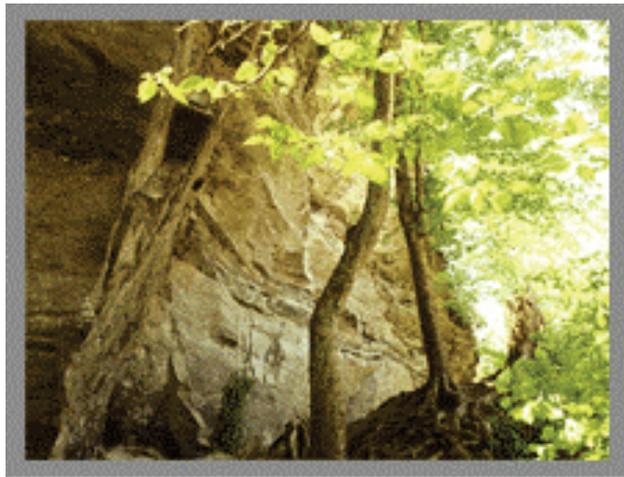


RAVEN ROCK STATE PARK

GENERAL MANAGEMENT PLAN



North Carolina Department of Environment and Natural Resources

Division of Parks and Recreation

March 16, 2007

INTRODUCTION

Planning is an essential element of effective and efficient park administration and management. The North Carolina General Assembly acknowledged its importance by passing state parks system legislation that includes planning requirements.

The 1987 State Parks Act (G.S.114-44.7 through 114-44.14) stipulates that a State Parks System Plan be prepared. The first plan was completed in December 1988. It evaluated the statewide significance of each park, identified duplications and deficiencies in the system, described the resources of the system, proposed solutions to problems, described anticipated trends, and recommended means and methods to accommodate trends. The most recent update of the Systemwide Plan was completed in December 2000.

The State Parks Act also requires each park to have an individual general management plan. The general management plans are required to:

...include a statement of purpose for the park based upon its relationship to the System Plan and its classification. An analysis of the major resources and facilities on hand to achieve those purposes shall be completed along with a statement of management direction. The general management plan shall be revised as necessary to comply with the System Plan and to achieve the purpose of the [State Parks Act].

The general management plan (GMP) is to be a comprehensive five-year plan of management for a park unit. A GMP's function is to:

1. Describe park resources and facilities;
2. State the purpose and importance of each park unit;
3. Outline interpretive themes and propose locations for informational and interpretive facilities;
4. Analyze park and recreation demands and trends in the park's service area;
5. Summarize the primary laws guiding park operations;
6. Identify internal and external threats to park natural and cultural resources, and propose appropriate responses;
7. Identify and set priorities for capital improvement needs;
8. Analyze visitor services and propose efficient, effective, and appropriate means of responding to visitor needs; and
9. Review park operations and identify actions to support efficient and effective park administrative procedures.

The GMP for Raven Rock State Park, developed with public involvement, is intended to serve these purposes.

**RAVEN ROCK STATE PARK
GENERAL MANAGEMENT PLAN**

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APPENDIX

I. DESCRIPTION AND HISTORY OF RAVEN ROCK STATE PARK

LOCATION AND ACCESS

Raven Rock State Park is located in Harnett County. Lillington, the county seat, is nine miles east of the park, and Sanford is 20 miles west (Figure I-1). From US 1, take US 421 east. Turn left onto Raven Rock Road, and follow it for three miles to the park.

From I-40, take I-95 south to US 421. Travel northwest on US 421. After passing through Lillington, turn right onto Raven Rock Road, and follow it for three miles to the park entrance.

The Cape Fear River dissects the park into northern and southern sections. Most of the visitor facilities, including the park office, are located in the southern section. The northern section of the park is accessed from River Road (State Road 1418).



Figure I-1. Raven Rock Location Map

LAND BASE

Raven Rock State Park consists of 4,667 acres of land on both sides of the Cape Fear River along the fall zone between the Piedmont and Coastal Plain provinces of North Carolina. The Cape Fear River is one of North Carolina's largest rivers. The area is characterized by rolling terrain, extensive woodlands, unique plant life, beautiful wildflowers, several streams, and huge exposed rocks. Raven Rock itself is one of a series of striking bluffs that rise approximately 100 feet above the Cape Fear River. These bluffs extend for more than a mile along the south side of the river. The park contains several ridges that are divided by creeks that flow into the Cape Fear River. Found in the park along the river and creeks are floodplains populated by river birch, beech and sycamore.

VISITOR FACILITIES

Visitor facilities at Raven Rock State Park provide opportunities for hiking, horseback riding, primitive camping, picnicking, fishing, and canoeing (Figure I-2). Fifteen miles of hiking trails are located in the park. Equestrians can access seven miles of bridle trails on the north side of the park.

A portion of the 56-mile Cape Fear Canoe Trail runs through the park, including the rapids of Lanier

Falls and the Fish Traps. The trail travels along the Cape Fear River starting from an access point at the US 1 bridge over the Deep River. A buoy signals the location of a canoe rest stop and six campsites that offer accommodations for canoeists. Located beside the river in a low-lying area, these sites include fire rings and a vault toilet. The canoe camping area is 1.7 miles from the park office and is not accessible by car. Canoeists should reserve sites by calling the park office before embarking on a trip. Canoeists should exercise caution and wear life vests at all times. Spring floods make the river dangerous for canoeing. Portage dams and dangerous rapids.

To reach the primitive campground, follow Campbell Creek Loop Trail approximately 2.5 miles from the parking area. Five sites, each accommodating up to four people, contain tent pads, fire rings and a vault toilet.

Little Creek Loop Trail leads to the group wilderness camp, located 2.2 miles from the parking area. Located along the Cape Fear River, the five-campsite area offers fire rings and vault toilets and accommodates up to 20 people per campsite. Use of this area is by reservation only.

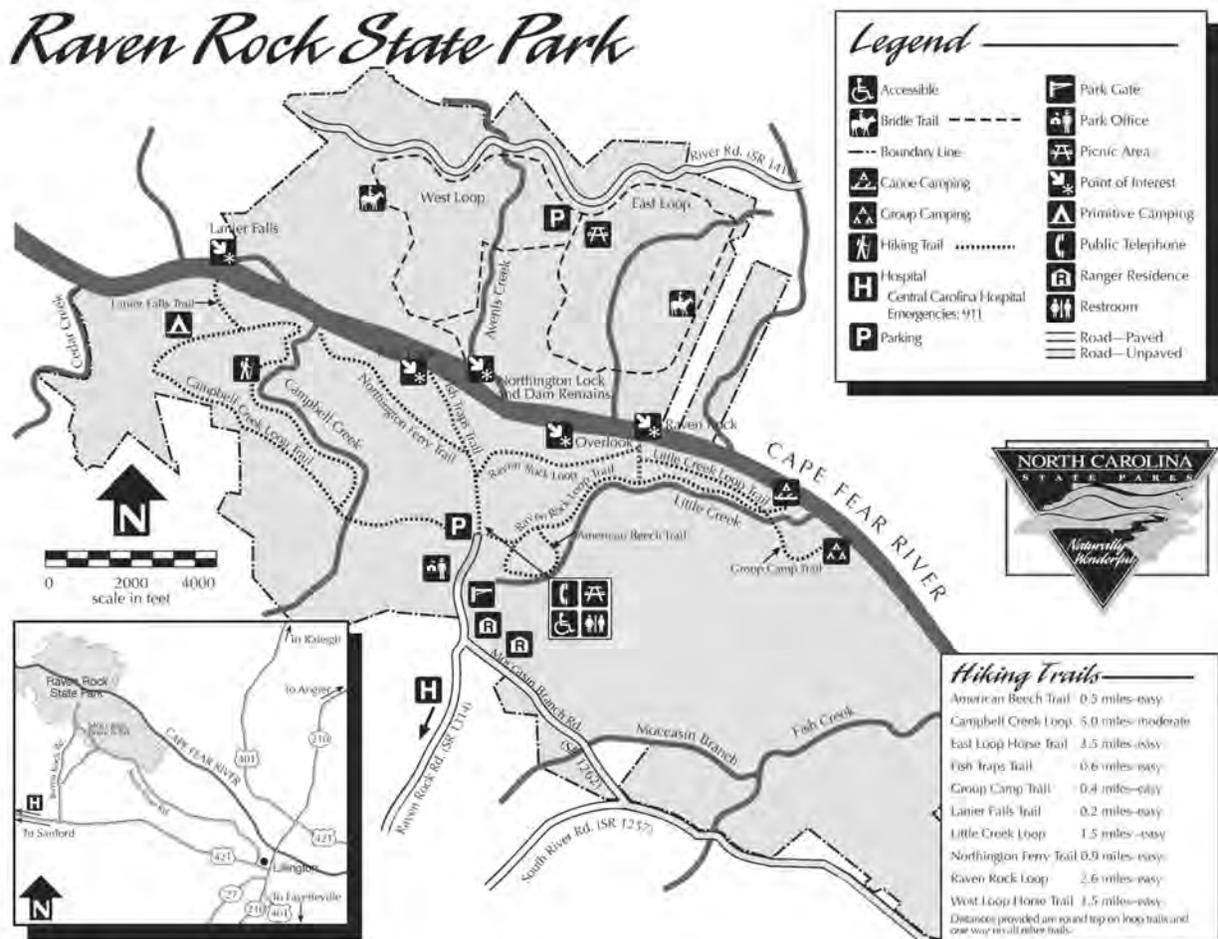


Figure I-2. Park Map with Facilities

A wide trail leads from the parking lots on the south side of the river to the picnic area. Towering oak and hickory trees provide shade for 27 tables and eight grills. Drinking water, restrooms and drink and snack machines are located nearby. Some picnic facilities are accessible for persons with disabilities, as is the restroom facility. Open play fields are adjacent to the picnic area. Although planned, no group picnic shelters are yet available. A smaller picnic area is located on the north side of the park.



Figure I- 3. Vista from Raven Rock Overlook

The best places for fishing in the Cape Fear River are the Fish Traps and the mouth of Campbell Creek. Game fish in these waters include largemouth bass, warmouth, bluegill, catfish, redear and green sunfish. Other interesting species are longnose gar, American eel, chub, shiners, darters and pirate perch. Fishing is permitted during posted park hours only. Anglers must have a state fishing license, and regulations of the NC Wildlife Resources Commission are enforced.

Many visitors are attracted to the park by the scenery including the vistas along the Cape Fear River, Raven Rock itself, and the

abundant wildflower display each spring. Many people are also drawn to the park to study the park's unique geology, plants, and animals.

HISTORY OF THE PARK

Raven Rock State Park sits along the fall zone, an area where the hard, resistant rocks of the foothills give way to the softer rocks and sediments of the coastal plain. The underlying rocks of the area were formed more than 400 million years ago by intense heat and pressure. Through the ages, flowing waters and swirling winds gradually eroded the land, carving and sculpting Raven Rock. This immense crystalline structure rises to 150 feet and stretches for more than a mile along the Cape Fear River.

The Siouan and Tuscarora Indians hunted the area until European settlers arrived in the mid-1700s. The first settlers were primarily hunters and trappers who were searching for high country similar to their native country, Scotland. Later, stores, mills and quarries were built. Many of the woodlands were farmed, and as the forests returned, much of the land was harvested for timber.

Raven Rock was originally named Patterson's Rock in the 1740's after Gilbert Patterson, who found refuge under the rock after a boating accident. For more than a century thereafter, the area was known as Patterson's Rock. It was not until 1854, when the Cape Fear and Deep River Navigation Company began building locks and dams on the Deep River, that Patterson's Rock became known as Raven Rock. The name change occurred because ravens could be seen roosting on the rock ledges.

Over the years, several roads and trails were cut through the site, and access to Raven Rock was

provided. Roads were built first to access fields along the Cape Fear River floodplain, and later on, Northington Road accessed the river crossing. Remnants of several old home sites and family cemeteries of little historic value are located on park property. The Northington family lived in the area from 1777 to 1838, owning at one time approximately 6,000 acres. They built homes, stores, roads and mills, including the Northington Mill.

Prior to the Civil War, Raven Rock was a noted landmark for the pilots of the river steamers running from Fayetteville to Haywood. This form of river transportation ended in 1859 when a hurricane



Figure I- 4. Raven Rock

struck the Cape Fear River basin and swept away nearly every lock and dam on the river. The Northington lock and dam, which was located near the center of the park, was also destroyed. Before they could be repaired, the Civil War erupted, and resources were diverted to the war effort. After the war, local residents were too poor to repair the lock and dam. With the building of railroads, river transportation became outdated and the repairs never occurred. The remnants of the Northington lock and dam can still be seen in the park.

Although steamboats no longer navigated the Cape Fear River, people returned to the Raven Rock area after the Civil War for picnics and recreation. The Northington Ferry continued to be an important river crossing for land transportation between Raleigh and Fayetteville, serving travelers until the 1920s when the Lillington Bridge was constructed. Many visitors to the Raven Rock area were probably travelers between these two cities.

When automobiles became prevalent and the Lillington Bridge was built, Raven Rock was largely forgotten. With the closing of the Northington Ferry, the site became isolated from any major transportation routes. Thus, only local residents used the area for picnicking, fishing, and hiking. Raven Rock was not brought to public attention again until 1965, when interested citizens recommended the establishment of a state park at the site (N.C. Division of Parks and Recreation, 1977). At this time, the land was primarily forested and used for timbering, with some agricultural use.

In 1967 the General Assembly authorized a study commission for state parks, the first such study commission. The State Parks and State Forests Study Commission's 1969 report, *North Carolina State Parks for the Future*, recommended the addition of 15 or more areas to the State Parks System. The report also identified the Harnett, Lee, Cumberland and Hoke County region as the state area most in need of a state park (The State Parks and State Forests Study Commission, 1969).

Simultaneously, local support for the acquisition of Raven Rock was being organized. After hearing about the possibility of land being sold to either a mining or paper company, local supporters led by Dr. Robert Soots, a Campbell College professor, recommended to the Harnett County Board of Commissioners that the area be preserved as a state park. The Board of Commissioners supported the proposal and requested that it be presented to the N.C. Board of Conservation and Development.

On October 28, 1968, Dr. Soots presented the Raven Rock state park proposal to the Board of Conservation and Development's Parks and Tourism Committee where it was favorably received. The Committee directed the Superintendent of State Parks to complete an investigation and feasibility study (Minutes, 1968). The subsequent investigation found that the Raven Rock area met established state park criteria. Impressed by the area's natural resources and recreation and environmental education potential, and noting that that the park would be located in an area of the state identified by the State Parks and State Forests Study Commission as the number one priority for the addition of a new state park, the Board of Conservation and Development adopted a resolution recommending acquisition of the Raven Rock area for a new state park (Resolution, 1969).

On April 18, 1969, Senator William W. Staton introduced a bill in the State Senate to establish some 3,000 acres at Raven Rock as a state park. Shortly thereafter, on July 16, 1969, the Raven Rock Preservation and Park Committee incorporated as a non-profit organization to assist the state with establishment of the park (N.C. Division of Parks and Recreation, 1977).

The 1969 legislature approved the appropriation of \$120,000 to start land acquisition at Raven Rock State Park. Because the value of the land identified for state park acquisition far exceeded the \$120,000 appropriation, the state sought to leverage the \$120,000 by applying for a federal Land and Water Conservation Fund (LWCF) matching grant. By pulling together additional funds from the Department of Conservation and Development, and by using the \$30,000 appraised value of a 170-acre tract donated by Burlington Industries, the state was able to raise the amount of state money to be matched by the federal LWCF grant (National Park Service, 37-00184). Approximately \$477,500 was left to be raised by private gifts and other sources to complete the total project as envisioned in the bill originally presented to the legislature (N.C. Division of Parks and Recreation, 1977), but these funds never materialized and the third phase of the LWCF grant had to be withdrawn for lack of state funding.

From 1970-1975, the LWCF grant helped the state acquire lands critical for establishment of the park by providing \$389,082 in federal matching funds. In total, over 2,500 acres on both sides of the Cape Fear River were acquired for the new park under the LWCF grant. Properties acquired included the first parcel for the park, the 221.7-acre J.C. and Dorothy Cummings tract, acquired on March 19, 1970 (National Park Service, 37-00184). Per federal LWCF regulations, properties acquired in whole or part using LWCF assistance are not to be converted to other than public outdoor recreation use.

As North Carolina's development and land prices accelerated, the Division of State Parks urged protection of new park areas as well as expansion of some existing ones before the opportunity to do so would be forever lost. Appeals for additional state park land acquisition throughout the state were made, including the publication in 1972 of *North Carolina State Parks NOW or NEVER*. The booklet described 27 areas proposed as worthy additions to the state parks system, and, as a point of emphasis, described six areas – called “Never Areas” - previously investigated or proposed as state parks but that were no longer feasible to acquire. The report also listed ten existing parks with critical land acquisition needs, including 1,000 acres recommended for acquisition at Raven Rock State Park (State of North Carolina, 1972).

Although undeveloped, operation of the park began in 1970 with visitors hiking, fishing, picnicking, and sight seeing, and with some environmental education use. By 1975, a gravel parking lot, a temporary park office in a trailer, and 18 picnic sites were provided near the park entrance on the south side of the river. From here, several miles of trails led through the park to the river. A wooden stairway led from the top of Raven Rock to the riverside. A canoe take-out/ canoe camp and a group camp were located along the river, while several wilderness campsites had been developed. On the north side of the river, horse trails were cut.

A second Land and Water Conservation Fund grant awarded in 1984 provided \$103,982 in federal matching funds to assist with the acquisition of four additional parcels totaling 56.3 acres. These parcels provided land critical to the development of recreational and support facilities for the park and necessary for access to previously acquired park lands (National Park Service, 37-00802). Other land acquisition has taken place from time to time over the years, including approximately 700 acres acquired from Weyerhaeuser Corporation in late 2002.

Although the park has a nice trails system, development of adequate recreation and environmental education facilities at the park has never taken place. In 1986, a restroom was constructed at the picnic area, but no picnic shelters have ever been built to serve park visitors. The cramped park office is a 60-foot by 12-foot trailer purchased in 1993 after the first office, also a trailer, was destroyed when a tree was blown on top of it during a severe thunderstorm. No suitable indoor facilities have ever been built for environmental education programs and exhibits. The park's maintenance buildings, constructed in 1997 with funds from the 1993 state parks bond initiative, adequately serve the park's maintenance operations.

In September of 1996, Hurricane Fran landed in southeastern North Carolina and proceeded to move northwest through the center of North Carolina. Wind and water damage resulted in Governor Jim Hunt declaring a state of emergency in all 100 counties, the first time such action had ever been taken (Barnes, 2001). Damage to the park caused by the storm resulted in the park being closed for part of that year, and the north side of the park remained closed through half of 1997. Inmates from Southern Correctional Institute were brought in to help clear Raven Rock's trails and other areas of downed trees and storm debris.

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Barnes, Jay. *North Carolina's Hurricane History*. Third Edition. UNC Press, 2001.

Huband, Robert Kimley. *History of Raven Rock State Park*. Division of Parks and Recreation, N.C. Department of Environment and Natural Resources. July 2005.

Minutes of the Board of Conservation and Development. Meeting in Rocky Mount, N.C. October 27-29, 1968.

Resolution adopted by the Board of Conservation and Development. Charlotte, N.C. May 22-24, 1969.

National Park Service. Land and Water Conservation Fund Grants 37-00184 and 37-00802. U.S. Department of the Interior.

N.C. Division of Parks and Recreation. *Master Plan Raven Rock State Park*. Department of Natural and Economic Resources, State of North Carolina. 1974.

State of North Carolina. *North Carolina State Parks NOW or NEVER*. Department of Natural and Economic Resources, Division of State Parks. 1972.

The State Parks and State Forests Study Commission. *North Carolina State Parks for the Future*. January 29, 1969.

II. PARK PURPOSES

MISSION STATEMENT FOR THE STATE PARKS SYSTEM

The North Carolina state parks system exists for the enjoyment, education, health, and inspiration of all our citizens and visitors. The mission of the state parks system is to conserve and protect representative examples of the natural beauty, ecological features and recreation resources of statewide significance; to provide outdoor recreation opportunities in a safe and healthy environment; and to provide education opportunities that promote stewardship of the state's natural heritage.

RAVEN ROCK STATE PARK PURPOSE STATEMENT

Raven Rock, a bluff that juts out at a sharp angle along the Cape Fear River, has been a landmark to river travelers since before the Civil War. As land transportation improved, it became a popular regional destination for picnickers visiting the scenic river vistas and unusual bluffs. Local support for establishing a state park culminated in 1969 when the General Assembly authorized funding for Raven Rock State Park and thus preserved the site's natural and scenic quality from a potential mining operation.

The park's significant geological resources occur primarily along the Cape Fear River, the dominant surface water feature. Raven Rock, the bluff for which the park is named, is exceptionally tall for the Piedmont, with an elevation of over 100 feet above the river. It is the highest bluff in the North Carolina fall zone – the area where the more resistant rocks of the Piedmont meet the sediments and softer rocks of the Coastal Plain. The rocks forming the bluffs are 570 million years old and were metamorphosed on at least two separate occasions between 450 and 300 million years ago. The river, through millions of years of erosion, has sculpted the numerous metamorphic rock faces seen in the park today. Rapids, a typical river feature in the fall zone, occur at Fish Traps and Lanier Falls.

The significant biological resources include three registered natural areas: Raven Rock State Park Natural Area, Avents Creek-Cape Fear River Floodplain Natural Area, and Granitic Flatrock Natural Area. Successional communities derived from the combination of unique habitats and the interface of the Piedmont and Coastal Plain at the fall zone include maturing communities representative of the eastern Piedmont as well as a number of unusual natural communities. Unusual habitats include the bluffs, flatrocks and north-facing mesic areas with disjunct montane species. Pines and oak-hickory forest dominate the ridge tops, while mature beech and mixed hardwoods cover the slopes and floodplain. Remnant Piedmont longleaf pine trees and their associates are evidence of past forest types. Buttercup phacelia (*Phacelia covillei*), Virginia spiderwort (*Tradescantia virginiana*) and eastern Isopyrum (*Enemion biternatum*) are representative of the many unusual plant species known in the park. One hundred eighty eight bird species, including the bald eagle, have been observed in the park. Fox squirrels (*Sciurus niger*), a declining species in North Carolina, are found in upland areas of the park. The park is

well within the fox squirrel's historical range, but diminishing habitat has reduced the prime range in North Carolina to the public lands in the Sandhills.

Significant scenic resources are found at the Raven Rock bluffs and along the park's waterways. Raven Rock's unusual rock formations and wide river vistas have made it a landmark on the Cape Fear River for over a century. The Campbell Creek and Avents Creek areas are particularly scenic because the steep slopes that surround them are more reminiscent of mountain terrains than the Piedmont. River rapids please both the ear and eye, and abundant displays of spring wildflowers - including mountain laurel and rhododendron - draw many visitors who come to enjoy the seasonal colors.

The extensive acreage at Raven Rock State Park is suitable for day-use activities such as hiking and picnicking as well as camping and horseback riding. The Cape Fear River is an exceptional resource for water-based activities such as paddling and fishing. The park's visitor program focuses on interpretation and education programs. Conveniently located near the Research Triangle, Fayetteville, Fort Bragg and smaller surrounding communities, the park can be easily accessed by a large population seeking natural resource oriented recreational opportunities.

The Cape Fear River is the focus of the park's significant archaeological resources. Prehistoric resources include Pre-Columbian artifacts such as projectile points, evidence that the river was once the site of Native American activities. Before the development of effective land transportation routes, the Cape Fear River played a major role in the growth and development of North Carolina. The 1850s era Northington lock and dam site, which accommodated boat traffic through the fall zone rapids, and the Northington Ferry site, which served as the main transportation link between Raleigh and Fayetteville until the Lillington Bridge was built in the 1920s, are both significant historical resources.

Raven Rock exists as a state park so that its valuable geological, biological, scenic, recreational and archaeological values can be protected. The Division of Parks and Recreation is charged with preserving these values and providing park experiences that promote pride in and understanding of North Carolina's natural heritage.

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III. SUMMARY OF INTERPRETIVE THEMES

The 1987 State Parks Act defines the purposes of the state parks system. It establishes that:

The State of North Carolina offers unique archaeological, geologic, biologic, scenic and recreation resources. These resources are part of the heritage of the people of this State. The heritage of a people should be preserved and managed by those people for their use and for the use of their visitors and descendants.

It further provides that:

Park lands are to be used by the people of this State and their visitors in order to promote understanding of and pride in the natural heritage of this State.

One of the best methods of meeting these purposes is through environmental education. The definition of environmental education as set forth in *The North Carolina Environmental Education Plan* is given below.

Environmental Education is an active process that increases awareness, knowledge and skills that result in understanding, commitment, informed decisions and constructive action to ensure stewardship of all interdependent parts of the earth's environment.

Raven Rock State Park is well suited to environmental education, with its excellent representation of geology and habitat types found throughout the fall zone between the Piedmont and Coastal Plain provinces.

Raven Rock State Park has three primary interpretive themes and six secondary themes. The primary themes are the geology of Raven Rock, the ecology of the fall zone, and the natural and cultural history of the Cape Fear River.

PRIMARY INTERPRETIVE THEMES

Geology of Raven Rock

The geology of the park is featured in the Environmental Education Learning Experience (EELE), "Raven Rock, Then and Now." Most of the park's unique geological features result from its location in the fall zone – the area where the hard resistant rocks of the Piedmont meet the sediments and softer rocks of the Coastal Plain. Raven Rock, a large outcrop along the Cape Fear River, is part of a metamorphic rock feature called the Big Lake–Raven Rock schist. This rock feature is part of the Carolina Terrane, an ancient volcanic island arc that formed off the coast of Gondwanaland (proto-Africa) about 600 million years ago. Students and other park visitors can participate in EELE activities or interpretive programs that help them discover the composition, geomorphology and geologic history of Raven Rock. They can also explore the gravel terraces on higher ridges within the park that were deposited on top of the Raven Rock feature by the ancestral Cape Fear River.

And, they can observe how the modern Cape Fear River continues to sculpt and erode the rock today, such as at Fish Traps and Lanier Falls.

The Ecology of the Fall Zone

As a result of its unique position in the fall zone, the park harbors a remarkable diversity of natural communities and species. The park is located in Harnett County where the Piedmont, Sandhills and Coastal Plain come together. Thus, ecological characteristics of all three regions are found within the park. Of particular significance are examples of several natural communities, including Piedmont/Coastal Acidic Cliff, Piedmont/Coastal Heath Bluff, Granitic Flatrock, Piedmont/Mountain Levee Forest, and remnant examples of Piedmont Longleaf Pine Forest. Interpretive programs, guided trail hikes and a self-guided nature trail allow park visitors to explore relationships between the geology and the fauna and flora, e.g., flat rocks, cliff faces, vernal pools and basic soils. Visitors can also learn to recognize the natural communities that identify the Piedmont–Coastal Plain interface.

Natural and Cultural History of the Cape Fear River

Through various park interpretive programs and wayside exhibits, visitors can learn about the natural and cultural history of the Cape Fear River. The headwaters originate in the central and eastern Piedmont with a drainage basin about 3,400 square miles upstream from the park. Bisected by the Cape Fear River, Raven Rock State Park provides an excellent location to study our state's largest river basin. Visitors and students can explore several of the streams in the park that feed the river. Participants on guided hikes can determine water quality by testing physical properties and examining macro-invertebrates. The park has a rich cultural history related to the river. Prior to development of the railroad system in the late 1800s, the Cape Fear River was the primary artery of transportation for people and goods between Wilmington and points inland. Both the Northington Ferry and a series of locks and dams were constructed on what is now park property.

SECONDARY INTERPRETIVE THEMES

Secondary themes for the park support and supplement the primary themes. Six secondary interpretive themes have been identified. They are:

1. Ecological disturbances (fire, insects, wind throws from hurricanes or tornados, and floods)
2. Fire ecology and management
3. Invasive, exotic species
4. Environmental issues (emphasizing water and air quality)
5. Nocturnal natural history
6. Outdoor Recreation (hiking, backpacking, fishing, canoeing, horseback riding, etc.)

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IV. PARK AND RECREATION DEMAND AND TRENDS

ANNUAL VISITATION TRENDS

Raven Rock State Park is an important regional outdoor recreation resource, serving an area of the state that has few such facilities. The park has experienced relatively steady increases in visitation since opening to the public in the early 1970s. Except in 1985 - when visitation dropped significantly to 39,126 - annual visitation generally ranged between 52,000 and 69,000 in the ten years from 1979 to 1989. In the years since 1990, visitation has continued to grow, hitting an all-time high of 121,255 visits-per-year in 2001 (Figure IV-1). This growth has come despite the fact that the park has not had significant new outdoor recreation facilities developed that would attract additional visitors.

The drop in attendance in 1996 was due to Hurricane Fran. Damage caused by the storm resulted in the park being closed for part of that year, and the north side of the park remained closed through half of 1997. Starting in 2002, deployment of military troops from nearby Fort Bragg and Pope Air Force Base have caused a drop in visitation from military personnel and their families, which continues. In June of 2006, the remains of Hurricane Alberto washed out the temporary bridge over Campbell Creek, thus cutting off access to part of the park and resulting in a further drop in visitation. During 2006, trail work on the north side of the river also hampered visitor use.

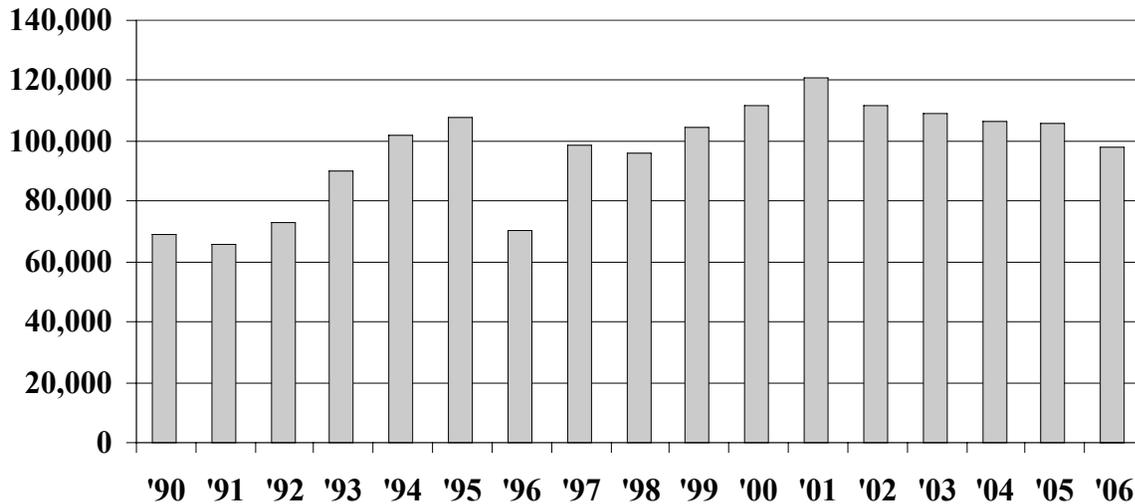


Figure IV-1. Annual Visitation, 1990-2006

Visitation has been counted using the same formula since at least 1988, as shown below:

South Side

March – November: 3 persons-per-car on weekdays; 4 persons-per-car on weekends and state holidays.

December – February: 2 persons-per-car on weekdays; 4 persons-per-car on weekends and state holidays.

North Side

March – November: 3 persons-per-car. December – February: 2 persons-per-car.

AREA POPULATION TRENDS

The population in the area served by Raven Rock State Park is identified as the following six counties for this analysis: Chatham, Cumberland, Harnett, Johnston, Lee, and Wake. The total population in this area - 927,207 in 1990 - grew almost 34 percent in ten years to 1,242,168. By 2005, another 171,640 people lived in the area, bringing the total to 1,413,808. Wake and Cumberland counties, with 746,336 and 313,000 residents respectively, account for most the area's population.

This population growth has resulted in more people seeking outdoor recreation opportunities, and Raven Rock State Park's visitation has increased as a result. During the next ten years, it is predicted the population of the six-county area will grow by 348,258 people (24.6 percent) to 1,762,066 in 2015. As the area's population continues to increase, additional pressures will be placed on the park's resources, facilities and staff.

MONTHLY VISITATION TRENDS

Raven Rock State Park has an unusually long visitor-use season that extends from March through November. Monthly visitation picks up considerably as the warmer weather of spring arrives, with April being the peak month with an average visitation of 12,834. Visitation remains high through November, although it does dip with August's hot weather. With the onset of colder weather, it drops approximately fifty percent for the winter months (Figure IV-2). Raven Rock's visitation consists primarily of day use since no large tent and trailer campground exists, and primarily hikers and picnickers use the park.

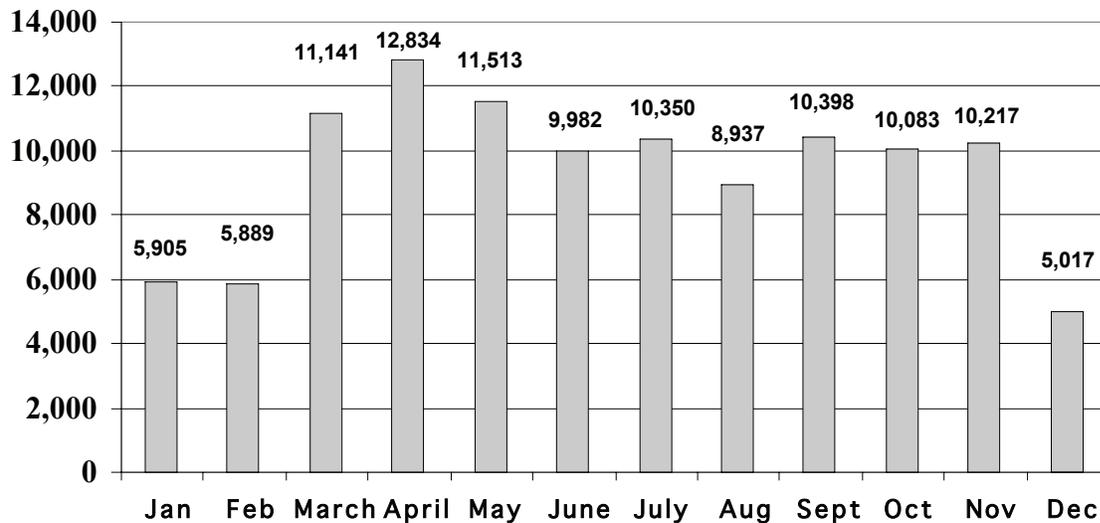


Figure IV-2. Average Monthly Visitation, 2001-2004

CAMPING USE

Raven Rock State Park has a total of 11 primitive campsites and five primitive group campsites. Camping use is light. During fiscal year 2005-2006, each of these campsites were used an average of 29 days annually.

VISITOR INFORMATION

In 1987 the United States Forest Service was contracted to conduct a Public Area Recreation Visitors Survey (PARVS) for the North Carolina State Parks System. The survey was designed to identify visitor socio-economic characteristics and economic contributions to the state's economy. Raven Rock State Park was not one of the eight park units involved in the survey, but the general information concerning state park visitors is useful in assessing visitation trends at the park.

Why do people visit state park units? The convenient location was cited by 31 percent of the respondents; 25 percent thought other areas were too crowded; 21 percent liked the quality facilities; 8 percent wanted to try a new area; 7 percent enjoyed the scenic beauty; and 6 percent came to see the attraction.

More than one third of state park visitors come from within a 30-mile radius (37 percent), while 17 percent come from 30 to 60 miles away. Survey respondents indicated that the parks were their sole destination 86 percent of the time. While many visitors come from nearby, the average one-way distance traveled was 139 miles. Approximately 25 percent of state park visitors come from out of state. Visitors averaged 4.1 trips per year to North Carolina state parks.

Seventy-eight percent of those surveyed indicated that they were return visitors. The average number of return trips per year was six. Sixty-one percent of visitors statewide came with family members, 16 percent with friends, and 7 percent with both family and friends. Ten percent of visitors came alone. Visitors also came in small numbers in organized groups and multiple families.

PARVS data indicates that 16.8 percent of groups surveyed used more than one car, and that the average number of persons per car was 3.0. The average age of the park visitor was 38.2 years. The age distribution was as follows:

Table IV-1. Percent of Visitors by Age Group

<u>Under 6</u>	6-12	13-18	19-25	26-35	36-45	46-55	56-65	Over 65
6.7	11.6	10.6	12.5	20.1	16.9	0.9	7.3	4.4

Since over 18 percent of visitors are under the age of 13, a demand exists for children's programs and facilities. Approximately 12 percent of visitors are 56 and older. This older segment of the general population will be increasing, and as it does, demand for improved quality, accessibility, and safety should increase.

OUTDOOR RECREATION PARTICIPATION IN NORTH CAROLINA

The five most popular outdoor recreation activities in North Carolina are walking for pleasure, driving for pleasure, viewing scenery, participating in beach activities, and visiting historical sites. Three out of every four households participated in walking for pleasure at least once in the past 12 months (Table IV-2). In addition to the five most popular activities, over fifty percent of the households responding to a 1989 survey participated at least once in the following activities: swimming (in lakes, rivers, or oceans), visiting natural areas, picnicking, attending sports events, visiting zoos, and freshwater fishing.

The North Carolina Outdoor Recreation Participation Survey was mailed to 3,100 randomly selected residents in the spring of 1989. Forty-five percent, or 1,399 people, returned completed surveys. Each person receiving the survey was asked to estimate the number of times that household members had participated in each of 43 activities. The survey results provide good insight into the current participation of North Carolinians in a wide range of outdoor recreation activities. While the North Carolina Outdoor Recreation Participation Survey is now 16 years old, its survey results closely mirror those of the National Survey on Recreation and the Environment conducted in 1994-1995 and 2000.

Table IV-2. Outdoor Recreation Activities Ranked by Popularity.

RANK	ACTIVITY	PERCENTAGE OF HOUSEHOLDS PARTICIPATING
1.	Walking for Pleasure	75%
2.	Driving for Pleasure	72
3.	Viewing Scenery	71
4.	Beach Activities	69
5.	Visiting Historical Sites	62
6.	Swimming (in Lakes, Rivers, and Oceans)	54
7.	Visiting Natural Areas	53
8.	Picnicking	52
9.	Attending Sports Events	52
10.	Visiting Zoos	51
11.	Fishing - Freshwater	50
12.	Use of Open Areas	41
13.	Swimming (in Pools)	40
14.	Fishing - Saltwater	38
15.	Attending Outdoor Cultural Events	35
16.	Bicycling for Pleasure	32
17.	Other Winter Sports	31
18.	Camping, Tent or Vehicle	29
19.	Softball and Baseball	28
20.	Hunting	28
21.	Use of Play Equipment	28
22.	Power Boating	26
23.	Trail Hiking	26
24.	Jogging or Running	24
25.	Basketball	24
26.	Nature Study	22
27.	Golf	22
28.	Target Shooting	20
29.	Water Skiing	19
30.	Camping, Primitive	14
31.	Tennis	14
32.	Use Motorcycles, Dirt Bikes, ATVs	13
33.	Use Four Wheel Drive Vehicles	13
34.	Canoeing and Kayaking	13
35.	Horseback Riding	12
36.	Volleyball	12
37.	Downhill Skiing	12
38.	Football	11
39.	Soccer	7
40.	Sailboating	7
41.	Skateboarding	6
42.	Cross Country Skiing	2
43.	Windsurfing	1

PRIORITIES OF PUBLIC OUTDOOR RECREATION FUNDING

The North Carolina Outdoor Recreation Survey asked residents a series of questions in order to identify and rank future demand for various types of public outdoor recreation activities. Future demand was determined by asking them which activities they would have tried more often had adequate facilities been available. Respondents were then asked to rank these activities in order of importance. A scoring system was used assigning each activity a rating of high, moderate or low future demand based on the survey results.

In the second part of the analysis, the respondents' level of support for publicly funded outdoor recreation activities was determined by asking them to identify and rank those activities to which government should give highest priority when spending public money. The same scoring system used to analyze unmet demand was then applied to the survey results, with each activity receiving a high, moderate or low rating in public support for public funding.

In the final part of the needs analysis, the two ratings for each activity were combined to produce a score from one to nine that reflected both future demand and public funding priorities. The activities that ranked high in both future demand and support for public funding received the highest priority in the needs assessment. Support for public funding was given higher priority than expressed demand (Table IV-3).

Table IV-3. Priorities for Future Outdoor Recreation Activities

ACTIVITY	CODE	FUTURE DEMAND	SUPPORT FOR PUBLIC FUNDING
Walking for Pleasure	1	High	High
Camping, Tent or Vehicle	1	High	High
Picnicking	1	High	High
Beach Activities	1	High	High
Fishing - Freshwater	1	High	High
Attend Outdoor Cultural Events	1	High	High
Visiting Natural Areas	2	Moderate	High
Use of Play Equipment	2	Moderate	High
Visiting Zoos	2	Moderate	High
Visiting Historical Sites	2	Moderate	High
Bicycling for Pleasure	3	High	Moderate
Swimming (in Pools)	3	High	Moderate
Viewing Scenery	4	Moderate	Moderate
Hunting	4	Moderate	Moderate
Trail Hiking	4	Moderate	Moderate
Use of Open Areas	4	Moderate	Moderate
Target Shooting	4	Moderate	Moderate
Swimming (Lakes, Rivers, Ocean)	4	Moderate	Moderate
Fishing - Saltwater	4	Moderate	Moderate

Based on this analysis, the activities rated as having the highest priorities are activities that are

currently or could potentially be provided at Raven Rock State Park. The activities include walking for pleasure, tent or vehicle camping, picnicking, fishing, visiting natural areas, viewing scenery, trail hiking, and using open areas.

NEARBY OUTDOOR RECREATION OPPORTUNITIES

Raven Rock State Park is an important recreation resource in the eastern Piedmont. No other similar state parks serve this region of the state. The closest state park unit is Jordan Lake State Recreation Area, located to the northwest in Chatham County. Jordan Lake offers extensive camping facilities and swimming, but the setting and visitor experience are not comparable to Raven Rock. The high number of sites, the close spacing between sites, the emphasis on trailer camping, and the sounds of motor boats create a visitor experience that is oriented toward the recreational use of the lake.

A local government park, San-Lee Park, is located north of Sanford in adjacent Lee County. It provides ten trailer campsites with hookups and 13 tent campsites and offers recreation and environmental education.

The Dunn-Erwin Rail Trail, maintained by the City of Dunn and Town of Erwin, is a 5.3 mile walking and biking trail that connects the two municipalities. It opened in June 2003. The All American Trail, a recreational pathway for hikers, runners and bicyclers, is a ten-to-15 foot unpaved pathway that is planned to follow the 70-mile perimeter boundary of Fort Bragg. As of December 2006, ten miles of the trail had been opened.

Weymouth Woods State Nature Preserve is located in southeastern Moore County. The sandhills park has five miles of hiking trails, picnicking, a visitor's center and exhibits, and offers interpretive programs.

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V. SUMMARY OF LAWS GUIDING PARK MANAGEMENT

There are many federal and state statutes, state and federal executive orders, and administrative rules and policies that govern the operation of the state parks system. This chapter includes a brief discussion of the primary legal basis for the existence and operation of the state parks system. It also includes other legal issues of particular concern at Raven Rock State Park.

STATE LEGAL MANDATES

North Carolina Constitution

Article XIV, Section 5 of the North Carolina Constitution sets overall policy by broadly defining the conservation and protection of natural resources and the acquisition of such resources as a proper function of government. The amendment reads in part as follows:

It shall be the policy of this State to conserve and protect its lands and waters for the benefit of all its citizenry, and to this end it shall be a proper function of the State of North Carolina and its political subdivision to acquire and preserve park, recreation, and scenic areas, to control and limit the pollution of our air and water, to control excessive noise, and in every other appropriate way to preserve as a part of the common heritage of this state its forests, wetlands, estuaries, beaches, historical sites, open land, and places of beauty.

State Parks Act

The State Parks Act (G.S. 113-44.7 through 113-44.14) sets forth a mission statement for the state parks system. It states that the system functions to preserve and manage representative examples of significant biological, geological, scenic, archaeological, and recreational resources, and that park lands are to be used by the people of the state and their visitors and descendants in order to promote understanding of and pride in the state's natural heritage.

The State Parks Act also calls for development and periodic revisions of a system plan to achieve the mission and purpose of the state parks system in a reasonable, timely, and cost-efficient manner. The Act describes the System Plan components and requires that public participation be a component of plan development and revisions.

The State Parks Act also calls for the classification of park resources and development of general management plans (GMPs) for each park. GMPs are to include a statement of park purpose, an analysis of major resources and facilities, and a statement of management direction.

Powers and Duties of the Department of Environment and Natural Resources

The Department is authorized to make investigations of the resources of the state and to take such measures as it may deem best suited to promote the conservation and development of such resources. In addition, the Department may care for state forests and parks and other recreational areas now owned, or to be acquired by, the state. (G.S. 113-8)

State Nature and Historic Preserve Dedication Act

The State Nature and Historic Preserve Dedication Act (G.S. 143-260.6) was authorized by Article 14, Section 5 of the North Carolina Constitution. It seeks to ensure that lands and waters acquired and preserved for park, recreational, and scenic areas for the purpose of controlling and limiting the pollution of air and water, controlling excessive noise, and in every other appropriate way preserving as a part of the common heritage of the state, continue to be used for those purposes. The State Nature and Historic Preserve Act provides a strong legal tool for protecting lands from incompatible uses. The addition and removal of lands to and from the State Nature and Historic Preserve require a vote of three-fifths of the members of each house of the General Assembly. The State Nature and Historic Preserve Dedication Act protects all land and water within Raven Rock State Park's boundaries as of May 6, 2003.

Nature Preserves Act

The Nature Preserves Act (1985, G.S. 113A-164) prescribes methods by which nature preserves may be dedicated for the benefit of present and future citizens of North Carolina. It authorizes a Natural Heritage Program to provide assistance in the selection and nomination for registration or dedication of natural areas.

The state may accept the dedication of outstanding natural areas by gift, grant, or purchase of fee simple title or other interest in land. Lands dedicated are held in trust by the state and are managed and protected according to regulations. They may not be used for any purpose inconsistent with the provision of the Nature Preserves Act or disposed of by the state without a finding by the Governor and Council of State that the other use or disposition is in the best interest of the state.

Raven Rock State Park has one dedicated natural area, the Raven Rock State Park Natural Area, dedicated in April of 1998. The dedicated natural area consists of approximately 1,590 acres and contains several rare natural community types as well as a number of significantly rare plant species.

North Carolina Environmental Policy Act of 1971

Recognizing the profound influence that human activity has on the natural environment, the General Assembly passed the Environmental Policy Act *"to assure that an environment of high quality will be maintained for the health and well-being of all..."*

The Act declares that:

It shall be the continuing policy of the State of North Carolina to conserve and protect its natural resources and to create and maintain conditions under which man and nature can exist in productive harmony. Further, it shall be the policy of the State to seek, for all its citizens safe, healthful, productive, and aesthetically pleasing surroundings; to attain the widest possible range of beneficial uses of the environment without degradation, risk to health or safety; and to preserve the important historic and cultural elements of our common inheritance. (G.S. 113A-3)

Archaeological Resources Protection Act

The Raven Rock State Park area is known to have been occupied by American Indian tribes. The area also contains some cultural resources associated with early settlements. Unknown archaeological resources may also exist, both within the existing park boundaries and in nearby areas. Development of recreational facilities should avoid destruction of these resources.

A permit is required from the Department of Administration, in consultation with the Department of Cultural Resources, to excavate, remove, damage, or alter any archaeological resource on state lands. Archaeological resources are defined as the remains of past human life or activities that are at least 50 years old and are of archaeological interest (G.S. 70-10).

While there are other General Statutes that concern the state parks system and the environment, the above-described statutes, along with Article XIV, Section 5, of the North Carolina Constitution, largely define the purposes of the state parks system and serve to guide the operation of state park system units.

FEDERAL LAWS

Land and Water Conservation Fund Act of 1965

The federal Land and Water Conservation Fund Act (PL 88-578) offers protection and places restrictions on fund-assisted outdoor recreation areas. By virtue of receiving Land and Water Conservation Fund (LWCF) grant assistance, most of the state parks system, including Raven Rock State Park, is subject to LWCF rules and regulations. Raven Rock State Park has received two LWCF grants, awarded in 1970 and 1984 (Grants #37-00184 and 37-00802). Park land acquired after the last LWCF grant in 1984 is not subject to LWCF rules and regulations.

Property acquired or developed in whole or in part with LWCF assistance cannot be converted to other than public outdoor recreation use without federal approval. A conversion may take place only if approved by the Secretary of the Interior, and only then if replacement property of equal fair market value and reasonably equivalent usefulness and location is made.

LWCF requirements include: programming, operating and maintaining areas in a manner that encourages public participation; maintaining the property so it appears attractive and inviting to the public; maintaining property, facilities and equipment to provide for public safety; keeping facilities,

roads, trails and other improvements in reasonable repair throughout their lifetime to prevent undue deterioration and encourage public use; keeping the park and facilities open for use at reasonable hours and times; and making future development meet LWCF rules and regulations. LWCF-assisted sites are periodically inspected by state and federal inspectors to ensure compliance with LWCF requirements.

The Americans With Disabilities Act

Title II of the ADA prohibits discrimination against any "*qualified individual with a disability.*"

New Construction and Alterations

Buildings that are constructed or altered by, on behalf of, or for the use of a public entity shall be designed, constructed, or altered to be readily accessible to and usable by individuals with disabilities. (Section 35.151 of Title II)

Existing Facilities

Structural changes in existing facilities are required only when there is no other feasible way to make the public entity's program accessible. ("Structural changes" include all physical changes to a facility [28 CFR Part 35, Section 35.150, Title II of the ADA Section-by-Section Analysis].)

When alterations affect access to a primary function of a facility, the entity shall also make alterations to the path of travel to the area and bathrooms, public telephones, and drinking fountains serving the altered area.

Programs and Services

....each service, program, or activity conducted by a public entity, when viewed in its entirety, be readily accessible to and usable by individuals with disabilities.
(Title II, Section 35.150)

This includes, but is not limited to, the provision of auxiliary aids and services, including services and devices for effective communication where necessary to afford persons with disabilities an equal opportunity to participate in and enjoy the benefits of a service, program, or activity conducted by a public entity.

Signs

A public entity must ensure that persons with impaired vision and hearing can obtain information regarding the location of accessible services, activities, and facilities. Signs must be provided at all inaccessible entrances to each facility directing users to an accessible entrance or to a location where information can be obtained about accessible facilities. The international symbol for accessibility

must be used at each accessible entrance to a facility. (Title II, Section 35.163)

Clean Water Act

Raven Rock State Park as sensitive wetland areas receive protection from Section 404 of the federal Clean Water Act. The Act prohibits the discharge of dredge or fill materials into waters, including wetlands, without a permit from the U.S. Army Corps of Engineers. Activities in wetlands for which permits may be required include but are not limited to: placement of fill material; ditching activities; land clearing involving relocation of soil material; land leveling; most road construction; and dam construction (33 USC 1344). The Division will avoid undertaking construction located in wetlands unless there is no practical alternative and all practical measures are taken to minimize harm to the wetland.

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VI. NATURAL AND CULTURAL RESOURCE MANAGEMENT

NATURAL RESOURCE MANAGEMENT POLICY

The Division of Parks and Recreation's approach to natural resource management is directed by the North Carolina Constitution and the State Parks Act, both of which require the prudent management of natural resources. The constitution sets the overall policy by broadly defining the conservation and protection of natural resources and the acquisition of such resources as a proper function of government. The State Parks Act states that unique archaeological, geological, biological, scenic and recreational resources are a part of the heritage of the people that "*...should be preserved and managed by those people for their use and for the use of their visitors and descendants.*"

The North Carolina state parks system plays an important role in maintaining, rehabilitating and perpetuating the state's natural heritage. The natural resources of the state parks system are: high quality, rare or representative examples of natural communities; native plants and animals; geological features and landforms; water resources; and the natural processes that affect these resources. The primary objective in natural resource management will be the protection of natural resources for their inherent integrity and for appropriate types of enjoyment while ensuring their availability for future generations.

It is the Division's policy that natural resources will be managed by allowing natural environments to evolve through natural processes with minimal human influence. Natural resource management will not attempt solely to preserve individual species or processes; rather, it will attempt to maintain all the components and processes of a park's naturally evolving ecosystems. When intervention is necessary, direct or secondary effects on park resources will be minimized to the greatest extent possible. Intervention of natural processes may occur:

1. To correct or compensate for the previous human disruption of natural processes;
2. To protect, restore or enhance rare species and natural communities;
3. To protect, restore or enhance significant archaeological resources;
4. To construct, maintain, improve or protect park facilities; and,
5. To prevent danger to human health or safety around park facilities.

All park facilities will be designed, constructed and maintained to avoid adverse impacts to high quality natural communities, rare plant and animal species, major archaeological sites and other significant natural and cultural resources.

NATURAL AND CULTURAL RESOURCE MANAGEMENT ISSUES

Division of Parks and Recreation staff identifies natural and cultural resource management issues as a component of the general management plan process and groups them according to the categories shown below. Staff assigns a high, medium or low priority to each issue using the criteria described at the end of this section. The Division's Natural Resources Program is responsible for all actions unless otherwise noted.

Category	Subcategory	Project	Priority
Water Resources	River bank Erosion	River bank erosion is occurring along the East Loop of the bridle trail. Repairs should be made to the trail to reduce erosion.	High
		Ford along Avents Creek should be armored to reduce river bank erosion.	Medium
		Hanging culvert near the confluence of Mill and Avents Creek should be replaced with an arched culvert.	Low
	Riparian Buffer Zone Protection	Increased Siltation along Campbell Creek due to timber harvesting operations needs to be addressed.	Medium
		River ford along Moccasin Branch contributes to sedimentation, road closure should be examined.	Medium
Botanical Resource Management	Inventory Deficiencies	Develop a natural community map of the park.	Medium
	Restoration	Restoration of pine plantation on approximately 675 acres of Weyerhaeuser property.	High
		Piedmont longleaf pine restoration on Hanson Aggregate property- approximately 40 acres.	Medium
	Exotic Species	Exotic species identified in the 2000 Exotic Species Survey should be addressed. High quality natural communities should receive the highest priority.	High
Animal Resource Management	Inventory Deficiencies	Small mammal and invertebrate (e.g. snails) inventories are needed.	High
		Reptile/amphibian inventory is needed.	High
	Exotic Species	Fire ants have increased at the park and need to be controlled.	Medium
		The presence of coyotes on the park have increased, the population should be monitored and impacts should be determined.	Low
Cultural Resource Management	Cultural Resource Management	Two homesites need to be demolished. Each site will need an asbestos survey.	Medium

		One site is located near a boundary and the exact location of the boundary needs to be determined.	
Land Use Management	Fire Management	Current acreage under prescription is not being burned on a proper rotation.	High
		Additional acreage in the northern portion of the park needs to be under prescription.	High
	Boundary Management	5,000 feet of boundary needs to be re-surveyed and marked.	High
	Right of Way	Right of way to the wilderness camping area needs to be resolved.	High
	Buffer Zone to the State Park Property	There is a mobile home moving business located adjacent to the park entrance. The business impacts the aesthetic qualities of the park.	High
		Proximity of chicken houses and associated odor needs to be addressed.	Medium
Trash and Debris Disposal	There are two trash/debris disposal areas that need minor cleaning	Low	
Visitor and Recreational Resource Management	Soil Compaction	Soil compaction is occurring under the raven rock on the south side of the park.	Low
	Trails Management	Current horse trail is seriously impacting resources. Trail is currently being rehabilitated to minimize impacts to the natural resources. A trail closure policy that restricts usage during wet conditions should be implemented.	High
	Vista Management	Need to maintain a vista on the overlook of the south section of the park.	High
Resource Management Training	Training	Prescribe fire, inventory/monitoring, and exotic species. General natural resource management training should be developed for new rangers.	Medium

*Explanation of priority codes

HIGH If the resource management activity is not undertaken in the near future there is a distinct possibility that natural resources will be compromised. These issues should be addressed in the next five years.

MEDIUM Although there is a possibility that resources could be compromised, the priority is not as critical as the high priority projects.

LOW Projects with low priority have significantly less chance for compromise of the natural resources if the project is not undertaken in a timely fashion or the project may depend on completion of other projects.

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VII. ROAD, UTILITY AND BUILDING INVENTORY

INTRODUCTION

This chapter includes a brief description of Raven Rock State Park's roads, utilities and buildings and structures and makes general recommendations based on a one-day inspection of the park facilities conducted on April 11, 2005 by Facility Engineering Specialist Glenn Sheppard with Park Superintendent Paul Hart, Maintenance Mechanic Wayne Rouse, Capital Improvement Coordinator Bruce Garner and Planner Kim Huband. Other information comes from the 1992 *Raven Rock State Park Draft General Management Plan*, the Institute for Transportation, Research, and Education's (ITRE) study on roads, and information provided by Alan Jeffreys, Engineering Specialist.

The inventory is divided into six major sections: roads and parking areas; water system; sewer system; electrical system; telephone system; and facility inventory and inspection. Each section describes existing conditions and gives system recommendations where they are needed.

ROADS AND PARKING AREAS

- The park currently has 1/10 mile of paved road and .29 miles of unpaved road.
- The park office has a paved parking area that is approximately 4,000 square feet and has seven parking spaces, one that is handicapped. There is an additional unpaved parking area of approximately 6,000 square feet located at the park office that is partially covered with crush-n-run.
- The maintenance area has a concrete pad and parking area approximately 5,000 square feet with six marked spaces.
- The picnic area has two parking lots, a primary and an overflow lot. Both are unpaved. The primary parking lot has a stone base, is approximately 20,000 square feet, and has space for about 50 vehicles. The overflow lot is grassed and approximately 20,000 square feet, with space for about 50 vehicles.
- The parking lot located on the north side of the Cape Fear River is unpaved. Some erosion is taking place, and the lot badly needs stabilization stone. Currently there is \$25,000 in place for grading and resurfacing this parking lot.
- The gravel entrance road is well maintained by the NC Department of Transportation, but the road is narrow and needs to be widened and paved.
- Currently \$1,000 is allotted to the NC Department of Transportation annually to maintain the unpaved roads in the park. The funds are used to add gravel and scrape the roads three times a year.

Recommendations for the Roads and Parking Areas

The existing annual service agreement with the NC Department of Transportation is adequate for maintenance of the park roads. The gravel entrance road and day use parking lot should be paved. Park visitation and future facilities planned at this location should be taken into consideration before paving the area. Park staff has requested realignment to help control traffic and excess speeding. Paving and road realignment are

included in the project scope of the proposed capital improvement project to construct a visitor's center and make improvements to the picnic area.

SEWER FACILITIES

There are currently six active sewer systems at Raven Rock. They are all considered residential systems with septic tank, distribution box, and drain field lines. It was not possible to uncover every tank and distribution box due to time constraints, but listed below is the best information that could be collected on the different systems:

1. Toilet Building (Building # 20-002) – This system has a 1500-gallon septic tank with four 110-foot drain lines. The drain lines seem to be functioning satisfactorily. The drain field is in a wooded area with trees growing over it. A riser has been installed at this location.
2. Maintenance Shop – This system has a 1000-gallon septic tank with two 60-foot drain lines. The drain lines seem to be functioning satisfactorily. There is no riser at this location.
3. Warehouse – This system has a 1000-gallon septic tank with two 60-foot drain lines. The drain lines seem to be functioning satisfactorily. There is no riser at this location.
4. Ranger Residence (Building # 20-018) – This system has a 1000-gallon septic tank with three 100-foot drain lines located in the front yard. The drain lines seem to be functioning satisfactorily. A riser has been installed at this location.
5. Superintendent Residence (Building # 20-021) - This system has a 1200-gallon septic tank with two or three drain lines of unknown length. The drain lines seem to be functioning satisfactorily. There is a riser installed at this location.
6. Alternate Ranger Residence Location – Mobile home occupied by a ranger is currently at this site. This system has a 1000-gallon septic tank with three 100-foot drain lines located in the front yard. A riser has been installed at this location.
7. Abandoned Trailer Site – No building is currently at this site and system is not being used. This system has a 1000-gallon septic tank with three drain lines of unknown length. This system is located downhill from the maintenance area and could be used as a back up system.
8. Vault toilets - There are currently four vault toilets located in the park. These are pump and carry style toilets and are in good condition.
9. Pit Toilet - Located on the north side of the Cape Fear River at the horse trail parking lot.

Recommendations for Sewer Facilities

According to staff, it has been two years since any of the septic systems have been pumped. Each system should be scheduled for pumping within the next year. Risers should be added to the septic systems located at the Maintenance Shop and Warehouse.

The pit toilet located at the trailhead on the north side of the river should be removed and replaced with a flush toilet with septic tank and drain field. A capital improvement project that includes a new toilet building on the north side has been developed.

WATER SYSTEM

Previously the park was served by seven wells located throughout the park, but since 1989, the park has been supplied water by Harnett County Public Utilities. All facilities located on the south side of the river, including the residences, are tied into the county system. There is currently no water at facilities located on the north side of the river.

All three ranger residences have been tied into the county water system. The residences have an option of using the private wells as a backup to the county system.

The distribution system is composed of ¾-inch to 4-inch PVC piping. There are approximately 2,200 linear feet of water line within the park.

Recommendations for the Water System

Existing wells not in service should be properly abandoned and capped. Access to county water on the north side of the river requires adding approximately 1500 feet of water line adjacent to River Road. A request for information concerning future expansion of the county water system in this area has been made.

ELECTRICAL SYSTEM

The park is supplied electrical service through South River Electrical Membership Corporation located in Dunn, North Carolina. The park has both underground and aboveground services. South River Electric Membership Corporation currently maintains the distribution system at no charge.

Aerial lines serve the ranger residences. All other electrical service is underground.

Recommendations for the Electrical System

All electrical services within park boundaries should be installed underground. Lines will be placed underground as a part of the Visitor's Center & Picnic Area Expansion capital improvement project.

TELEPHONE SYSTEM

There are two business telephones at the office and one public phone located on the side of the refreshment stand at the day-use area. All lines are maintained by Embarq. No changes are recommended at this time.

SUMMARY OF RAVEN ROCK STATE PARK ROAD AND UTILITY INVENTORY

Most of the infrastructure is relatively new and therefore in good condition. The gravel entrance road and parking area are in fair shape. The power, water, sewer and telephone lines are in satisfactory condition. Routine maintenance of sewer drain fields and tanks should prevent future problems. Water valves may need to be replaced occasionally, but the distribution system should be good for another ten years. The road and parking areas should be paved as future visitor use facilities are built.

FACILITY INVENTORY AND INSPECTION PROGRAM

Buildings and other structures in state parks are necessary to provide services to park visitors. These structures are essential for protecting public safety, health, and welfare while providing opportunities for outdoor recreation. They include infrastructure, such as roads, parking lots, trails, and systems for potable water, electrical distribution, and sewage treatment. They also include operational and recreational facilities, such as campgrounds, picnic areas, concession buildings, boardwalks, park offices, residences, pump houses, warehouses, barracks, maintenance shops, visitor centers, etc. These facilities must be properly maintained to provide for a safe, continuous, and quality park-use experience.

Raven Rock State Park Building Inventory

Pictures and/or descriptions of the buildings and other structures currently in use at Raven Rock State Park follow:



Figure VII-1. Ranger Residence # 20-021. Built in 1920. 1675 square feet. Heated wood-frame structure used as Superintendent's residence. A capital improvement project has been developed to bring the old structure up to current standards, including utility improvements and the addition of a bathroom and detached carport.



Figure VII-2. Ranger Residence # 20-018. Built in 1980. 1213 square feet. Heated wood-frame structure with brick veneer. Guest bath partially remodeled and used as a laundry. **Tobacco Barn #20-019.** Built in 1950. Unheated wood-frame structure used for storage.



Figure VII-3. Warehouse #20-028. Built in 1998. 1422 square feet. Heated CMU building serves as the park warehouse.



Figure VII-4. Maintenance Building #20-027. Built in 1998. 1985 square feet. Heated CMU building used as maintenance office and shop.



Figure VII-5. Small Engine Shop #20-026. Built in 1994. 616 square feet. Heated wood-frame building used for lawn mower storage and repair.



Figure VII-6. Vehicle Storage Building #20-029. Built in 1998. 1512 square feet. Unheated, partially open CMU and metal post and beam structure used for vehicle storage.



Figure VII-13. Park Office #20-025. Built in 1992. 672 square feet. Heated, manufactured wood and metal frame mobile home used as the park office.



Figure VII-14. Information Kiosk.



Figure VII-7. Above Ground Fuel Storage Tank



Figure VII-8. V-Crimp Tin Barn #20-023. Built in 1960. 5000 square feet. Unheated wood post and beam structure used for storage.



Figure VII-9. Canoe Camp Toilet #20-032. Built in 1997. 82 square feet. Unheated, metal-stud frame structure has cement siding. The toilet is a vault, pump and haul type facility.



Figure VII-10. Picnic Area Toilet Building #20-002. Built in 1986. 436 square feet. Partially heated, wood-frame structure.



Figure VII-11. Vending Machine Building #20-015. Built in 1978. 88 square feet. Unheated wood-frame structure used to store public-use vending machines.



Figure VII-12. Mobile Home Site.

Barn and Storage Building #20-004. Built in 1950. The unheated wood-frame structure is used for storage. It is also called the Flee Barn.

North Side Pit Privy #20-009. Built in 1975. The eighteen square foot, unheated wood-frame structure is used as a primitive toilet facility.

Pumphouse #20-020. Built in 1980. The 208 square foot, heated concrete masonry unit structure is used for storage. Pump equipment was removed when the park was connected to the Harnett County water system.

Toilet Building #20-030. Built in 1997. Located at site three. The 82 square foot, unheated, metal stud frame structure has cement siding and contains a vault pump and haul toilet.

Toilet Building #20-031. Built in 1997. Located at site four. The 82 square foot, unheated, metal stud frame structure has cement siding and contains a vault pump and haul toilet.

Toilet Building #20-033. Built in 1997. Located at the wilderness camp. The 82 square foot, unheated, metal stud frame structure has cement siding and contains a vault pump and haul toilet.

3/07

VIII. DEVELOPMENT PLAN

MAJOR CAPITAL IMPROVEMENT PROJECT PRIORITIES

As a part of the general management plan process, proposed capital improvement projects at Raven Rock State Park were carefully reviewed to determine if all the projects were still needed and if changes to the projects were desirable. In reviewing the proposed capital improvement projects, the general management plan evaluation team considered factors such as changes in environmental regulations, condition of facilities, natural heritage inventory, recreation demand, operational issues and needs, visitor safety considerations, State Parks Act mandates, and trends.

As a result of the general management plan review of the capital improvement projects, three projects were eliminated: *Tent and Trailer Campground*; *Lake and Swim Beach Development*; and *Rental Cabin Development*. Development of the lake and swim beach – both dependent upon additional land acquisition – had been planned in the early 1970s when environmental impact was given less consideration than today. It is unlikely that required permits for lake development could now be obtained. The rental cabins would have been built adjacent to the lake, and without the additional recreation that the lake would have provided, the park does not provide extensive enough recreational opportunities to attract people for weekly rentals. Most visitors that now camp in the park usually stay only for short visits that provide them with sufficient time to enjoy the park's natural and recreational resources.

The *Tent and Trailer Campground* project was eliminated for several reasons. Other camping opportunities exist in the Raven Rock area that help to meet existing demand, and to date, demand for camping at Raven Rock State Park has been light. Also, a suitable site within the park for the campground development was not identified. Tent and trailer campground development can be reconsidered in later years if future demand warrants and a suitable site is identified.

The *Visitor's Center* and *Picnic Area* projects were combined. Development of the picnic area and construction of the visitor's center is now planned for the same general location. The two projects also had some common project scope items, so combining the projects should result in more cost effective construction.

Four new capital improvement projects were added: *Campbell Creek Pedestrian Bridge*; *Ranger Residence Repair/Renovation*; *New Ranger Residence*; and *North Side Bike Trail/River Access Area*, a project that is dependent upon additional land acquisition. Land acquisition plans are described in Chapter X.

Each project was then evaluated and ranked using the Division's Project Evaluation Program (PEP), thus creating a revised project priority list of capital improvement projects for Raven Rock State Park, which is shown below. These projects were then combined with projects evaluated and ranked for other state park units, resulting in a priority list of capital improvement projects for the entire state parks system. The revised list of capital improvement priorities for Raven Rock State Park and descriptions of the projects follow.

Revised Capital Improvement Priorities

Rank	Project Title	*Score	Cost
1	Campbell Creek Pedestrian Bridge	699	\$177,984
2	Visitor's Center & Picnic Area Expansion	657	3,993,592
3	Fish Creek/Cedar Rock Trail	572	980,692
4	Ranger Residence Repair/Renovation	566	166,860
5	New Ranger Residence	519	224,705
6	North Side Bike Trail/River Access Area (Land dependent)	518	1,826,408
7	North Side Bridle Trails Repair	507	<u>1,487,291</u>
	Total		\$8,857,532

* The score comes from the Division's Project Evaluation Program (PEP). The PEP uses an evaluation formula to rank projects that considers four factors: the objective of the project; the justification or urgency for funding; the estimated annual number of persons (visitors and/or employees) who are affected by the project; and the project's significance, ranging from local to national. The park superintendent, district superintendent, and division management evaluate projects. There are 15 objectives categorizing a project's purpose, and each project can have a primary and secondary objective.

Capital Improvement Project Descriptions

1. Campbell Creek Pedestrian Bridge: Project includes construction of (approximately) a 184-linear foot pedestrian trail bridge and removal of the existing bridge. The old bridge was washed out and damaged by floodwaters. The new bridge will have a larger span and higher elevation to avoid future damage from flooding. The bridge is needed for safe trail crossing of Campbell Creek and will allow much improved access to more of the park property.

2. Visitor's Center & Picnic Area Expansion: Project includes construction of a standard visitor's center with all modules including staff offices and exhibits; two picnic shelters; picnic sites with tables and grills; water fountains; two 50-car parking lots; entrance road realignment and improvements; sewer; water and electric line extensions; placing existing overhead electric lines underground; and a septic field. The visitor's center will eliminate the need for the trailer now inadequately serving as a park office, and the trailer will be removed. The visitor's center will also allow space for indoor environmental education, which the park currently does not have and badly needs. The park currently has no picnic shelters. Construction of the two shelters will help meet group picnicking needs while also offering covered outdoor space for environmental educational programs (See Figure VIII-3, *Proposed South Side Facilities*).

3. Fish Creek/Cedar Rock Trail: Project includes six miles of general trail development and two pedestrian bridges needed to cross Fish Creek. The location of this trail is shown on Figure VIII-I, *Raven Rock Park Development Plan*.

4. Ranger Residence Repair/Renovation: Project includes repairs and renovations to a 1675-square foot, two-story frame house built in 1920. Work is to include jacking up the structure, underpinning, floor joist and other structural repairs, adding a bathroom, and upgrading plumbing, electrical, heating and air conditioning, and electrical improvements. The project also includes adding a deck and a detached carport. Improvements are needed to bring the structure up to current standards.
5. New Ranger Residence: Project includes constructing a 1,700-square foot standard ranger residence with detached carport, septic system, and water and electric line extensions. The residence will be located on the north side of the Cape Fear River. A suitable ranger residence may be purchased in lieu of this proposed construction as a part of the park's land acquisition program.
6. North Side Bike Trail/River Access Area (Land dependent): Project includes an entrance gate and sign, septic field, river access area, 40-car parking lot, one-mile access road, water and electric line extension, visitor contact station, small maintenance shed with an enclosed shop area, and approximately 12 miles of new, single track trail development. Additional land acquisition is needed for the project to take place. See Figure VIII-1, *Raven Rock Park Development Plan*, for the location of this proposed facility development.
7. North Side Bridle Trails Repair: This project includes three miles of new bridle trail development, five stream crossings, seven miles of existing trail repair, sewer system, and water and electric line extension. It also includes 150 linear feet of gravel access road, a gate at the entrance off River Road, a toilet with an expanded chase, and parking lot expansion and improvements (See Figure VIII-4, *Proposed North Side Trailhead*). Split rail fencing will be installed around the parking lot to direct horseback traffic to safe trail access areas and to minimize unsafe horse-vehicle interactions within the parking lot. A horse tie area with a tie line and water spigot will be located south of the parking lot.

More bridle trail miles are needed in order to make the equestrian experience more rewarding and appealing to people that trailer their horses into the park, and restroom facilities are needed to serve these park visitors. The existing gravel lot will be expanded and reconfigured in order to accommodate additional users. The expanded chase will allow rangers to have an area on the north side of the park for storage and office use.

REVISED DEVELOPMENT PLANS

Figure VIII-1, *Raven Rock Park Development Plan*, shows the revised development plan for all of Raven Rock State Park. Figure VIII-2, *Existing South Side Facilities*, is a site plan of the park's major facilities on the south side of the Cape Fear River. These existing visitor facilities, except for the trailer now serving as the park office, will remain. Figures VIII-3 and VIII-4 show areas of the *Raven Rock Park Development Plan* in greater detail. Figure VIII-3, *Proposed South Side Facilities*, shows the revised development plan for the primary visitor use area on the south side that includes construction of the following new park facilities: extension of the main park entrance

road, additional car and bus parking, two picnic shelters, park visitor's center, toilet building, and trail connectors. Figure VIII-4 shows proposed north side trailhead improvements. The four figures, along with narrative describing and explaining the development plans, follow. The plans shown are not construction drawings, and changes to the development plans shown may take place in the design process prior to construction.

Raven Rock Park Development Plan

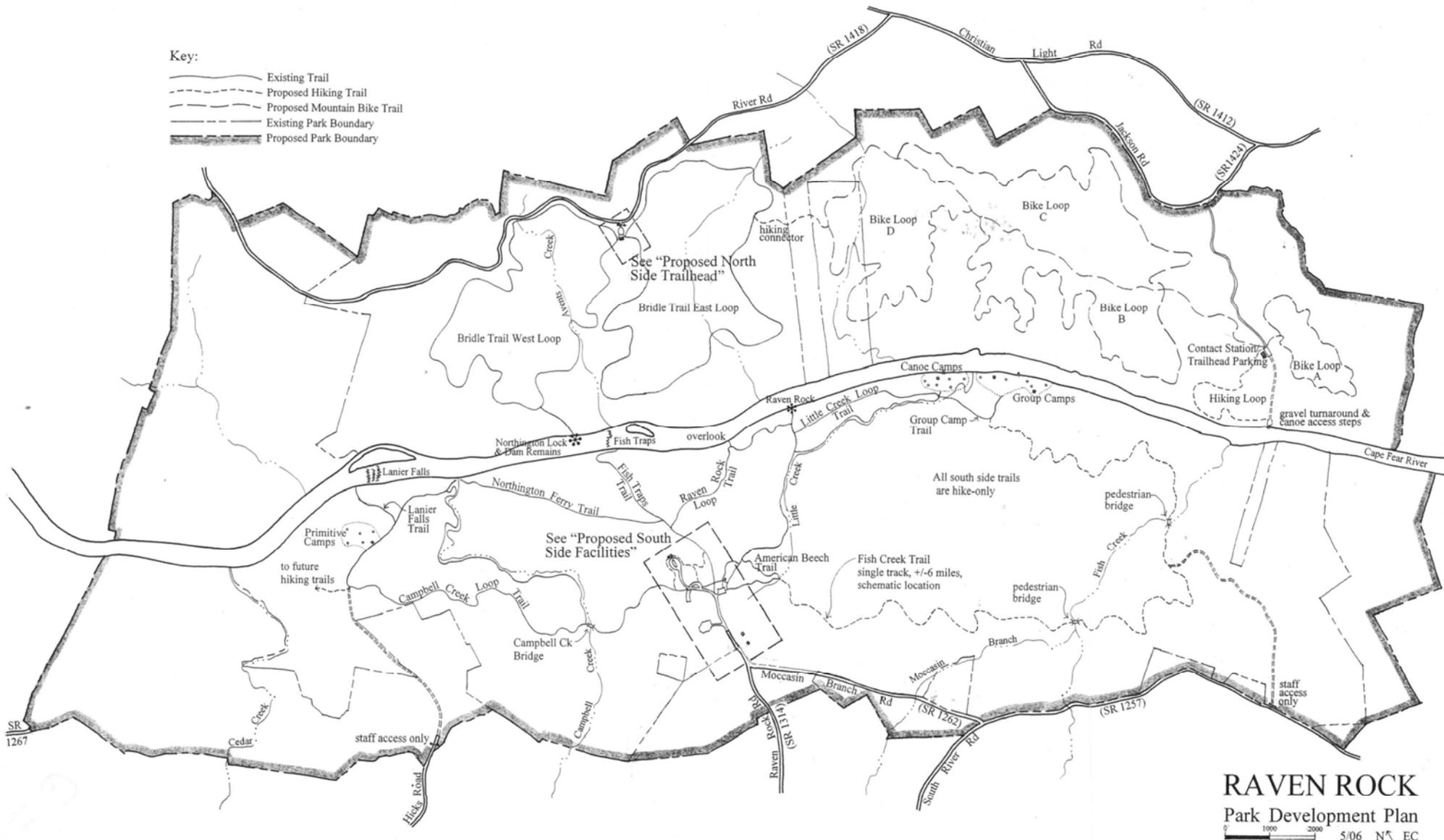
Figure VIII-I, *Raven Rock Park Development Plan*, shows the revised development plan for the entire park and shows the expanded park boundary (see Chapter X for a discussion of land acquisition). Proposed land to be acquired in the vicinity of Cedar Creek in the southwest park would support future hiking trails and also provide needed staff access to the park off of Dickens Road and SR 1267. All trails on the south side of the Cape Fear River are now and will continue to be hiking trails; all equestrian and bike trails are located on the north side of the river.

Fish Creek/Cedar Rock Trail

Existing land within the park east of the main facility area will accommodate the proposed trail to be constructed under the *Fish Creek/Cedar Rock Trail* capital improvement project. This trail, to be a single-track trail approximately six miles in length, is shown schematically on the park development plan and will need to be field located. Two (and possibly more) pedestrian bridges will be needed to cross Fish Creek. Staff access will be provided from South River Road (SR 1257) up to or close to the trail. Fish Creek/Cedar Rock Trail is not intended to support vehicular traffic, but during emergency situations staff will be able to drive a full size vehicle within close proximity to the trail and then access the trail using a utility vehicle or all terrain vehicle. Hiking is a very popular activity at Raven Rock, and Fish Creek/Cedar Rock Trail will offer an adventurous hiker the option of a longer backcountry hike with a greater opportunity for solitude.

North Side Bike Trail/River Access Area

The major change for the north side of the Cape Fear River involves the new development being proposed under the *North Side Bike Trail/River Access Area* capital improvement project. All of this proposed development, shown on Figure VIII-1, is dependent upon future land acquisition. An access road off of Jackson Road (SR 1424) would lead to a visitor contact station with trailhead parking. From the trailhead, park visitors would be able to drive to the gravel turnaround adjacent to the river to put in or take out a canoe, kayak or other small watercraft at the river access, which will not be as large as a traditional boat ramp. This turnaround area is only for loading and unloading at the river, and all parking will be located at the trailhead parking area at the contact station. A short hiking-only loop will go from the contact station to the river and along the river to the river access.



RAVEN ROCK
 Park Development Plan
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Figure VIII-1. Raven Rock Park Development Plan

Four mountain bike loops are proposed as a part of this project to meet the demand for bike trails. Bike Loop A is designed for younger or less experience riders. It is shorter and located on gentler topography than the other loops. Bike Loops B, C and D are longer, stacked loops. Park staff will work to establish partnerships with area bike clubs to help with the maintenance of any bike trails that are developed.

Since hikers are allowed on all public trails within the park, a hiking-only connector is shown that links the bridle trails with the bike trails. This connector will allow hikers to move through the entire north side trail system but would prevent bikes and horses from mixing for safety and trail stability/design reasons. Bike trails will be designed as single-tract trail.

A small maintenance area to serve the park on the north side of the Cape Fear River will be established to aid park management and eliminate the necessity of long trips to the south side for repairs and supplies. A ranger residence on the north side will also be needed. There may be an opportunity to acquire a suitable existing residence as a part of the land acquisition needed to develop this area. The north side of the park will continue to be used for day-use recreation only.

Proposed South Side Facilities

Figure VIII-2, *Existing South Side Facilities*, shows the park's major facilities on the south side of the Cape Fear River. The trailer now serving as the park office/contact station, an old pump house and the v-groove tin barn adjacent to the superintendent's residence are to be demolished/removed. All of the other existing facilities shown will remain.

Figure VIII-3, *Proposed South Side Facilities*, is the revised development plan for the park's major public use area. It shows the facilities proposed for construction under the *Visitor's Center & Picnic Area Expansion* capital improvement project.

At the entrance, a traffic island is to be installed in the vicinity of the existing park entrance gate in order to visually break up this long, straight segment of the entrance road and to aid in slowing down visitor traffic entering the park. The island may also contain the "Raven Rock State Park" sign. The first choice for the traffic island location is just beyond the current gate location, if enough room exists between the gate and the road to the maintenance area. If there is insufficient room, then the gate and traffic island should be shifted south.

Once the trailer now serving as the park office is removed, the parking at that location can then serve the maintenance area, allowing the existing gravel parking lot near the entrance road to be revegetated. The abandoned park office area should then be allowed to revegetate to provide additional visual screening of the maintenance area from the park road.

Day Use Areas

The park road will be slightly realigned at its current terminus and extended past the existing and proposed day-use areas along a ridge before terminating at the proposed visitor's center. The existing gravel parking lot with approximately 50 spaces will be paved with a center island established and vegetated. A 12-table picnic shelter will be constructed just east of this parking lot in order to provide easy access for picnickers that bring heavy, bulky items such as coolers, cookers, food and drinks for large gatherings. The big grassy field that

Figure VIII-2. Existing South Side Facilities

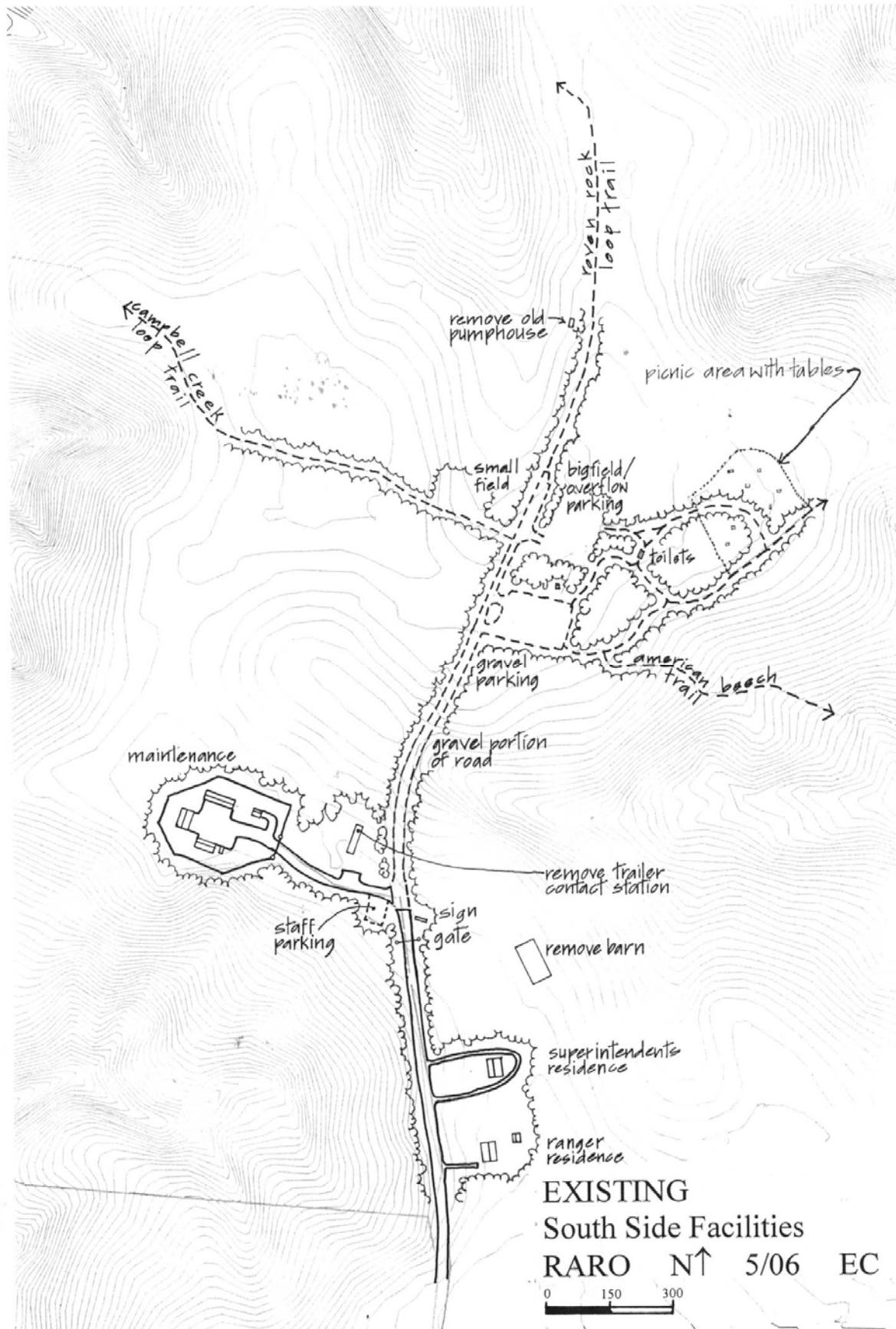
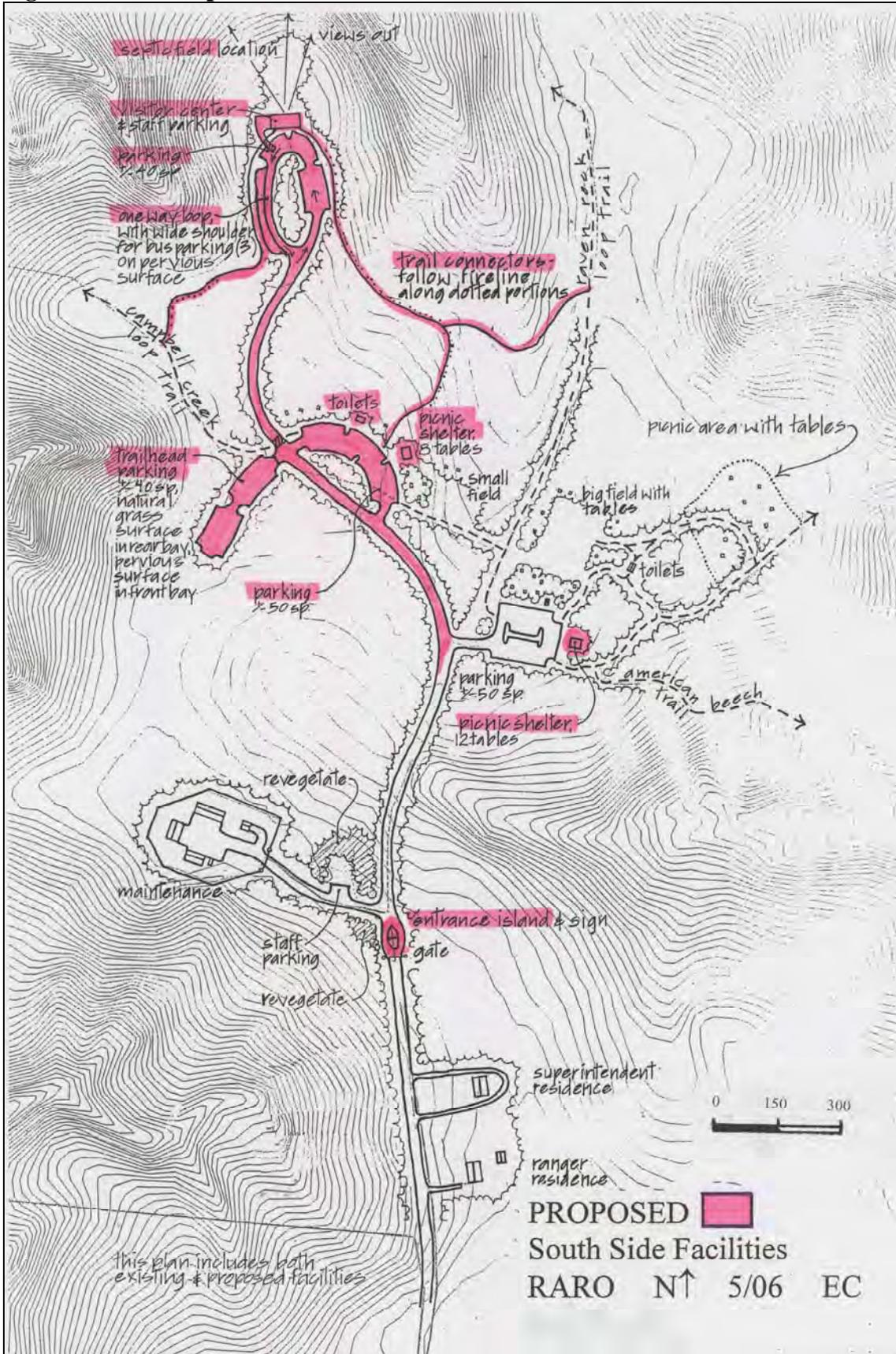


Figure VIII-3. Proposed South Side Facilities



currently serves as overflow parking for busy days will have the wheel stops removed and will be converted to an open area available for recreation. Picnic tables will be added around the big field and in the area between the big field and the parking lot to the south. The existing toilet building will continue to serve this area.

A second picnic area will be constructed that includes a 50-car parking lot, an eight-table shelter, a toilet building and picnic tables. This picnic shelter will be located in close proximity to the parking lot and to the existing small field that will continue to be used for recreation.

Across the road from the second picnic area will be trailhead parking with approximately 40 spaces. The first bay of 20 spaces will be surfaced with permeable grass pavers, and the second bay of 20 spaces will have a natural grass surface. This second bay will serve as an additional open recreation area during times of light visitation but will accommodate overflow parking during special events or heavier visitation. Many repeat park visitors looking to access the Campbell Creek section of the park will likely use the first bay as their main trailhead access.

Visitor's Center

The main park road will terminate at the visitor's center in a one-way loop with approximately 40 angled parking spaces. Staff parking is provided on the west side of the visitor's center. The island in the middle of the one-way loop will retain as much of the existing vegetation that can be protected during the construction process as possible. A widened shoulder is provided on the right-hand side of the one-way loop to accommodate parking for up to three buses. This widened area is to be surfaced with permeable grass pavers.

The site where the visitor's center and associated parking are to be located is an old abandoned field in the early stages of succession. Ideally, all disturbances for this construction would occur within this old field. A fire line runs around the edge of the old field. The septic field and repair area will be located north of and just downhill from the visitor center within the old field. Clearing for the septic field and repair area will open up scenic views from the back of the visitor's center into the mature hardwood forest beyond.

Trails

The Campbell Creek Loop Trail will be slightly rerouted as shown on Figure VIII-3 to accommodate the new facilities. Trail connectors will be added to connect the visitor's center and day use areas with the parks existing trails. The design will allow visitors to enter the park, park their vehicles, and then use the trail system and other park facilities without the need to drive. Portions of the proposed trail connectors between the visitor's center and the Campbell Creek Loop Trail and the Raven Rock Loop Trail follow existing fire lines.

Green Building and L.E.E.D. Opportunities

Construction of the south side facilities offers several green building/leadership in energy and environmental design (LEED) opportunities:

- east/west orientation of the visitor's center for solar gain opportunities;
- water efficient landscaping without need for irrigation;
- landscape plantings composed entirely of locally native plants;
- pedestrian trail connectivity, permitting visitors to enter the park, leave their vehicles, and then access other parts of the park on foot;
- pervious pavement opportunities (grass, gravel, pervious pavers) in areas of low use and overflow parking; and
- no curb and gutter or storm water concentration and sheet flow through vegetated areas for surface runoff.

North Side Trailhead Improvements

The proposed *North Side Bridle Trails Repair* capital improvement project would expand and improve the existing north side trailhead. Figure VIII-4, *Proposed North Side Trailhead*, shows the location and improvements planned for the trailhead. The new layout overlays the existing gravel lot. The majority of the new clearing and grading will occur to the west of the existing lot due to gentler slopes in this area. The new lot will contain approximately 12 car parking spaces and 20 vehicle/trailer spaces of a size adequate to serve the larger vehicles and trailers more commonly in use today. The existing pit privy south of the existing parking lot will be demolished and replaced with a toilet building with flush toilets. An expanded central pipe chase will function as a ranger office, providing the first ranger space on the north side of the park.

The layout provides for one-way traffic through the parking lot and one driveway access on River Road. Vehicles needing to circle back through the parking lot may do so without re-entering River Road. The exact location of the parking lot entrance will be identified in the design phase to assure adequate lines of sight for drivers traveling River Road and for users of the parking lot. If the parking lot entrance shifts, the proposed parking lot layout may also need to be adjusted. Vegetation should be maintained in the center island to help break up the expanse of parking.

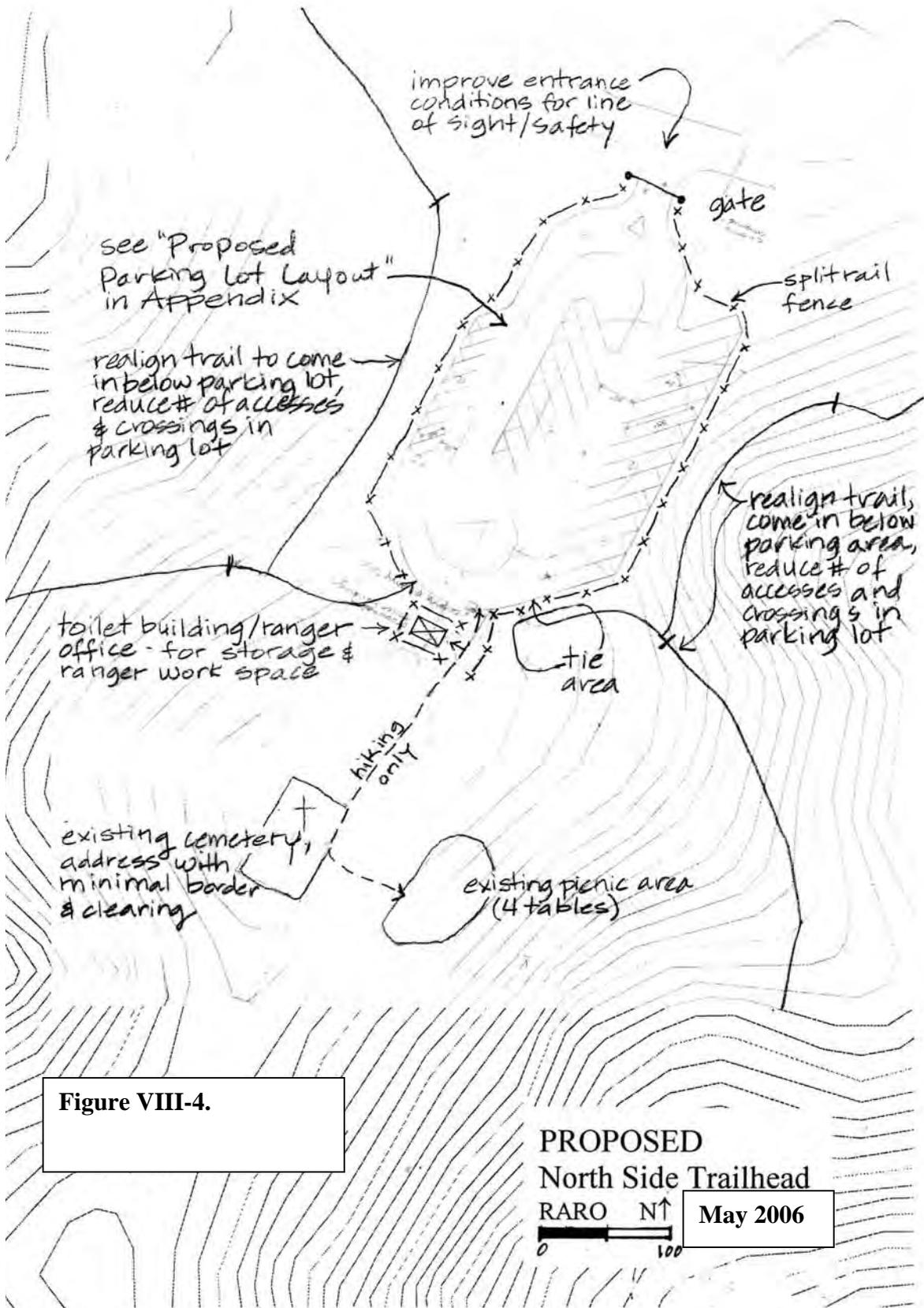


Figure VIII-4.

**PROPOSED
North Side Trailhead
RARO N↑ May 2006**

IX. OPERATIONS ISSUES

INTRODUCTION

The major park issues facing Raven Rock State Park were identified by the Division of Parks and Recreation staff at the initiation of the general management plan process. The issues have been divided into three categories: natural resources (see Chapter VI), capital improvements (see Chapter VII) and operations. This chapter identifies park operations issues and makes recommendations for addressing them during the next five years.

Operations issues for Raven Rock State Park that are of significant concern are:

1. Lack of facilities for park visitors;
2. Inability to maintain a continuous prescribed burn program and adequately address other natural resources management concerns;
3. Access and Safety Concerns – Wilderness Camp/Campbell Creek Trail;
4. Sections of poorly defined park boundary;
5. Restricted access to Hardee Tract; and
6. Staffing needs.

LACK OF FACILITIES FOR PARK VISITORS

South Side (South of Cape Fear River)

Background

Raven Rock State Park was established on March 19, 1970 when 222 acres of land were acquired. Since that time, the park has grown in size to 4,667 acres. However, development of even some of the most basic facilities, such as a visitor's center and a picnic shelter, has not occurred. In 1986, a restroom facility was constructed for the picnic area. In 1997, a maintenance facility was constructed with park bond money. The park office is a 60'x12' trailer. This trailer was purchased in 1993 after the first office trailer was destroyed when a tree was blown down on top of it during a severe thunderstorm. No suitable indoor facilities exist for providing environmental education programs for school groups or the general public. The park office trailer is not a safe structure for park staff to occupy in the event of severe weather. In the absence of a picnic shelter in the park, groups have been known to cancel their plans to visit the park when inclement weather has been predicted.

Recommendations

Construct a visitor's center to better serve the public and to provide a safe, healthful and productive work environment for park staff. As is stated in the *Strategic Plan for the Division's Interpretation and Education Program*, "there is probably no more important physical component of a park's I&E facilities than a visitor's center". The interpretation and education program at the park is significantly constrained by the lack of a suitable hub to effectively

communicate the division's interpretation and education messages. "Office space, workroom space, classrooms, auditoriums, and permanent and rotating exhibits are essential to ranger staff in carrying out all of their duties," states the strategic plan.

The construction of two picnic shelters that will accommodate a minimum of twelve picnic tables each is recommended. By providing sheltered picnicking facilities, visitors will have the opportunity to use the facilities when inclement weather occurs. A capital improvement project, described in Chapter VII, would construct a visitor's center and picnic shelters.

North Side (North of Cape Fear River)

Background

Land on the north side of the Cape Fear River has been included in the park since 1973. The only development of facilities in thirty-two years has been the construction of seven miles of bridle trails, a small parking area, an outhouse, and placement of four picnic tables. The small graveled parking area can accommodate approximately eight to ten trucks with horse trailers. At peak times, overflow parking has occurred along River Road, a gravel road with no road shoulders. The section of this road through the park contains many curves and has limited sight distance in several places. Parking, unloading and loading of horses along this road is a visitor safety concern.

Recommendations

A restroom building should be constructed to provide modern sanitary facilities for visitors at the north side. The building should be designed to allow space for a small office for staff, allowing visitor contact opportunities. The parking area should be enlarged to accommodate a greater number of trucks and horse trailers and to eliminate parking along River Road. A capital improvement project, described in Chapter VII, would construct a restroom with an office/storage area and expand and improve the parking area.

INABILITY TO MAINTAIN A CONTINUOUS PRESCRIBED BURN PROGRAM AND ADEQUATELY ADDRESS OTHER NATURAL RESOURCES MANAGEMENT CONCERNS

Background

The park is located in Harnett County, where piedmont, coastal plain and sandhills all come together. Consequently, ecological characteristics of these three regions are found in the park. Fire-adapted natural communities have been identified within the park. Of particular significance are remnant examples of the Piedmont Longleaf Pine community. Both Longleaf Pines and Carolina Wiregrass occur, as well as other fire-adapted plants such as Pine Barren Gentian. In 1992, a prescribed burn program was initiated in the park. Currently, 315 acres are under burn prescription. In 1991, a longleaf pine restoration program was initiated. Old fields formerly in cultivation that have been acquired as park property have since been planted with

thousands of longleaf pine seedlings. These seedlings have also been planted within forested prescribed burn units where fire has opened the canopy enough to allow an adequate amount of light to reach the forest floor. No prescribed burns occurred during the period between July of 2003 and June of 2005, due mainly to vacancies in the entry-level Park Ranger position, one of only two Park Ranger positions at Raven Rock. From February of 2003 through April of 2005, a person occupying the entry-level Park Ranger position was actually available to physically work in the park only seven out of the twenty-six month period. In the past seventeen years, the entry level Park Ranger position has been occupied by nine different individuals. The protracted unavailability of one of only two ranger positions has severely hampered the ability of park staff to accomplish many natural resources management tasks. The entry level Park Ranger position has been designated as the lead staff position for natural resources management. Although this important collateral duty would under normal circumstances be assigned to an experienced person of a higher ranger classification, rather than a trainee-level position, there is simply no other staff person to whom this duty can be assigned.

Recommendations

Additional ranger staff is needed to provide the ability to adequately address the management of park natural resources, particularly fire management. An additional position of an experienced Park Ranger classification should be established. Alternatively, the entry-level Park Ranger I position could be considered for reclassification as a Park Ranger II.

ACCESS AND SAFETY CONCERNS –WILDERNESS CAMP/CAMPBELL CREEK TRAIL

Background

The Wilderness Camp is located in the western section of the park, south of the Cape Fear River. It is a primitive, backpack camping area that is accessed by hikers via the Campbell Creek Trail. Vehicular access for emergency response or maintaining this camping area, as well as the Lanier Falls area, is through private property known as the Bethea Tract. This tract is located at the terminus of Hicks Road, a seven mile drive from the park office. Park staff has maintained access to park property through this private land, continuously, for over twenty years. Through a verbal agreement with an individual who leased hunting rights to the property in the mid to late 1990's, and with the consent of the landowner, a control gate was erected by park staff at the terminus of Hicks Road, where state road maintenance ends and the access road through the Bethea Tract begins. This individual supplied a padlock for the gate and provided park staff with a key. The purpose of this gate is to prevent unauthorized vehicles from entering the property. It also prevents traffic from reaching the control gate located on the park boundary, approximately four-tenths of a mile from the terminus of Hicks Road.

During 2003, the owner of the Bethea Tract contacted park staff and expressed an interest in selling the property to the State. The land was appraised and the State Property Office made an offer to the landowner. He declined to accept the amount offered. In December, 2004, park staff learned that the landowner had leased the hunting rights of the Bethea Tract to the Cedar Creek

Hunt Club. Over the years, park staff has avoided crossing through the Bethea Tract on Saturdays during the deer and wild turkey hunting seasons to avoid disturbing hunters and potentially creating ill-will between hunters and park staff. The Cedar Creek Hunt Club has leased other property adjacent to park property in the past, and has been known to hunt very close to the park boundary. This club drives deer with dogs, and the dogs quite often end up chasing deer on park property.

The Campbell Creek Trail has been in existence for more than twenty five years. A trail section of approximately 1,000 feet is located very close to a section of park boundary that is contiguous with the Bethea Tract. In fact, the trail is located twelve feet from the boundary line at one point. It could be assumed that when the trail was originally routed in this location, it was thought that the Bethea Tract would soon be acquired as park property, since it was included in the master plan for acquisition. The potential exists for hunting activity to occur within sight of the Campbell Creek Trail, a genuine visitor safety concern.

Recommendations

It is essential that unrestricted access be maintained by park staff to the Wilderness Camp and the Lanier Falls area, particularly in regard to the potential for emergency response. The safety of park visitors during the hunting seasons is a real concern. The most desirable solution would be to acquire the Bethea Tract. It is recommended that the State Property Office be requested to attempt further negotiations with the landowner to acquire the property. If acquisition of the property does not appear to be a possible solution in the short-term, then another potential solution should be considered. It is recommended that the division seek to enact a local hunting law to:

1. establish a safety zone near the park boundary; and
2. regulate the discharge of firearms toward the park with the enacting of a local hunting law, as has been done at Merchants Millpond State Park.

SECTIONS OF POORLY DEFINED PARK BOUNDARY

Background

Several sections of park boundary line are not well defined or may be erroneous, because of a lack of “witness trees” to indicate the location of the line. Lines on two tracts that were purchased in 2002 were not surveyed prior to acquisition. As boundary lines are maintained over the course of years, boundary lines can begin to waiver off course if not guided by properly surveyed and marked witness trees. Approximately 19,000 linear feet of park boundary line are not well defined. Poorly defined boundaries can provide problems for park staff in determining potential encroachments such as hunting.

Recommendations

Poorly defined boundary lines should be professionally surveyed and appropriately marked. Funds from the Parks and Recreation Trust Fund that are provided for surveying and other

overhead costs associated with land acquisition should be made available to parks on a recurring basis to correct boundary line marking deficiencies.

RESTRICTED ACCESS TO HARDEE TRACT

Background

In October of 1999, 103 acres of property was acquired from the Triangle Land Conservancy, which had earlier purchased the property on behalf of the State of NC from the previous owners. Known as the Hardee Tract, this property is located on the north side of the Cape Fear River, south of River Road, and east of the current contiguous park property. The tract is separated from the rest of the park by a narrow strip of land known as the Langley Tract. The Hardee Tract was formerly part of a larger farm. A section of this property lies between park land and River Road. The landowner has not allowed park staff ingress and egress through their property to gain access to the Hardee Tract. While the owners of the Langley Tract have allowed access to park property by park staff through their property at certain times, access has expressly been forbidden during the deer and wild turkey hunting seasons. Park staff does not have the adequate ability to patrol the Hardee Tract during these times to detect potential encroachments.

Recommendations

Purchase the Langley Tract in order to join the Hardee Tract with the balance of the north side property. This would provide staff the full time legal access that is needed to properly manage the Hardee Tract.

STAFFING NEEDS

South Side (South of the Cape Fear River)

Background

Current Staff:	<u>Permanent Staff</u>	<u>Seasonal Staff</u>
	Park Superintendent II	Assistant Park Ranger (3 mos.)
	Park Ranger II	General Utility Worker (9 mos.)
	Park Ranger I	General Utility Worker (3 mos.)
	Maintenance Mech. II	Park Attendant (3 mos.)
	Maintenance Mech. I	Park Attendant (3 mos.)
	Office Assistant III	Peak-load Office Assistant (year-round)
		Peak-load Park Attendant (9 mos.)

Raven Rock State Park was established in 1970. Within the first few years of operation, a Park Superintendent position and two Park Ranger positions were established. In 1990, a Maintenance Mechanic I position was established, which has since been reclassified to a Maintenance Mechanic II position. In 1994, an Office Assistant III position was established. In 2000, a Maintenance Mechanic I position was created in association with a land acquisition

project. The park maintenance area was completed in 1997, funded by money from the park bonds initiative of 1993. Although a permanent maintenance position was requested in the reserve for this project, only a seasonal position was approved.

In 1974, the park was 2,730 acres in size. At that time, two Park Ranger positions existed. Since then, the park has grown in size by 1,937 acres (41%). In December of 2002, 714 acres of land was acquired for the park from Weyerhaeuser Corporation. The opportunity to acquire this property was presented to the division in October of 2002. A request to secure additional staffing and an operating reserve to manage this significant acquisition of land could not be made at the time of the acquisition, because the deadline for requests to be included in the next biennial budget had past. To date, no additional positions have been established to assist in the management of an area that is larger in size than seven existing state parks.

Since the 1970's the professional standards for Park Rangers and Superintendents have been raised significantly. Many professional management programs have been implemented in our parks. These programs, including interpretation and environmental education, law enforcement, wildland fire management, integrated pest management, emergency medical services, search and rescue, volunteer management and workplace safety require an adequate, well-trained workforce at the park level to administer and manage these programs in a complete and timely manner. However, the ranger staffing level at Raven Rock has seriously lagged behind ranger staffing levels at most other parks in the system. This problem is compounded by the recurring absence of the Park Ranger I.

Recommendations

A higher level Park Ranger position should be established or the current entry-level Park Ranger I position should be upgraded to a Park Ranger II classification. This would provide a trained and experienced staff person to assume a lead roll in addressing natural resources management issues such as prescribed burning, integrated pest management, pine plantation management and boundary line management. The person in this position would work towards attaining burn boss certification and public pesticide operator licensure, both of which are currently handled as collateral duties by the Park Superintendent. A Park Ranger II position could also be assigned collateral duties such as volunteer manager, park safety coordinator, and hazard tree inspection program manager. The park safety coordinator position is being handled by the Park Superintendent. The collateral duties of volunteer manager and hazard tree inspection program manager have been assigned to the Maintenance Mechanic I position. These collateral duties would be better suited to the Park Ranger classification, but have been assigned to other staff because of frequent turnover of the Park Ranger I position.

North Side (North of the Cape Fear River)

Background

Current Staff: Permanent Staff
None

Seasonal Staff
None

Raven Rock State Park is currently 4,667 acres in size. The park is divided geographically by the Cape Fear River, which has an average width of about 300 feet as it flows through the park. The section of the park south of the river is comprised of approximately 3,209 acres, while the north section of the park contains approximately 1,458 acres. The north side of the park has been managed as a “satellite” area by park staff. It is far larger than most other satellite areas that the division manages, and is larger in land area than ten other state parks. To reach the north side from the park office on the south side, staff must drive twenty miles, traveling through Lillington to cross the Cape Fear River on US 401. Travel time to the north side usually takes about thirty minutes. The north side is visited by park staff about three times per week. The Park Superintendent or Park Rangers patrol the north side on weekend days. Park maintenance staff performs custodial and grounds maintenance functions on a weekday. Facilities on the north side include a parking area which is not gated, a small picnic area, an outhouse, and seven miles of bridle trails. As of August, 2005, the bridle trails are in the process of being re-routed and lengthened. Management, protection, and maintenance of this area present park staff with logistical challenges because of the drive time and distance from the south side.

Recommendations

A basic staff should be established to facilitate regular and consistent management, protection and maintenance for the north side of the park. As has been established in the park master plan, management authority for the entire park would rest with the Park Superintendent. However, a higher level Park Ranger position should be established to provide the lead in managing and operating the north side. This position would be responsible for daily operation of trails and other facilities on the north side. This staff position would also assume responsibility for developing and implementing a prescribed burn program and other natural resources management programs for the north side, as well as assuming a lead roll in managing capital development projects, major maintenance, and trails projects. A Maintenance Mechanic I position should be established to address pressing needs such as bridle trails maintenance. As previously mentioned, the current bridle trail system is being re-routed and lengthened. The bridle trails have seriously degraded over the years because of inadequate design and construction, and a lack of adequate maintenance. The renovated trail system is expected to total about ten miles in length. Several erosion control and stream crossing structures will be put in place during the renovation project. It is crucial to the protection of park natural resources that the trail system receives regular and thorough maintenance to stand up to the rigors placed upon it by horse traffic. It is recommended that a nine-month seasonal General Utility Worker position be established to assist staff in natural resources management functions such as prescribed burning, integrated pest management and boundary line maintenance. In addition, this seasonal position would assist park staff in accomplishing routine custodial and grounds maintenance tasks, as well as bridle trails maintenance.

3/07

X. LAND ACQUISITION

Raven Rock, part of a series of steep bluffs composed of mica schist, attaining a maximum height of 150 feet and stretching for almost a mile along the Cape Fear River's south shore, is the namesake and main feature of Raven Rock State Park. The preservation of this geological feature is a primary purpose of the state park. The park is also committed to the protection of rare species and high quality examples of natural communities along the river. Much of the park has been identified as part of a state significant Natural Heritage Area by the North Carolina Natural Heritage Program and lies adjacent to the nationally significant Cape Fear River Aquatic Habitat. Approximately 1,590 acres of the park is a designated nature preserve, which contains several rare natural community types as well as a number of significantly rare plant species.

Several factors are considered in determining whether a piece of property should be included in an acquisition plan. These include: data from the Natural Heritage Program and the Division of Water Quality; identified needs for resource protection, recreation, buffer areas and park management; and recommendations from Division staff. Threats to these properties often include development, logging, sedimentation, and other forms of short- or long-term damage. Needs and threats are evaluated to determine what additional properties should be added to a park's acquisition plan.

CURRENT ACQUISITION STATUS

As of May 1, 2006, Raven Rock State Park contains 4,667 acres. The primary feature of the park is the steep mica schist bluff of the same name, which is an important natural, scenic, and educational resource. The views across the Cape Fear River from Raven Rock itself is also an important element of the park experience, in addition to the diverse flora and fauna of the remaining park area and river ecosystem. The objectives for establishing Raven Rock State Park are described in the Park Purpose Statement (see Chapter II). They include the provision of appropriate public recreational use, the protection of unique natural resources, buffering these resources and visitor activities from incompatible uses, and protecting scenic views. With these objectives in mind, adjacent lands were assessed for their value to the park and a revised acquisition plan for the future protection needs of Raven Rock State Park developed.

FUTURE ACQUISITION NEEDS

Completion of the acquisition plan described in the *Raven Rock State Park Master Plan*, finished in March 1977, requires the acquisition of an additional 840 acres. High acquisition priorities on the southern side of the park include the Fish Creek watershed, land to provide a more adequate park entrance, land to further protect Campbell Creek, and greater buffer for the wilderness camps. High acquisition priorities on the northern side of the park would protect the land directly across the Cape Fear River from park land on the south side, provide for additional protection of the river corridor, preserve the

viewshed from Raven Rock and the overlook along the Raven Rock Trail, protect the park from encroaching development, and expand recreational opportunities.

In addition to the remaining 840 acres identified for acquisition in the 1977 master plan, Division staff - as part of the development of this general management plan - assessed land acquisition needs at Raven Rock and expanded the proposed park boundary by 2,338 acres (Figure X-1).

Raven Rock State Park has traditionally received much of its visitation from the local community and from Fort Bragg, and many park visitors are repeat users. This traditional visitation will certainly continue. In addition, because of the park's proximity to the Triangle area and the continued growth of that area, increased future demand is certain to come. Nearby small towns of Apex, Holly Springs and Fuquay-Varina are growing at brisk paces. This population growth will place increased pressures on the park. Adding land to the park to accommodate additional recreational facilities will help to meet the increased demand.

The proposed boundary on the north side of the Cape Fear River extends west to Captains Landing Subdivision, and it extends on the north side of River Road to continue the green entrance corridor along both sides of that entrance road. To the east, the boundary goes to the general vicinity of Hector's Creek and an existing road through the woods for ease of management. Adding this land to the park will serve to protect the park's viewshed from the south bank of the Cape Fear River, particularly the viewshed from the overlook along the Raven Rock Trail.

The proposed boundary on the south side of the Cape Fear River extends to the end of State Road 1267 (Dickens Road) on the west side of the park, allowing park staff direct management access to this end of the park and lining up with the proposed west boundary across the river. To the east, the proposed park boundary extends to encompass abandoned tailings ponds from an old sand pit/quarry with some ponds.

ACQUISITION SUMMARY TABLE

Current size of the park (May 2006)	4,667 acres
Acreage needs per 1977 master plan	<u>840 acres</u>
Original planned size of the park	5,507 acres
Additions to master planned needs	<u>2,338 acres</u>
New total planned size of the park	7,845 acres

