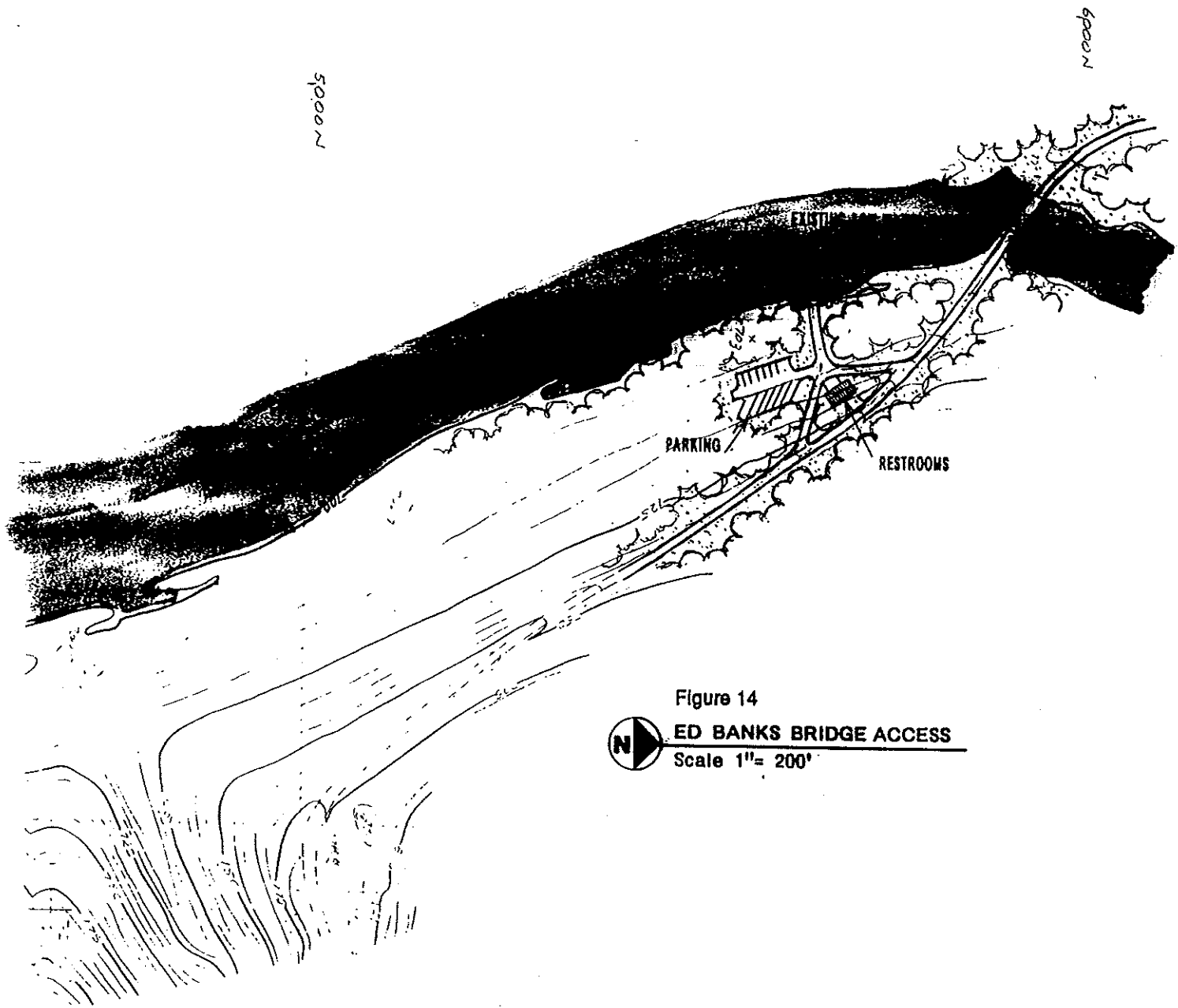


Figure 14

 **ED BANKS BRIDGE ACCESS**  
Scale 1" = 200'

5,000E

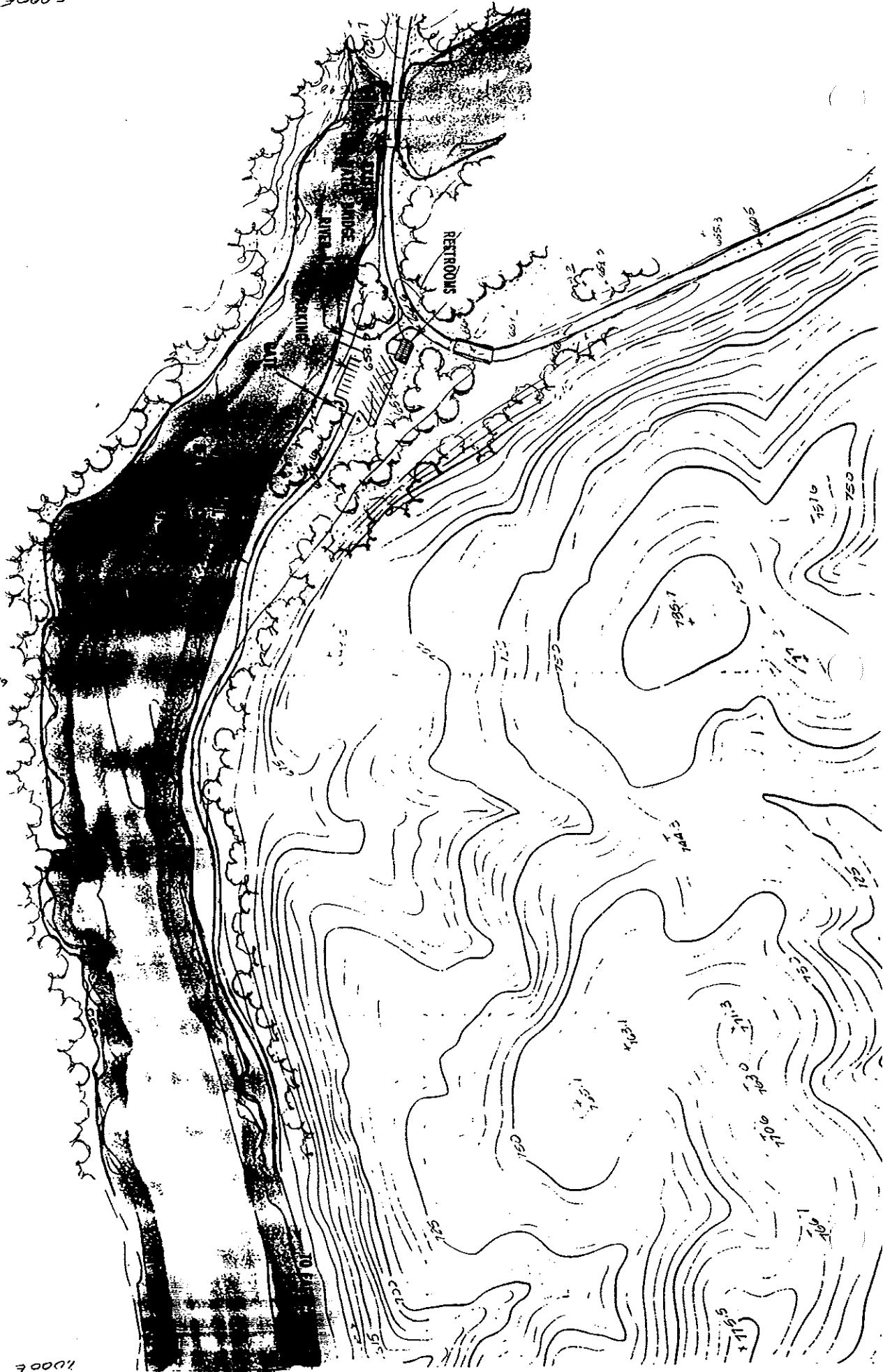


SANDBAR ACCESS  
Scale 1" = 200'

Figure 15



6,000E



7,000E



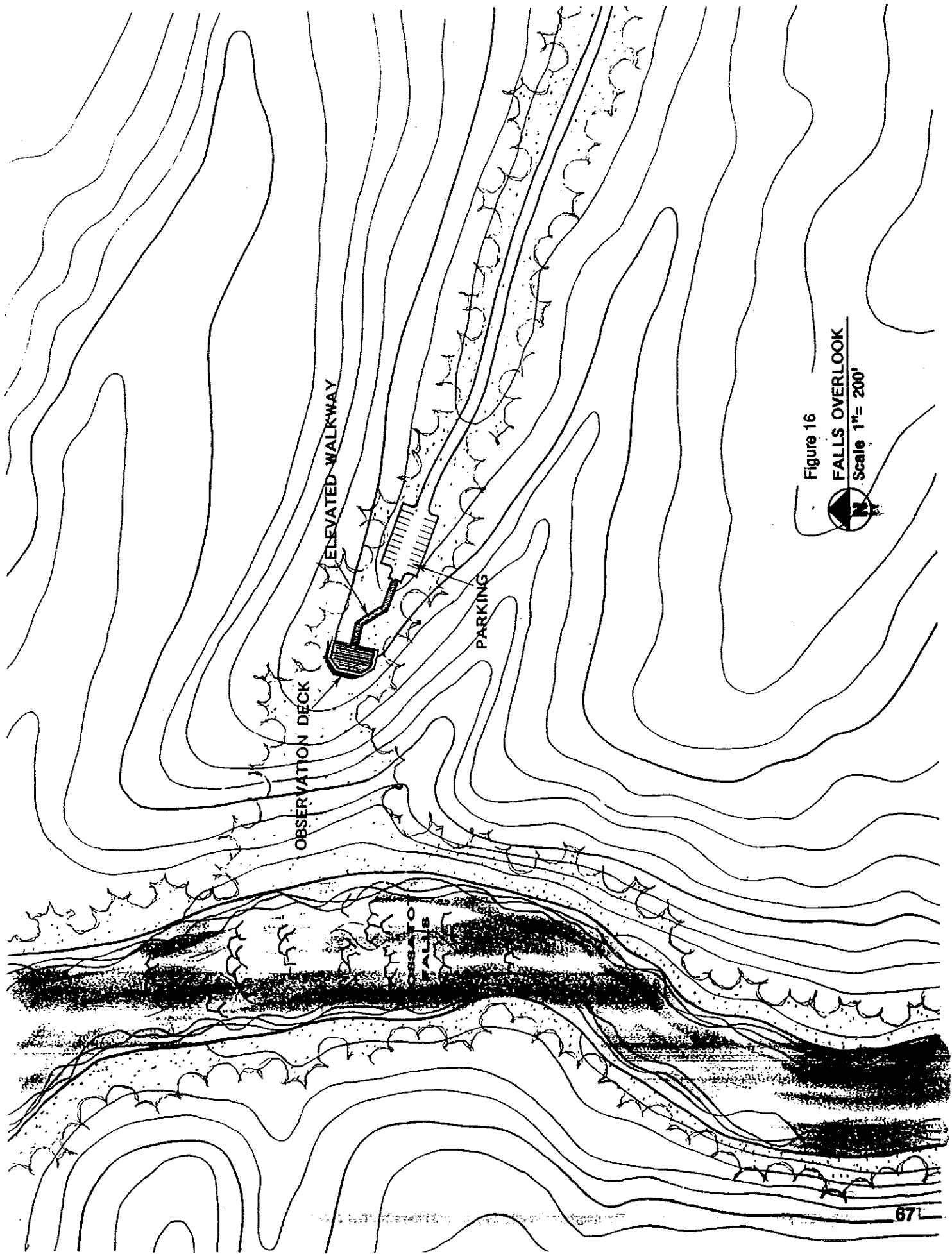


Figure 16  
**FALLS OVERLOOK**  
Scale 1" = 200'

• **Development and Additional Land Needs**

**Table 7. Cossatot River State Park-Natural Area Preliminary Development Budget**

**Phase I**

1. Employee Housing (2)
  2. Visitor Information Center (1200 sq. ft.)
  3. Maintenance Complex
  4. Renovate roads and develop parking at four river access points
  5. Develop primitive campground (30 sites) on north side of WEYCO-numbered road 52600
  6. Develop day-use picnic facilities at Cossatot Falls (10 sites) and Brushy Creek (10 sites)
  7. Informational signing
  8. Utility development (water, sewer, electric)
  9. Roads & parking
  10. Trail development (2 miles)
  11. Civil engineering/architect fees (7.5%)
  12. Contingency (10%)
- Subtotal: \$663,536**

**Phase II**

1. Hiking/interpretive trails (5 miles)
  2. Scenic overlooks (Cossatot Falls and on Harris Creek Trail)
  3. Visitor Information Center expansion (3100 sq. ft.)
  4. Roads & parking
  5. Signs & wayside interpretive exhibits
  6. Utility improvements (water, sewer, electric)
  7. Civil engineering/architect fees (7.5%)
  8. Contingency (10%)
- Subtotal: \$415,419**

**Phase III**

1. 30 Class "A" campsites
  2. Bathhouse w/laundry
  3. Hiking/interpretive trails
  4. Amphitheater
  5. Sewer plant
  6. Signs & interpretive exhibits, etc.
  7. Utility development (water, sewer, electric)
  8. Roads and parking
  9. Civil engineering/architect fees (7.5%)
  10. Contingency (10%)
- Subtotal: \$588,068**

**Phase IV**

1. 10 cabins
  2. Roads & parking
  3. Utility development (water, sewer, electric)
  4. Civil engineering/architect fees (7.5%)
  5. Contingency (10%)
- Subtotal: \$760,485**

**Phase V**

1. 30 Class "A" campsites
  2. Bathhouse w/ laundry
  3. Utility development (water, sewer, electric)
  4. Roads and parking
  5. Civil engineering/architect fees (7.5%)
  6. Contingency (10%)
- Subtotal: \$375,375**

**Grand Total, Phases I-V: \$2,811,683**

Subject to available funding, development will be in five phases over ten years (5 biennia). Phase I (Table 7) places the major emphasis on recreation development and restoration of heavily-impacted areas. Specifics include establishing a maintenance complex, a 1200 sq. ft. V.I.C, providing primitive camping north of WEYCO-numbered Road #52600 (Figure 12), picnicking and trail opportunities, building two employee residences, developing four river access points (Figures 10, 13-15), providing for public health and safety, and installing utilities and informational signs. The estimated cost of these items is \$663,536.

In Phase II, development plans include two scenic overlooks, one near Cossatot Falls (Figure 16) and a second overlooking the river near Harris Creek Trail, more hiking/interpretive trails, major V.I.C. expansion, informational signing and exhibitry, and additions to the utility system. The estimated cost of these improvements is \$415,419.

Phase III will include a 30-unit campground (Class "A"), bathhouse with laundry, additional trails, an amphitheater, further V.I.C. expansion, and additional utilities. Total estimated cost of Phase III is \$588,068.

Phase IV will involve construction of 10 rustic cabins (Figure 10), additional trails, roads and utility development. Total estimated cost of Phase IV is \$769,285.

If recreational demand warrants, a fifth phase would include an additional 30 campsites (Class "A"), bathhouse with laundry, roads and parking and additional utilities. The estimated cost for this final phase is \$375,375. Total estimated cost of all five phases is \$2,811,683. All estimated costs and phased development plans are subject to adjustment and/or revision based on field evaluations, recreation use and demand, and accompanying resource impacts; nothing is "set in concrete."

## ■ Additional Land Needs

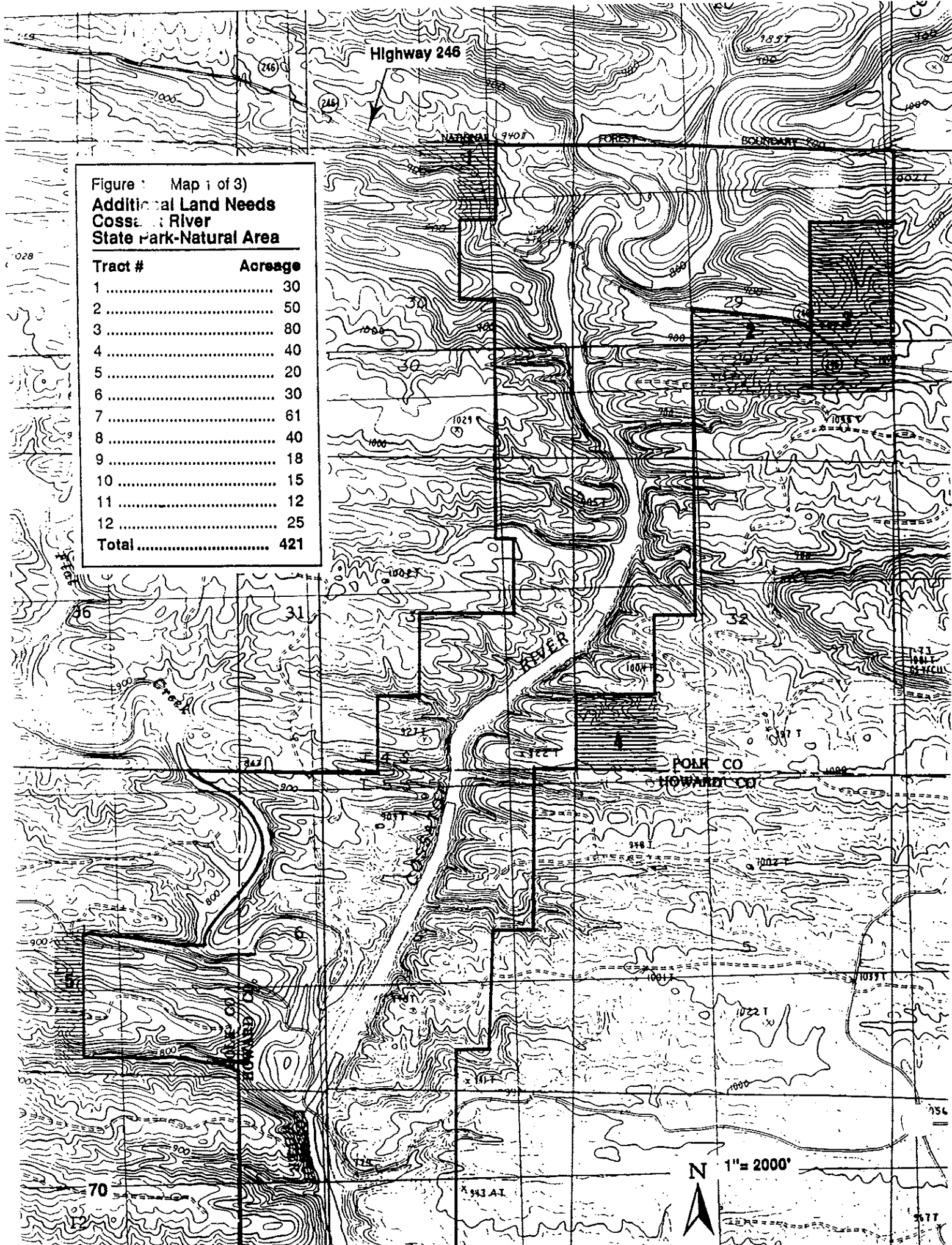
Several tracts have been identified (Figure 17) as desirable future additions to the resource base of CRSPNA. Unmanaged development or use on these lands could compromise the natural and primitive character of CRSPNA and hinder the river's designation and management as a National Wild and Scenic River. Development visible from the river would conflict with the Wild and Scenic River concept and the recreation experience of users.

Generally, fee-simple acquisition of desirable tracts will occur as opportunities and funds permit. Where fee simple acquisition of these tracts is not feasible, the managing agencies will seek scenic or conservation easements, life estate, management agreements and/or other appropriate protection options.

Two of the landowners involved have expressed strong desires to maintain the essentially undeveloped character of their lands and to help the managing agencies meet their goals. The managing agencies will strive to develop cooperative relationships with these and other landowners along the river.

Figure 1 Map 1 of 3)  
**Additional Land Needs**  
**Cross River**  
**State Park-Natural Area**

Tract #	Acres
1 .....	30
2 .....	50
3 .....	80
4 .....	40
5 .....	20
6 .....	30
7 .....	61
8 .....	40
9 .....	18
10 .....	15
11 .....	12
12 .....	25
<b>Total .....</b>	<b>421</b>



N 1" = 2000'

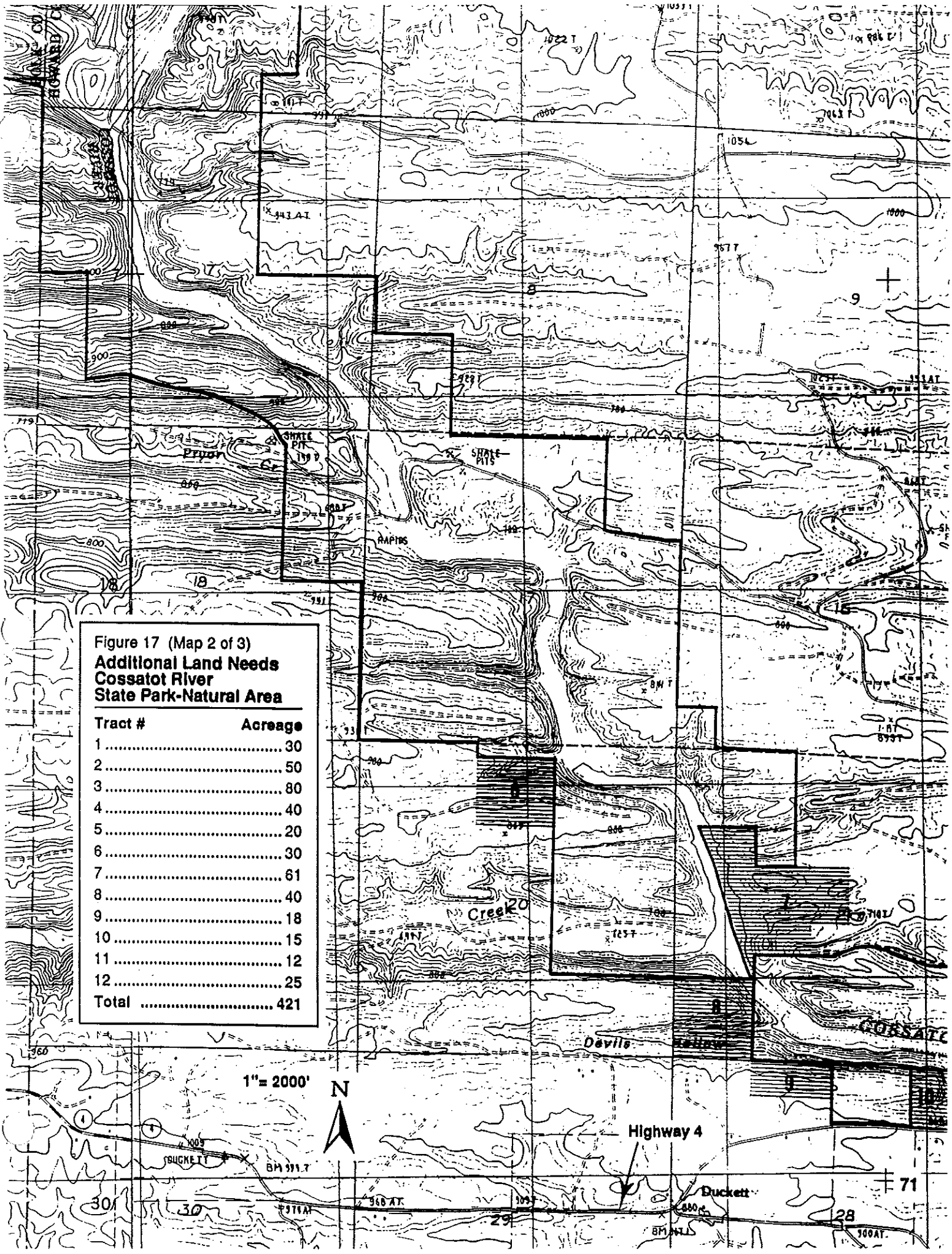


Figure 17 (Map 2 of 3)  
**Additional Land Needs**  
**Cossatot River**  
**State Park-Natural Area**

Tract #	Acres
1	30
2	50
3	80
4	40
5	20
6	30
7	61
8	40
9	18
10	15
11	12
12	25
<b>Total</b>	<b>421</b>

1" = 2000'



Highway 4

Duckett

COSSTATO

Devils

Creek

MARK OF EDWARD C

30

30

316A

366 AT

309

BM 415

28

300AT

71

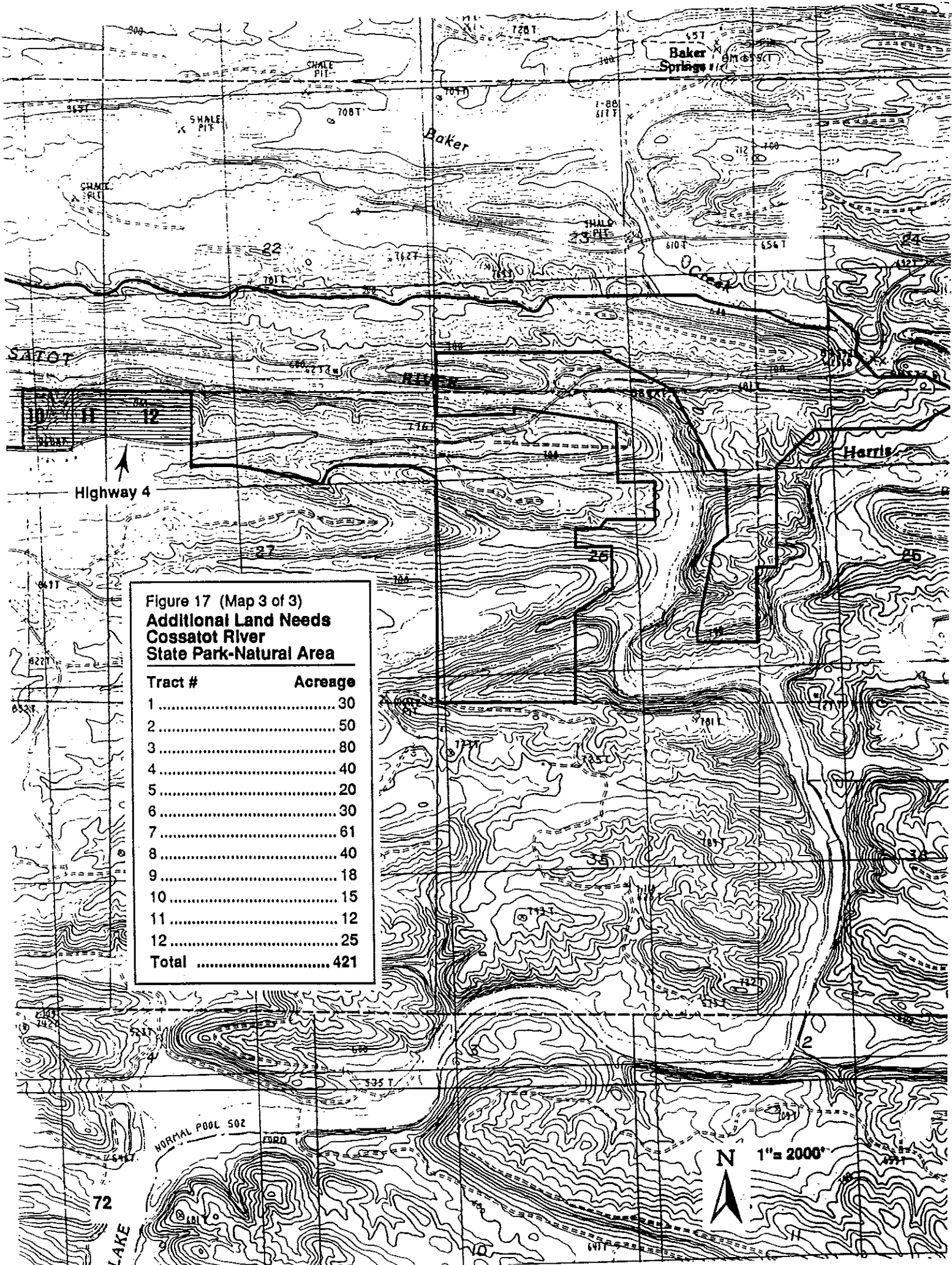


Figure 17 (Map 3 of 3)  
**Additional Land Needs**  
**Cossatot River**  
**State Park-Natural Area**

Tract #	Acreage
1 .....	30
2 .....	50
3 .....	80
4 .....	40
5 .....	20
6 .....	30
7 .....	61
8 .....	40
9 .....	18
10 .....	15
11 .....	12
12 .....	25
<b>Total .....</b>	<b>421</b>

N  
 1" = 2000'

# 10

## General Maintenance and Operations

### Boundary Survey, Boundary Marking and Line Maintenance

A complete boundary survey of CRSPNA will be finished on or before December 31, 1990, and boundary signs will be erected along the entire boundary no more than three months after that date. Painted lines require periodic maintenance, normally on the order of every four to six years; boundary evaluations will be conducted at least every three years. Boundary signs will be replaced, as needed, in conjunction with repainting.

### Fencing

The managing agencies have no specific plans to erect and maintain fences on the property. All existing fences in or near the river will be removed. When a supply yard or equipment shed is constructed at CRSPNA, chainlink or other security fencing will be installed.

### Gates/Barriers

Gates and barriers will be installed on up to 30 dead-end spur roads to limit vehicle access to CRSPNA and deter off-road vehicle activity, timber theft and other potential problems. These structures will be inspected monthly and all irregularities and maintenance problems will be corrected immediately. The spurs that will be closed off at the CRSPNA boundary are identified in Appendix B.

### Law Enforcement/ Public Safety

Law enforcement will be provided by Arkansas State Parks personnel, with assistance from other state and local law enforcement agencies. All park and natural area regulations will be enforced. State Parks receives its power of enforcement from A.C.A. 9-601 (Act 170 of 1937, et. seq) which also defines felonies and misdemeanors for state parks purposes. Legislation was passed in 1989 making it a misdemeanor to violate any of the rules and regulations promulgated by the Natural Heritage Commission governing natural areas (Act 381 of 1989).

Parks personnel will be trained in first aid and search and rescue appropriate to CRSPNA. Additional safety measures are discussed in Chapter 8.

### Sign Maintenance

Sign maintenance will be the joint responsibility of State Parks and Natural Heritage. The park superintendent will determine needs and schedule appropriate maintenance actions.

### Road Maintenance

Those roads necessary for public access and park-natural area management (including fire control and public safety) will be maintained to park standards. With the exception of access roads to the old Highway 4 low-water bridge, other development areas south of Highway 4, the road to Cossatot Falls, and manage-

• General Maintenance and Operations

**Table 8. Staffing Requirements**

	Salary	Matching
<b>Phase I</b>		
Park Superintendent I (1), Grade 17	17,108	3, 5
Park Ranger/Ass't Supt. (1), Grade 15	15,054	3, 2
Park Technician II, (1), Grade 12	12,428	2,858
Park Technician I (1), Grade 10	10,946	2,518
Totals	55,536	12,773
<b>68,309 (Phase I total)</b>		
<b>Phase II</b>		
Park Superintendent I (1), Grade 17	17,108	3,935
Park Ranger/Ass't Supt. (1), Grade 15	15,054	3,462
Park Technician II, (1), Grade 12	12,428	2,858
Park Technician I (1), Grade 10	10,946	2,518
Bookkeeper I (1), Grade 12	12,428	2,858
Receptionist (1), Grade 8	9,698	2,231
Extra-help 2,000 hours (@ 3.50/hr)	7,000	840*
Totals	99,716	21,517
<b>121,233 (Phase II total)</b>		
<b>Phase III</b>		
Park Superintendent I (1), Grade 17	17,108	3,935
Park Ranger/Ass't Supt. (1), Grade 15	15,054	3,462
Park Technician II, (1), Grade 12	12,428	2,858
Park Technician I (2), Grade 10	21,892	5,036
Bookkeeper I (1), Grade 12	12,428	2,858
Receptionist (1), Grade 8	9,698	2,231
Extra-help 2,000 hours (@ 3.50/hr)	7,000	840*
Totals	109,180	20,837
<b>130,017 (Phase III total)</b>		
<b>Phase IV</b>		
Park Superintendent I (1), Grade 17	17,108	3,935
Park Ranger/Ass't Supt. (1), Grade 15	15,054	3,462
Park Technician II, (1), Grade 12	12,428	2,858
Park Technician I (2), Grade 10	21,892	5,036
Bookkeeper I (1), Grade 12	12,428	2,858
Receptionist (1), Grade 8	9,698	2,231
Housekeepers (2), Grade 8	19,396	4,462
Extra-help, 3,000 hrs (\$3.50/hr)	10,500	1,260*
Totals	143,022	31,742
<b>174,764 (Phase IV total)</b>		
<b>Phase V</b>		
Park Superintendent I (1), Grade 17	17,108	3,935
Park Ranger/Ass't Supt. (1), Grade 15	15,054	3,462
Park Technician II, (1), Grade 12	12,428	2,858
Park Technician I (2), Grade 10	21,892	5,036
Bookkeeper I (1), Grade 12	12,428	2,858
Receptionist (1), Grade 8	9,698	2,231
Housekeepers (2), Grade 8	19,396	4,462
Extra-help, 4,000 hrs (\$3.50/hr)	14,000	1,680*
Totals	146,522	32,162
<b>178,684 (Phase V total)</b>		

\* Extra-help matching is 12 percent of wages.

ment roads, WEYCO will have primary responsibility for maintaining the interior access roads and low-water bridges identified in Chapter 5.

## Trail Maintenance

Trails will be maintained to provide hikers safe passage and to reduce and alleviate impacts to the surrounding environment. Damaged trails will be stabilized, where feasible. Depending on severity of damage, trail segments may be closed or relocated. All trails will be maintained according to the Arkansas State Parks Trails Manual. Standing trees that constitute a clear and present danger to public safety will be cut and, in some cases, removed. Naturally-occurring obstructions (e.g., downed trees) will be cleared to maintain trail corridors.

## Campgrounds and Day-use Areas

Camping areas will be monitored for overuse on a regular basis. Photo-documentation and written reports will be performed by Park staff. Heavily impacted areas will be stabilized as needed. If conditions warrant, use areas may be closed and allowed to revegetate.

## Staffing Requirements

Present staff at CRSPNA consists solely of a park superintendent (Grade 17). Additional staffing is needed to maintain and operate new facilities as they are developed. Salary figures listed in Table 8 are based on starting salaries in effect during 1989; actual salaries undoubtedly will change over the course of phased development. "Matching" is 23 percent of salary and represents insurance and other fringe benefits.

## Maintenance and Operations—Costs

Maintenance and operations costs are those associated with utilities; equipment repairs, purchase and replacement; fuel for equipment and vehicles, etc. The following estimates (Table 9) are based on State Parks' experience with similar park operations. Funding for these items comes from two sources: Cash revenues collected from fees and charges at all state parks and General Revenue funds appropriated by the General



Assembly. The cost breakdown is 45 percent and 55 percent, respectively.

**Table 9. Maintenance and Operations (M&O) Costs**

<b>Phase I</b>	
Cash .....	7,335
General Revenues .....	8,965
Total M&O Costs .....	16,300
<b>Phase II</b>	
Cash .....	9,855
General Revenues .....	12,045
Total M&O Costs .....	21,900
<b>Phase III</b>	
Cash .....	19,462
General Revenues .....	23,788
Total M&O Costs .....	43,250
<b>Phase IV</b>	
Cash .....	32,062
General Revenues .....	39,187
Total M&O Costs .....	71,249
<b>Phase V</b>	
Cash .....	40,691
General Revenues .....	49,734
Total M&O Costs .....	90,425

- 1 tractor with bushog, blade and auger
- 1 air compressor
- 1 shop vacuum
- 1 AT computer with printer
- 1 router
- 1 tank truck, 3/4 ton, with hose
- 1 increment borer
- 1 standard welder
- 1 radio system (base and 3 earphone units)
- 3 drip torches
- 5 backpack sprayers
- 5 brush blades
- 5 pulaskis
- 5 hand axes
- 3 hand saws
- additional water quality monitoring equipment
- miscellaneous office equipment (copier, calculators, cash register etc.)
- audio-visual equipment (mimimum of two slide projectors, video cassette recorder, video camera, color television, 35 mm camera with various lenses, 8 mm projector, portable sound system, screen)

**Equipment on Hand**

- 1 dissolved oxygen meter
- 1 pH meter
- 1 4 x 6 all-terrain vehicle
- 1 chainsaw
- 1 whitewater raft
- 1 whitewater canoe
- 1 utility trailer
- 1 4 x 4 pickup
- 1 slide storage box
- 1 power drill

**Future Equipment Needs**

The equipment listed below is considered essential to the future operations and maintenance of CRSPNA. This list is not all-inclusive.

- 1 flatbed truck, 1 ton
- 2 2 x 4 pickup trucks
- 1 table saw
- 1 radial arm saw

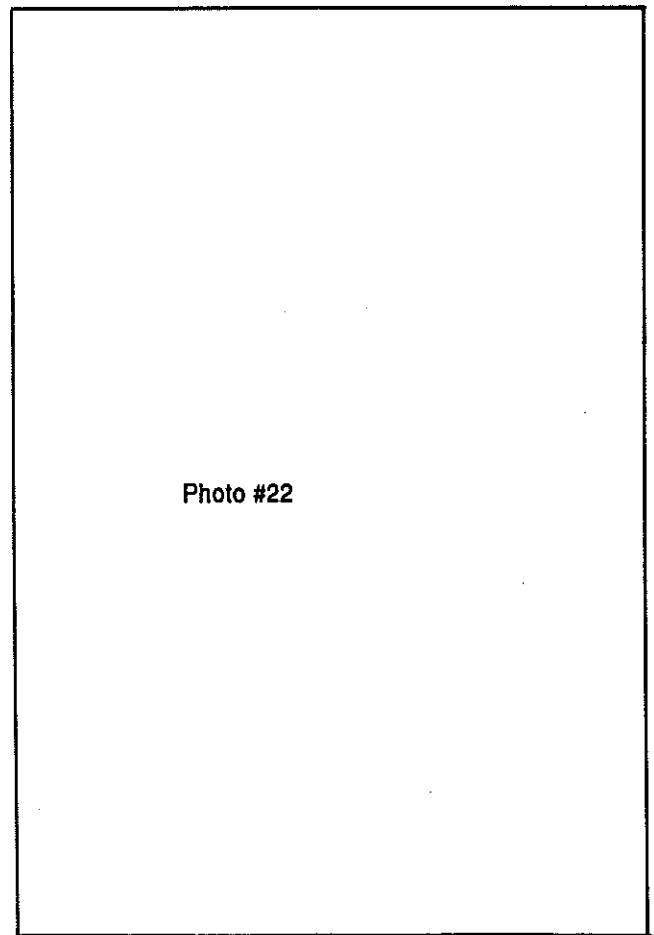


Photo #22

• **General Maintenance and Operations**

# 11 Interpretive Programs

## ■ Background

The natural resources of CRSPNA, including a major upland river, tributary streams, unusual land forms (falls and other exposed strata) and a wealth of plant and animal life, present outstanding opportunities for environmental education. One of the primary goals of CRSPNA is to provide such opportunities.

Within a 75-mile driving radius of the park-natural area are 34 school districts representing 31,400 students—ranging from the 93-pupil Okolona District to the 4,038-pupil Hot Springs District. In addition, CRSPNA will offer valuable services to the DeQueen/Mena and Nashville Educational cooperatives and other similar organizations in the region.

The educational benefits of CRSPNA will extend to adults as well as students in Arkansas public and private schools. All visitors will be introduced to the Ouachita Mountain region through interpretive displays and brochures, and special interpretive programs emphasizing the area's historical, cultural, recreational and natural resource values. Special emphasis will be placed on the importance of environmental awareness and conservation values. The park-natural area will be an ideal location for the Arkansas Game and Fish Commission to present offerings from Project WILD, its highly successful program about wildlife.

## ■ Interpretive Program Philosophy

The interpretive program will be guided by the philosophy advanced by Freeman Tilden, one of the most

respected environmental educators in history. According to Tilden, "Interpretation is an educational activity whose principal aim is to reveal meanings and relationships through the use of original objects, by first-hand experience, and by illustrative media, rather than to simply communicate factual information." In accordance with this concept, interpretive services programming at CRSPNA will focus on instilling in the public an understanding of natural resources and park-natural area management. Programs will interpret the CRSPNA environment in ways that encourage people to sense their kinship with the natural world. The historic and ongoing impacts of the forces of nature within the park-natural area will be illuminated.

Programs will help visitors discover meaningful and satisfying ways to enjoy CRSPNA without intruding on others' experiences or impairing the quality of the resource. Visitors will learn about the missions of Arkansas State Parks, the Arkansas Natural Heritage Commission, and cooperating resource management agencies. These programs will also explain the need for public support.



Photo #23

- **Interpretive Programs**

## ■ **Interpretive Themes**

Interpretive themes will focus on the following subjects:

- outstanding natural communities
- special plants and animals
- river ecology/water resources
- conservation values and environmental ethics
- geological and scenic values
- ecological diversity
- reforestation/restoration of natural plant communities
- upland wildlife management
- history and culture of the region

A detailed interpretive plan, with specifics on cost and phasing, will be prepared by the managing agencies during the next biennium. This plan will include recommendations for needed research on park ecology, visitor use, history, and other topics.

Eventually CRSPNA will offer interpretive services to the western Ouachita Mountain region equal to those of Logoly and Pinnacle Mountain state parks. Much as Pinnacle Mountain features the Arkansas River Valley physiographic region and Logoly the West Gulf Coastal Plain, CRSPNA will provide a superb introduction to one of Arkansas' most fascinating regions—the Ouachita Mountains.

# Photo Credits

Cover .....	A.C. Haralson	Page 41 (right) .....	S.E. Traceth
Page 7 .....	A.C. Haralson	46 .....	A.C. Haralson
8 .....	A.C. Haralson	49 .....	A.C. Haralson
9 (above) .....	H.W. Robison	52 .....	A.C. Haralson
9 (below) .....	Richard Bryant	56 .....	A.C. Haralson
10 .....	Lana Cook	57 .....	A.C. Haralson
19 .....	Joe Rice	57 .....	A.C. Haralson
23 .....	A.C. Haralson	59 .....	A.C. Haralson
23 .....	A.C. Haralson	59 .....	A.C. Haralson
35 .....	A.C. Haralson	61 .....	A.C. Haralson
38 .....	A.C. Haralson	79 .....	A.C. Haralson
41 (left) .....	A.C. Haralson	81 .....	Robyn Horn





# Appendix A

## STATEMENT OF INTENT

THE STATE OF ARKANSAS, the U. S. Forest Service, and the U. S. Army Corps of Engineers, recognize the outstanding resource values of the Cossatot River in Polk and Howard counties, Arkansas, that is a stream currently undergoing study for possible inclusion within the National Wild and Scenic Rivers System (NW&SRS).

1. In order to accurately assess the resource values that are present within the study corridor (Attachment A\*), these three entities do hereby agree, acting through their authorized representatives, to coordinate a resource inventory of the 26.2 miles that constitute the identified study corridor, subject to the availability of funds within their individual budgets.
  2. In conducting such an inventory, each agency hereby authorizes the others, as well as other cooperative state and federal agencies, to enter upon all lands identified in Attachment A\*.
  3. This resource inventory will serve as the basis for developing a joint federal-state river study report to determine the suitability of the study corridor for inclusion within the NW&SRS.
  4. All parties to this agreement will keep the others informed of their planning schedules, policies, procedures, and management needs as they relate to this resource inventory, and the eventual planning, development, and administration of the river corridor.
  5. It is further understood that, should any or all of the Cossatot River as described in Attachment A\*, be designated as a component of the National Wild and Scenic River System, any parties to this agreement may enter into a
- 82\*(“Attachment A” refers to Figure 7.)



cooperative management agreement with each agency retaining management, development and administration responsibilities for their individual segments.

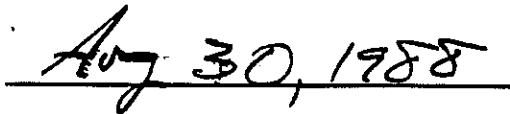
6. Terms of Agreement

This agreement will be effective immediately upon signing and will continue in force until such time the river is designated as a component of the NW&SRS, but no longer than July 1, 1993, unless the parties agree to renewal. During the period of this Statement of Intent, it may be amended by mutual agreement of all parties, with 30 days written notice. All amendments will become effective upon written approval by the parties listed below or their counterparts.

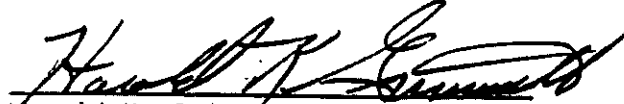
Approved by the Arkansas State Parks, Recreation and Travel Commission on July 21-22, 1988.



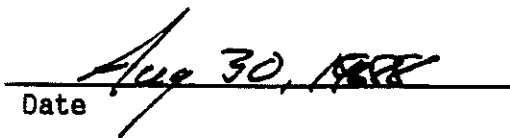
Richard W. Davies, Director  
Arkansas State Parks Division  
Arkansas Department of Parks & Tourism



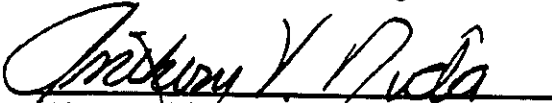
Date



Harold K. Grimmett, Director  
Arkansas Natural Heritage Commission



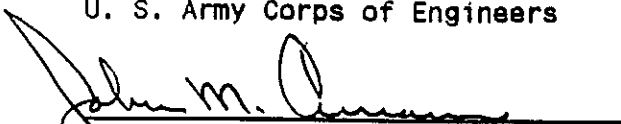
Date



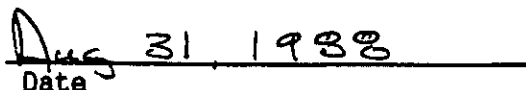
Anthony Nida, Colonel  
Little Rock District  
U. S. Army Corps of Engineers



Date



Michael Curran, Forest Supervisor  
Ouachita Natural Forest  
U. S. Forest Service  
U. S. Department of Agriculture



Date

- **Statement of Intent**

# Appendix B

## Road Closures Within CRSPNA

(REFER TO FIGURE 3  
FOR ALL ROADS LISTED BELOW.)

Beginning on the west side of the river,  
in Howard County:

- Weyco #640 (Cow Creek access). Single lane gate needed. Closure initially for the 9 months September–May. Monitor use for consideration of permanent closure status or as a walk-in area.
- Weyco #641 & 642. Permanent closure with single lane gates. Both may have some limited use in rescue operations. No public access, rough terrain.
- Weyco #643 (Sheep's Den Access). Single lane gate. Closure initially for the 9 months September–May. Monitor use. Has definite utility as a rescue access and as a walk-in public access. Rough terrain. Some erosion from exiting foot traffic and ATV use.
- Weyco #558. Permanent closure with single lane gate. Some limited potential as rescue access.
- Weyco #511. Appears to dead-end in Polk Co. outside the CRSPNA boundary. Monitor after boundary survey completed.
- Weyco #510. Permanent closure gate may be unnecessary due to fact that developed road bed appears to dead-end at CRSPNA boundary. Rough, steep terrain.

- Weyco #81035. Permanent closure with single lane gate. This road leads to the proposed employee residence site.

Polk Co., west side of river:

- Weyco #82022. Permanent closure with single lane gate. Access to Gentry Springs area.
- Weyco #806 & 807. Permanent closure with single lane gates. Access to mature timber stands.
- North of #807 there are three access routes from private property (Watkins) that dead-end within CRSPNA's boundary. Permanent closure with single lane cables or berms on each. Access to mature timber stands.

East side of river, Howard/Polk Co.

- Generally, all Weyco-numbered roads on the east side of the river should be permanently closed at the CRSPNA property boundary utilizing gates or berms. Management access to plantation areas is necessary; however, none of these routes are currently used for public access. Includes road numbers 211, 210, 52930, 280, 282, 263, & 262 (Howard Co.) and 912, 918, 917, 914, 915, and 910 (Polk Co.)

• **Road Closures**