



North Carolina Department of Environment and Natural Resources

Beverly Eaves Perdue  
Governor

Dee Freeman  
Secretary

**MEMORANDUM**

TO: ENVIRONMENTAL REVIEW COMMISSION  
The Honorable David Rouzer, Chair  
The Honorable Mitch Gillespie, Co-Chair  
The Honorable Ruth Samuelson, Co-Chair

FISCAL RESEARCH  
Mr. Mark Trogon, Acting Director, Fiscal Research Division

SENATE APPROPRIATIONS SUBCOMMITTEE ON NATURAL AND ECONOMIC  
RESOURCES  
The Honorable Don East, Co-Chair  
The Honorable David Rouzer, Co-Chair

HOUSE APPROPRIATIONS SUBCOMMITTEE ON NATURAL AND ECONOMIC  
RESOURCES  
The Honorable Carolyn Justice, Co-Chair  
The Honorable Roger West, Co-Chair

FROM: Kari Barsness *KKB*  
Director of Legislative and Intergovernmental Affairs

SUBJECT: State Parks System Plan Annual Report

DATE: October 1, 2012

Pursuant to General Statute 113-44.11, the Division Parks and Recreation shall submit to the Environmental Review Commission, the House and Senate Appropriations Subcommittees on Natural and Economic Resources and the Fiscal Research Division a report on the State Parks System Plan by October 1 of each year. Please consider the attached electronic copy of the 2009 Systemwide Plan for North Carolina State Parks as the formal submission of this report, <http://www.ncparks.gov/About/plans/systemwide/main.php>. The plan is normally revised at five-year intervals, and was not revised in fiscal year 2011-2012.

To provide you with current information, the Division of Parks and Recreation has updated Chapter 2 of the plan, which is a summary of the current state of the system and the future needs for land acquisition and capital improvements. A copy of that update is attached.

If you have any questions or need additional information, please contact me by phone at (919) 707-8618 or via e-mail at [Kari.Barsness@ncdenr.gov](mailto:Kari.Barsness@ncdenr.gov).

cc: David Knight, Assistant Secretary of Natural Resources  
Lewis Ledford, Director, Division of Parks and Recreation  
Kristin Walker, Fiscal Research Division  
Lanier McRee, Fiscal Research Division  
Mariah Matheson, Research Division

# SYSTEMWIDE PLAN FOR NORTH CAROLINA STATE PARKS

## CHAPTER TWO STATE OF THE SYSTEM

Updated for FY 2011-2012

### SYSTEM UNITS

As of July 1, 2012, the North Carolina State Parks System consists of 74 units, 41 of which are operated for the visiting public with on-site staff and regular gate hours. The remaining units are managed in one of the following ways: as part of an operated park, as a satellite unit, or through cooperative and partnership agreements. For example, Lake Phelps State Lake is managed as part of Pettigrew State Park. Run Hill State Natural Area is a satellite of Jockeys Ridge State Park. Hemlock Bluffs State Natural Area is leased to the Town of Cary in a cooperative agreement, and the Mountains-to-Sea State Trail is an example of a protection partnership with other agencies and organizations.

**Table 2.1. Size of the State Parks System**

<b>SIZE OF THE NORTH CAROLINA STATE PARKS SYSTEM As of July 2011</b>			
<b>Unit Type</b>	<b>Units</b>	<b>Size (Acres)</b>	<b>Length(Miles)</b>
State Parks	35	151,775	
State Recreation Areas	4	12,240	
State Natural Areas	20	22,254	
State Lakes	7	29,135	
State Rivers	4	0	146
State Trails	4	1,965	727
<b>TOTAL</b>	<b>74</b>	<b>217,368</b>	<b>873</b>
Land Area		188,233	
Water Area (State Lakes)		29,135	
Easements		803	
<b>TOTAL</b>		<b>217,368</b>	

This map of North Carolina displays various geographical features and recreational areas. The legend identifies the following elements:

- State Park:** Represented by a small square icon.
- State Natural Area:** Represented by a circle with a dot inside.
- State Recreation Area:** Represented by a solid black circle.
- State Lake:** Represented by a solid black triangle.
- State River:** Represented by a solid black line.
- State Trail:** Represented by a thick grey line.
- Mountains-to-Sea Trail Corridor:** Represented by a light grey shaded area.

The map shows numerous locations across the state, including:

- State Parks:** Bear Paw, Beech Creek Bog, Grandfather Mountain, Linville River, Mount Jefferson, Pilot Mountain, Stone Mountain, Sugar Mountain Bog, Yellow Mountain, Mount Mitchell, Chimney Rock, Crowders Mountain, Morrow Mountain, Weymouth Woods, Lake Norman, Lake James, Lake Noland, Lake Waccamaw, Lake Watauga, Lake Umbagog, Lake James, Lake Norman, Lake Watauga, Lake Waccamaw, Lake Umbagog, Lake James, Lake Norman, Lake Watauga, Lake Waccamaw, Lake Umbagog.
- State Natural Areas:** Mount Jefferson, Pilot Mountain, Stone Mountain, Sugar Mountain Bog, Yellow Mountain, Mount Mitchell, Chimney Rock, Crowders Mountain, Morrow Mountain, Weymouth Woods, Lake Norman, Lake James, Lake Noland, Lake Waccamaw, Lake Watauga, Lake Umbagog, Lake James, Lake Norman, Lake Watauga, Lake Waccamaw, Lake Umbagog.
- State Recreation Areas:** Mount Jefferson, Pilot Mountain, Stone Mountain, Sugar Mountain Bog, Yellow Mountain, Mount Mitchell, Chimney Rock, Crowders Mountain, Morrow Mountain, Weymouth Woods, Lake Norman, Lake James, Lake Noland, Lake Waccamaw, Lake Watauga, Lake Umbagog, Lake James, Lake Norman, Lake Watauga, Lake Waccamaw, Lake Umbagog.
- State Lakes:** Lake James, Lake Norman, Lake Watauga, Lake Waccamaw, Lake Umbagog, Lake James, Lake Norman, Lake Watauga, Lake Waccamaw, Lake Umbagog.
- State Rivers:** Linville River, Sugar Creek, Bear Paw, Grandfather Mountain, Yellow Mountain, Mount Mitchell, Chimney Rock, Crowders Mountain, Morrow Mountain, Weymouth Woods, Lake Norman, Lake James, Lake Noland, Lake Waccamaw, Lake Watauga, Lake Umbagog, Lake James, Lake Norman, Lake Watauga, Lake Waccamaw, Lake Umbagog.
- State Trails:** French Broad Trail, Horsepasture River, Gorges, Chimney Rock, Crowders Mountain, Morrow Mountain, Weymouth Woods, Lake Norman, Lake James, Lake Noland, Lake Waccamaw, Lake Watauga, Lake Umbagog, Lake James, Lake Norman, Lake Watauga, Lake Waccamaw, Lake Umbagog.
- Mountains-to-Sea Trail Corridor:** A light grey shaded area running from the mountains in the west to the coast in the east.



**Table 2.2. The 74 State Parks System Units with Acreages as of July 1, 2012**

<b>STATE PARKS (land area only)</b>		<b>STATE RECREATION AREAS (land area only)</b>	
	<b>Size (acres)</b>		<b>Size (acres)</b>
Bay Tree	609	Falls Lake	5,035
Carolina Beach	420	Fort Fisher	287
Carvers Creek	4,332	Jordan Lake	3,916
Chimney Rock	5,942	Kerr Lake	3,002
Cliffs Of The Neuse	892	<b>Total</b>	<b>4</b>
Crowders Mountain	5,126		<b>12,240</b>
Dismal Swamp	14,432	<b>STATE NATURAL AREAS (land area only)</b>	
Elk Knob	3,473		<b>Size (acres)</b>
Eno River	4,197	Baldhead Island	1,260
Fort Macon	424	Bear Paw	351
Goose Creek	1,672	Beech Creek Bog	120
Gorges	7,708	Bullhead Mountain	365
Grandfather Mountain	2,456	Bushy Lake	6,343
Hammocks Beach	1,155	Chowan Swamp	6,066
Hanging Rock	7,049	Hemlock Bluffs	97
Haw River	1,374	Lea Island	25
Jockeys Ridge	426	Lower Haw River	1,022
Jones Lake	1,669	Masonboro Island	106
Lake James	3,515	Mitchell Mill	93
Lake Norman	1,917	Mount Jefferson	803
Lake Waccamaw	2,159	Occoneechee Mtn.	162
Lumber River	9,268	Pineola Bog	91
Mayo River	1,961	Run Hill	123
Medoc Mountain	3,892	Sandy Run Savannas	2,538
Merchants Millpond	3,447	Sugar Mountain Bog	
Morrow Mountain	4,496	Theodore Roosevelt	
Mount Mitchell	1,996	Weymouth Woods	
New River	2,707	Yellow Mountain	1
Pettigrew	5,568	<b>Total</b>	<b>20</b>
Pilot Mountain	3,651		<b>22</b>
Raven Rock	4,694	<b>STATE LAKES (water area only)</b>	
Singletary Lake	649		<b>Size (acres)</b>
South Mountains	18,491	Bay Tree	1
Stone Mountain	14,210	Jones	
William B. Umstead	5,599	Phelps	16
<b>Total</b>	<b>35</b>	Waccamaw	8
	<b>151,775</b>	Salters	
		Singletary	
		White	1
		<b>Total</b>	<b>7</b>
			<b>25</b>
<b>STATE RIVERS</b>		<b>Size (Acres)</b>	
		<b>Length (miles)</b>	
Horsepasture	0	4.5	
Linville	0	13.0	
Lumber	0	102.0	
New	0	26.5	
<b>Total</b>	<b>4</b>	<b>146.0</b>	
<b>STATE TRAILS</b>		<b>Size (Acres)</b>	
		<b>Length (miles)</b>	
Deep River	1,274	0	
French Broad River	0	67	
Mountains To Sea	691	530	
Yadkin River	0	130	
<b>Total</b>	<b>4</b>	<b>1,965</b>	
		<b>727</b>	

**Figure 2.1. Map of the North Carolina State Parks System**

## TYPES OF UNITS

The State Parks Act of 1987 lists six types of units included in the North Carolina State Parks System: State Parks, State Natural Areas, State Recreation Areas, State Trails, State Rivers, and State Lakes.

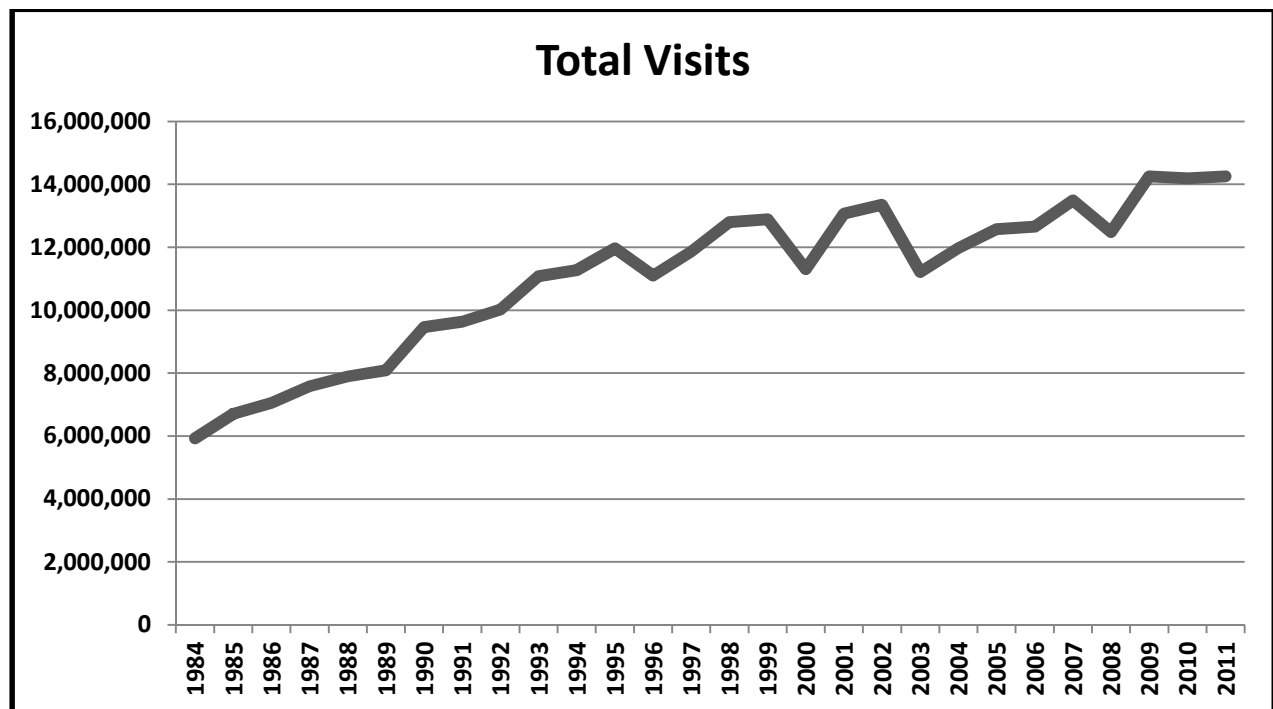
- **State Park** - North Carolina's first State Park was established at Mount Mitchell in 1916 to protect the summit of the highest mountain in the eastern U.S. There are currently 35 State Parks in the system. Generally, State Parks are expected to possess both significant natural resource values and significant recreational values. State Parks are expected to accommodate the development of facilities, but may vary in the extent of development depending upon what can be provided without damage to the scenic or natural features. Facilities are planned and constructed to keep disturbance of natural resources to a minimum and to leave a large portion of each park undisturbed and free from improvements and structures, except for trails.
- **State Natural Area** - State Natural Areas were established as a separate type of system unit in 1963 with the adoption of separate principles for management. The first State Natural Area was created that same year. There are currently 20 State Natural Areas. The purpose of State Natural Areas is focused on preserving and protecting areas of scientific, aesthetic, or ecological value. Facilities are limited to those needed for interpretation, protection, and minimum maintenance. Generally, recreational and public use facilities such as camping, swimming, picnicking and the like are not provided in State Natural Areas.
- **State Recreation Area** - State Recreation Areas are sites where the primary purpose is outdoor recreation, rather than preservation. More intensive development of facilities is provided than in State Parks. Protection and enjoyment of the natural resources are still important, and the sites are expected to contain scenic and attractive natural features. Development is planned and constructed to keep a "reasonable amount" of each area undisturbed and free from improvements and structures. The first State Recreation Area was added to the system in 1971, and principles to guide the development and operation of State Recreation Areas were adopted in 1974. There are currently four State Recreation Areas.
- **State Trail** - The North Carolina Trails System Act was passed in 1973 to help provide for the state's outdoor recreation needs and to promote public access to natural and scenic areas. The act prescribed methods for establishing a statewide system of scenic trails, recreation trails, and connecting or side trails. The Trails System includes "State Trails", which are designated and managed as units of the state parks system, and "designated trails", which are regional connector trails managed by other governmental agencies or organizations. At present there are four State Trails.
- **State River** - The Natural and Scenic Rivers System was created by the 1971 General Assembly to preserve and protect certain free flowing rivers, their water quality and their adjacent lands for the benefit of present and future generations. The Natural and Scenic Rivers Act established criteria and methods for inclusion of components to the system. Components of the Natural and Scenic Rivers System are State Rivers, and are also units of the state parks system. Currently there are four State Rivers.

- **State Lake** - Chapter 165 of the Laws of 1929 specified that “all lakes now belonging to the State having an area of 50 acres or more” should be “administered as provided for other recreational areas now owned by the State.” This allowed the then-Department of Conservation and Development to assume management authority for seven Coastal Plain lakes that became units of the state parks system known as State Lakes. Most of these are administratively included as part of an adjoining State Park, but one of the lakes (White Lake) has no public ownership on its shoreline.

## VISITATION

Total visitor attendance for 2011 was 14,255,859, which was a new all-time record. Visitation fluctuates from year to year based on weather conditions, facility closures, and the state of the economy, but the trend over time is for increasing visitation (Figure (2.2)).

Park units with the highest attendance have been the state recreation areas located on reservoirs (Kerr Lake State Recreation Area, Jordan Lake State Recreation Area, and Falls Lake State Recreation Area) as well as coastal parks and recreation areas located in popular vacation destinations (Jockey’s Ridge State Park, Fort Macon State Park and Fort Fisher State Recreation Area). These six park units accounted for over 6 million visits or nearly half of the total state parks system attendance (Table 2. 3).



**Figure 2.2. State Parks System Visitation 1975-2011**

**Table 2.3. State Park Visitation by Park Unit 2011**

<b>North Carolina State Parks System Unit</b>	<b>Total Visits 2011</b>
Carolina Beach State Park	549,342
Carvers Creek State Park	10
Chimney Rock State Park	167,532
Cliffs of the Neuse State Park	166,674
Crowders Mountain State Park	359,970
Dismal Swamp State Park	78,067
Elk Knob State Natural Area	34,022
Eno River State Park	413,694
Falls Lake State Recreation Area	863,023
Fort Fisher State Recreation Area	809,698
Fort Macon State Park	1,295,170
Goose Creek State Park	251,503
Gorges State Park	92,060
Grandfather Mountain State Park	49,820
Hammocks Beach State Park	81,181
Haw River State Park	23,696
Hanging Rock State Park	516,507
Jones Lake State Park	55,067
Jordan Lake State Recreation Area	872,967
Jockey's Ridge State Park	1,323,364
Kerr Lake State Recreation Area	1,240,776
Lake James State Park	569,319
Lake Norman State Park	504,429
Lake Waccamaw State Park	86,068
Lumber River State Park	63,740
Mayo River State Park	36,227
Merchants Millpond State Park	263,567
Medoc Mountain State Park	82,236
Mount Jefferson State Natural Area	105,520
Mount Mitchell State Park	302,797
Morrow Mountain State Park	449,439
New River State Park	213,788
Occoneechee Mountain State Natural Area	73,280
Pettigrew State Park	67,610
Pilot Mountain State Park	441,904
Raven Rock State Park	152,665
Singletary Lake State Park	22,696
South Mountains State Park	196,272
Stone Mountain State Park	440,612
Weymouth Woods State Natural Area	58,367
William B. Umstead State Park	881,180
<b>System Total</b>	<b>14,255,859</b>

## VISITOR FACILITIES

In July 2012, the state parks system contained more than 1,300 roofed buildings. This figure does not include bridges, walkways, pavement, trails, or other structures.

**Table 2.4. Summary of Visitor Facilities in the North Carolina State Parks System**

<b>FACILITY</b>	<b>TOTAL</b>	<b>FACILITY</b>	<b>TOTAL</b>
Amphitheater	16	Information Station	3
Auditorium	15	Interpretive Building	7
Bathhouse	20	Laboratory	1
Boat Dock	44	Lodge	3
Boat Ramp	37	Meeting Room	14
Boathouse	5	Museum	2
Cabin - Group	119	Museum/Exhibit Hall	22
Cabin - Improved	16	Park Office	19
Campsite - Electric Hookups	511	Picnic Area	63
Campsite - Equestrian	15	Picnic Shelter	121
Campsite - No Hookups	1311	Pier	6
Campsite - Water & Electric	755	Play Area	4
Canoe Launch Point	23	Play Area w/Equipment	25
Canoe Rental Building	2	Pool	2
Classroom	20	Primitive Campsite - Drive To	26
Community Building	9	Primitive Campsite - Hike In	68
Concession	12	Primitive Campsite - Paddle To	36
Dining Hall	7	Primitive Campsite - Walk In	139
Disc Golf Hole	10	Restaurant	3
Disc Golf Tee	8	Shelter	1
District Office	2	Showerhouse	67
Entrance Station	24	Sun Shelter	6
Environmental Ed. Center	4	Swimming Area - Freshwater	19
Fishing Pier	21	Swimming Area - Ocean or Sound	5
Gazebo	3	Toilet Building	123
Group Campsite - Drive To	59	Toilet Building - Flush	15
Group Campsite - Hike In	6	Toilet Building - Non-Flush	53
Group Campsite - Walk In	20	Visitor Center	26
Historic Building	61	Water Tank	6

## FUTURE NEEDS

Park master plans and general management plans have identified future needs for land acquisition and facility development in each park. Table 2.5 shows new construction and renovation needs and Table 2.6 shows identified land acquisition needs for each park.

**Table 2.5. Construction and Repair Needs at Existing Parks**

State Park Facility Construction Needs October 2012			
Park Name	New Construction	Repair & Renovation	Total Cost
Baytree Lake	\$2,028,698	\$0	\$2,028,698
Carolina Beach	\$1,701,610	\$1,456,083	\$3,157,694
Carvers Creek	\$30,375,730	\$4,778,120	\$35,153,851
Chimney Rock	\$35,333,294	\$1,099,885	\$36,433,179
Cliffs Of The Neuse	\$1,645,308	\$2,245,696	\$3,891,004
Crowder's Mountain	\$2,094,208	\$4,986,901	\$7,081,110
Dismal Swamp	\$2,886,270	\$2,886,270	\$4,207,003
Eno River	\$10,126,306	\$1,982,108	\$12,108,415
Falls Lake	\$8,746,816	\$5,681,432	\$14,428,249
Fort Fisher	\$606,599	\$0	\$606,599
Fort Macon	\$2,165,168	\$1,119,663	\$3,284,832
Goose Creek	\$7,447,636	\$0	\$7,447,636
Gorges	\$7,331,746	\$0	\$7,331,746
Hammocks Beach	\$2,584,369	\$1,832,809	\$4,417,178
Hanging Rock	\$5,310,105	\$222,753	\$5,532,859
Haw River	\$25,983,975	\$100,304	\$26,084,279
Jockey's Ridge	\$1,083,572	\$1,002,034	\$2,085,606
Jones Lake	\$1,023,226	\$1,389,360	\$2,412,587
Jordan Lake	\$206,789	\$17,808,314	\$18,015,103
Kerr Lake	\$36,350,388	\$857,734	\$37,208,123
Lake James	\$20,971,549	\$314,816	\$21,286,365
Lake Norman	\$6,620,783	\$5,681,995	\$12,302,779
Lake Waccamaw	\$7,691,291	\$0	\$7,691,291
Lumber River	\$18,864,640	\$0	\$18,864,640
Medoc Mountain	\$17,250,925	\$0	\$17,250,925
Merchants Mill Pond	\$662,411	\$1,995,684	\$2,658,096
Mitchell's Mill	\$247,853	\$0	\$247,853
Morrow Mountain	\$10,045,388	\$3,245,633	\$13,291,021
Mount Mitchell	\$0	\$4,474,387	\$4,474,387
Mount Jefferson	\$2,464,817	\$0	\$2,464,817
New River	\$3,438,861	\$0	\$3,438,861
Occoneechee Mountain	\$1,592,322	\$0	\$1,592,322
Pettigrew	\$14,435,425	\$553,394	\$14,988,819
Pilot Mountain	\$19,454,183	\$4,061,775	\$23,515,959
Raven Rock	\$3,824,201	\$2,037,111	\$5,861,313

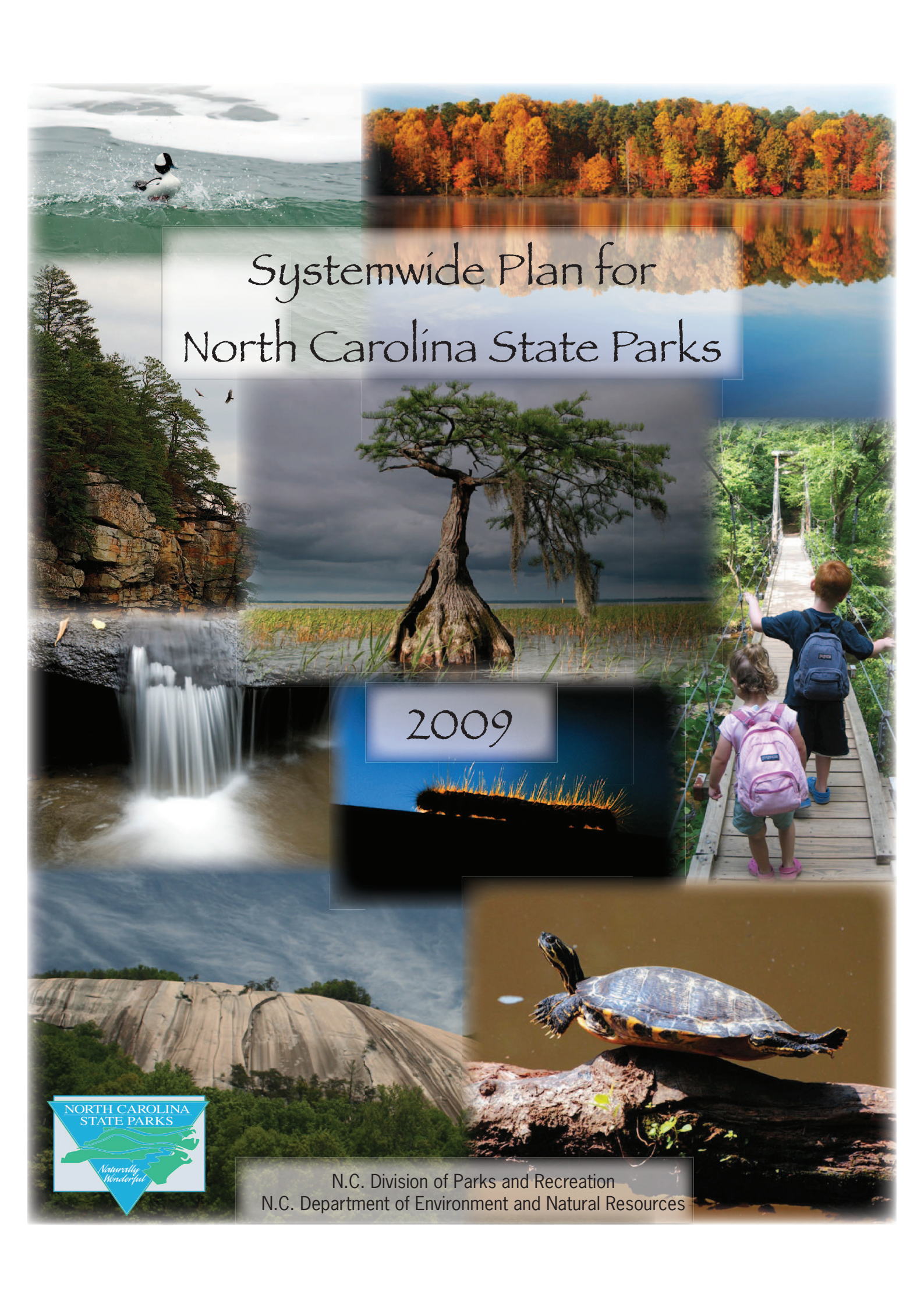
State Park Facility Construction Needs October 2012			
Park Name	New Construction	Repair & Renovation	Total Cost
Singletary Lake	\$2,291,484	\$0	\$2,291,484
South Mountain	\$55,483,714	\$0	\$55,483,714
Stone Mountain	\$3,393,121	\$5,827,134	\$9,220,256
Weymouth Woods	\$1,519,807	\$1,096,517	\$2,616,324
William B. Umstead	\$1,010,888	\$24,499,789	\$25,510,678
<b>GRAND TOTAL:</b>	<b>\$377,087,538</b>	<b>\$103,237,701</b>	<b>\$480,325,239</b>

**Table 2.6. State Parks System Land Acquisition Needs**

NORTH CAROLINA STATE PARKS SYSTEM LAND ACQUISITION NEEDS as of July 1, 2012					
UNIT	PLANNED ACRES	CURRENT ACRES	PENDING ACRES	REMAINING NEEDS	
				ACRES	EST. COST
Baldhead Island	1,280	1,260	0	20	\$0
Bay Tree Lake	2,856	2,027	0	829	\$1,250,000
Bear Paw	500	351	0	149	\$2,000,000
Beech Creek Bog	250	120	0	130	\$3,250,000
Bullhead Mountain	550	365	0	185	\$3,700,000
Bushy Lake	7,367	6,343	0	1,024	\$2,600,000
Carolina Beach	485	420	0	65	\$5,000,000
Carvers Creek	8,600	4,332	0	4,268	\$21,000,000
Chimney Rock	8,716	5,942	135	2,639	\$22,000,000
Chowan Swamp	6,066	6,066	0	0	\$0
Cliffs of the Neuse	3,499	892	0	2,607	\$2,300,000
Crowders Mountain	6,714	5,126	0	1,588	\$5,900,000
Deep River	4,000	1,274	0	2,726	\$5,000,000
Dismal Swamp	14,953	14,432	0	521	\$500,000
Elk Knob	6,000	3,473	8	2,519	\$11,000,000
Eno River	6,426	4,197	1	2,228	\$23,000,000
Falls Lake	5,035	5,035	0	0	\$0
Fort Fisher	287	287	0	0	\$0
Fort Macon	473	424	0	49	\$1,000,000
Goose Creek	1,991	1,672	0	319	\$750,000
Gorges	9,641	7,708	0	1,933	\$5,000,000
Grandfather Mountain	3,000	2,456	156	388	\$3,300,000
Hammocks Beach	1,497	1,155	0	342	\$5,000,000
Hanging Rock	9,983	7,049	0	2,934	\$10,000,000
Haw River	7,220	1,374	0	5,846	\$20,000,000
Hemlock Bluffs	97	97	0	0	\$0
Jockey's Ridge	428	426	0	1	\$700,000
Jones Lake	2,238	2,208	0	30	\$80,000

UNIT	PLANNED ACRES	CURRENT ACRES	PENDING ACRES	REMAINING NEEDS	
				ACRES	EST. COST
Jordan Lake	3,916	3,916	0	0	\$0
Kerr Lake	3,203	3,002	0	201	\$2,500,000
Lake James	3,975	3,515	5	455	\$4,000,000
Lake Norman	1,995	1,917	0	78	\$1,500,000
Lake Waccamaw	14,025	11,097	0	2,928	\$6,000,000
Lea Island	200	25	0	175	\$1,000,000
Lumber River	12,959	9,268	1,510	2,181	\$15,200,000
Lower Haw River	3,000	1,022	0	1,978	\$20,000,000
Masonboro Island	106	106	0	0	\$0
Mayo River	4,500	1,961	290	2,249	\$8,500,000
Medoc Mountain	4,351	3,892	0	459	\$2,000,000
Merchants Millpond	4,940	3,447	0	1,493	\$3,750,000
Mitchell Mill	149	93	0	56	\$450,000
Morrow Mountain	6,586	4,496	0	2,090	\$3,500,000
Mountains-to-Sea	3,000	691	0	2,309	\$30,000,000
Mount Jefferson	1,800	803	217	780	\$10,000,000
Mount Mitchell	2,819	1,996	0	823	\$18,000,000
New River	6,982	2,707	0	4,275	\$25,000,000
Occoneechee Mountain	231	162	0	69	\$1,500,000
Pettigrew	26,206	22,368	63	3,775	\$7,000,000
Pilot Mountain	5,503	3,651	0	1,852	\$8,000,000
Pineloa Bog	200	91	0	109	\$1,500,000
Raven Rock	5,467	4,694	0	773	\$7,000,000
Run Hill	123	123	0	0	\$0
Sandy Run Savannas	6,000	2,538	520	2,942	\$9,000,000
Singleary Lake	1,221	1,221	0	0	\$0
South Mountains	20,861	18,491	0	2,370	\$12,400,000
Sugar Mountain Bog	200	102	0	98	\$1,350,000
Stone Mountain	16,867	14,210	0	2,657	\$2,660,000
Theodore Roosevelt	265	265	0	0	\$0
Weymouth Woods	1,583	900	15	668	\$3,500,000
White Lake	1,068	1,068	0	0	\$0
William B. Umstead	6,200	5,599	0	601	\$11,000,000
Yellow Mountain	4,000	1,421	872	1,707	\$9,000,000
<b>TOTAL</b>	<b>294,653</b>	<b>217,369</b>	<b>3,792</b>	<b>73,491</b>	<b>\$379,640,000</b>





# Systemwide Plan for North Carolina State Parks

2009

NORTH CAROLINA  
STATE PARKS

Naturally  
Wonderful

N.C. Division of Parks and Recreation  
N.C. Department of Environment and Natural Resources





North Carolina Department of Environment and Natural Resources  
Division of Parks and Recreation

Beverly Eaves Perdue, Governor

Lewis R. Ledford, Director

Dee Freeman, Secretary

December 31, 2009

To the Citizens of North Carolina:

It is my pleasure to present the 2009 Systemwide Plan for North Carolina State Parks. This plan provides a record of recent activities and accomplishments, and offers strategic direction for the future of the state parks system.

North Carolinians can be proud of their parks system, not just because of its beauty and quality, but because they helped create it. The state parks system would not be what it is without the participation, support, advocacy, and advice of park visitors, legislators, local governments, land trusts, businesses, scientists, environmentalists, educators and many other wonderful partners.

Although our parks system is excellent, there are always areas for improvement. We are working continuously to add needed land and facilities, to provide the best possible visitor experience, to increase fiscal efficiency, and to be a valuable partner in local economic development efforts. In public comments on the draft Systemwide Plan, we heard support for more conservation and for more recreational opportunities, and we will work to accomplish these goals.

I invite you to enjoy your state parks, to be personally inspired and refreshed, and to use that energy to help make North Carolina a better place for generations to come.

Sincerely,

Lewis R. Ledford



# **Systemwide Plan for North Carolina State Parks**

**2009**



Division of Parks and Recreation  
Department of Environment and Natural Resources

## EXECUTIVE SUMMARY

The years from 2000 through 2008 were a period of unprecedented growth for the North Carolina State Parks System. In 2000, the NC General Assembly established a goal of protecting one million acres of open space lands. Funding was provided through several state trust funds, as well as special indebtedness, and the state parks system underwent an historic, carefully planned expansion.

- Land acquisition added 46,340 acres to the system, and 15 new units, including state parks, state natural areas, and state trails, were authorized by the General Assembly. Land acquisition funding from fiscal year 1999-2000 through fiscal year 2007-2008 totaled \$276.1 million.
- Two nationally known landmarks were added to the state parks system. Chimney Rock was added to Hickory Nut Gorge State Park in 2007, and the park's name was changed to Chimney Rock. The undeveloped portions of Grandfather Mountain became a state park in 2009.
- From fiscal year 1999-2000 through fiscal year 2007-2008, \$139.3 million was made available to the state parks system for construction of new facilities and for repairs and improvements to existing facilities.
- Major advances have been made in interpretation and education, natural resource stewardship, planning, trails, and all other programmatic areas. Field staff positions increased from 314 in 1999 to 428 in 2008 to manage new lands and operate new park facilities.

In 2008, the system consisted of 72 units, including State Parks, State Recreation Areas, State Natural Areas, State Rivers, State Trails, and State Lakes, protecting a wide diversity of environments from the highest mountains in the eastern US to forests, rivers, sandhills and coastal barrier islands.

- The total size of the system as of December 2008 was 204,847 acres. Visitation in 2008 was 12,483,887 visits.
- Through master planning and general management planning efforts, future land acquisition needs of more than \$394 million and future facility construction needs of more than \$417 million have been identified.

The system's statutory mandate is to protect representative examples of the state's significant archaeological, geological, scenic, recreational, and biological resources. These resources have been categorized into 108 themes in order to track how well the system is accomplishing this mandate.

- Significant progress has been made in recent years to improve the representation of these themes in the system. Seventeen biological themes are better represented than five years ago; four of these are now considered adequately protected.
- Priorities for protection of under-represented themes include fossils, caves and sinks, grass and heath balds, mafic glades and barrens, and brownwater floodplains.

Major trends that will affect public recreation in North Carolina include projections for continued population growth and land development. North Carolina continues to experience significant immigration, and average life expectancy is increasing. In addition to population growth, outdoor recreation demand has also been fueled by increased participation. These trends underscore the importance of conserving land and water resources, providing additional recreational opportunities in appropriate places, and developing environmental education facilities and programs to enhance appreciation for the state's natural heritage and to support efforts to promote public health.

During October 2008, public meetings were held and an on-line survey was conducted to give the public an opportunity to comment on the current status of the state parks system and to express their preferences for how the system should function in the future to meet their needs.

- The five most popular facilities in the parks system were found to be hiking trails, nature trails, picnic tables with grills, multi-use trails, and observation decks.
- More than 95 percent of respondents agreed with the statement “NC should add new parks to provide additional recreational opportunities”.
- More than 93 percent agreed that “It is important to protect natural and scenic resources by acquiring land even if these areas may not be accessible to the public until planning, design and funding are in place to be developed as park units.”

North Carolina’s state parks contribute about \$289 million to local economies annually as well as \$120 million to local residents’ income, according to a study by researchers at N.C. State University. The Division of Parks and Recreation also provides technical assistance to local parks and recreation departments through Recreation Resources Service, a cooperative partnership between the division and the NC State University Department of Parks, Recreation and Tourism Management.

## **STRATEGIC DIRECTIONS**

The current economic downturn has reduced the funding available for state park land acquisition and facility development, but has increased demand for the low-cost recreational opportunities offered in the state parks. Public support for open space protection and new park units remains high. There is a continuing need to protect important natural resources and to provide outdoor recreation opportunities. It will also be important for the state parks system to continue to improve in other ways. Four strategic directions were identified:

### **Continue Expansion of the State Parks System**

Continue to implement New Parks for a New Century, evaluate and prioritize the natural resources of the state, identify appropriate protection targets, complete high priority land acquisitions, and plan and construct appropriate public recreation facilities.

### **Provide the Best Possible Visitor Experience**

Get more and better feedback on visitor needs and perspective; use that information to make improvements in visitor information, facilities and operation; and improve organizational collaboration to focus on visitor experience.

### **Increase Efficiency and Reduce Costs**

Design sites and facilities to reduce maintenance and energy costs, take advantage of technological advances to improve data management and communication, including the new centralized reservation system, and explore ways of increasing revenues and volunteer support.

### **Support Local Economic Development**

Increase support for and participation in regional tourism initiatives and local planning projects, provide grants for local recreation providers, lead and support regional trail and greenway planning efforts, and support local schools and universities with educational programming and partnerships.

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# **CHAPTER ONE**

## **ACCOMPLISHMENTS: 2000-2008**

### **ESTABLISHING NEW UNITS**

The years from 2000 through 2008 were a period of unprecedented growth for the North Carolina State Parks System. Over the past decade or more, there has been intense public interest in land protection as the state grows and develops. In 1999, the General Assembly established a goal of protecting one million acres of open space. To help meet this goal, the Division of Parks and Recreation (DPR) began planning for an expansion of the state parks system. The initiative, called New Parks for a New Century, focused on selecting the highest quality sites most suitable for fulfilling the mission set out in the State Parks Act.

DPR undertook a comprehensive planning process to identify priority sites for addition to the system. Dozens of sites were nominated, and each one carefully evaluated based on the following factors:

- Quality and rarity of natural and cultural resources
- Feasibility of long term management and protection
- Connectedness to other protected lands
- Relative availability of state park units in different parts of the state
- Opportunities for public use, recreation, and education

Of the sites evaluated, 47 of the best were selected for potential addition to the state parks system and 15 new units were established with the approval of the General Assembly and the governor. In addition, Grandfather Mountain State Park was added in 2009.

**Table 1.1. New Units of the State Parks System – New Parks for a New Century**

<b>New Units Added to the State Parks System Since 2000</b>	
2000	Bullhead Mountain State Natural Area Lea Island State Natural Area Mountains-to-Sea State Trail
2002	Beech Creek Bog State Natural Area Elk Knob State Park
2003	Haw River State Park Mayo River State Park
2004	Lower Haw River State Natural Area
2005	Carvers Creek State Park Chimney Rock State Park
2006	Mountain Bogs State Natural Area Sandy Run Savannas State Natural Area
2007	Deep River State Trail
2008	Bear Paw State Natural Area Yellow Mountain State Natural Area
2009	Grandfather Mountain State Park





**Figure 1.1. Chimney Rock State Park**

### **Chimney Rock State Park**

On May 21, 2007, the state of North Carolina closed on the purchase of Chimney Rock, adding the natural attraction in Rutherford County to the new Hickory Nut Gorge State Park currently under development. The 2007 General Assembly authorized renaming the new park Chimney Rock State Park to recognize this notable accomplishment. Chimney Rock is among the state's most recognizable natural features and has been a favorite destination for generations of travelers. Readers of Southern Living magazine recently voted it one of the top three "Most Scenic Views" in the southeastern United States

The area has been considered a premier state park site in the system's New Parks for a New Century initiative, which examined sites throughout the state as potential state parks or state natural areas. The primary sections of the park are Chimney Rock, World's Edge, and Rumbling Bald. The addition of these lands to the state parks system brings a large cluster of state and nationally significant sites, centered on the spectacular cliffs, rugged mountains, and unusually rich soils that line the gorge. With 36 rare plant species and 14 rare animal species, it is one of the major centers of biodiversity in the state.

The National Association of State Park Directors presented national awards to Senator Walter Dalton; as well as Mike Leonard and Dick Ludington of The Conservation Fund for their efforts in establishing the park.



**Figure 1.2. Grandfather Mountain**

### **Grandfather Mountain State Park**

In April 2009, the General Assembly and Governor Perdue authorized Grandfather Mountain State Park, one of the state's signature landmarks, as the newest unit of the state parks system. The state had earlier reached an agreement to purchase the landmark. The agreement included the 2,601-acre undeveloped portion of the tourist destination as well as a conservation easement on the remaining 749 acres that will be managed through a nonprofit entity by the heirs of Hugh Morton. Members of the Morton family, which has worked to develop Grandfather Mountain as a tourist attraction and nature preserve since 1952, said the sale was an appropriate next step. "This opportunity completes the protection of all of Grandfather Mountain in perpetuity, as it should be for a place of such significance," Crae Morton, president of Grandfather Mountain Inc., said.

The Division of Parks and Recreation will manage the undeveloped portion of Grandfather Mountain, including its 11 trails, as a state park. Grandfather Mountain has been a wildlife sanctuary and nature preserve for decades, boasting 16 distinct habitats and 73 rare species including the Carolina northern flying squirrel and the Blue Ridge goldenrod. The mountain contains the headwaters of both the Linville and Watauga Rivers and is the only private park designated by the United Nations as an International Biosphere Reserve. The purchase money came from the N.C. Parks and Recreation Trust Fund and the Natural Heritage Trust Fund – created to purchase land for parks and preservation.





**Figure 1.3. Haw River State Park**

### **Haw River State Park**

Haw River State Park grew to over 1,300 acres in 2008 when the state parks system completed the purchase of 692 acres that had earlier been slated to be a residential golf community planned by a Fortune 500 company. Community involvement and the General Assembly's commitment to funding conservation made the agreement possible. Strong support for the land deal came from a citizens group of about 250 people, the Greensboro Partnership business group, the City of Reidsville, scout councils and tourism development agencies. Paul Gibson, Chairman of the Guilford County Board of Commissioners, noted that he had not gotten as much mail on any other issue in his seven years on the Board.

The acquisition was financed through certificates of participation to be repaid with future revenues into the Parks and Recreation Trust Fund. The property was added to about 300 acres the state parks system acquired since 2004 to establish the park and which includes The Summit Environmental Education Center. The Haw River headwaters area was one of 12 sites in the state deemed suitable for a new state park in the system's 2001 *New Parks for a New Century* initiative.

## **Significant Resources Protected by New Units of the State Parks System**

**Carvers Creek State Park** – The park includes excellent examples of the natural features of the Sandhills Region, including rolling hills, ravines, and narrow stream bottoms. Natural communities include most of those characteristic of the region: longleaf pine communities, seepage wetlands, pocosins and swamps in drainages, and beaver ponds, all with substantial areas in good condition.

**Elk Knob State Park** - The park is centered on a series of high ridges and peaks, featuring spectacular scenery and high quality examples of Northern Hardwood Forest and High Elevation Red Oak Forest natural communities. As in the rest of the Amphibolite Mountains area, much of the area is composed of amphibolite, a rock type that produces unusually rich, non-acidic soils with associated rich hardwood forest communities.

**Mayo River State Park** - Mayo River State Park is located along the Mayo River from Madison and Mayodan near the confluence with the Dan River north to the Virginia border. The Mayo River is ranked as nationally significant due to its numerous aquatic species. Numerous bluffs are found along the river including one of only two Piedmont Calcareous Cliff communities in the state.

**Deep River State Trail** - Deep River State Trail begins below City Lake in Jamestown and continues to the dam at US Route 1 on the Chatham/Lee County line. The trail will be a multijurisdictional effort to protect important natural and recreational resources. The Deep River is ranked nationally significant for its biological resources, including globally rare species of fish and mussels.

**Mountain Bog State Natural Area** - This unit is actually two bog areas, Pineola and Sugar Mountain. Mountain bogs are a very unique and rare wetland type. Due to their sensitivity to disturbance, bogs are one of the most endangered communities in North Carolina. Pineola Bog and Sugar Mountain Bog are both considered nationally significant, containing high quality Southern Appalachian Bog communities and numerous globally rare species.

**Sandy Run Savannas State Natural Area** - Sandy Run Savannas State Natural Area protects community types that once covered much of North Carolina's coastal plain. The cluster of Significant Natural Heritage Areas consists of large open grasslands intertwined with swamps and other wetlands where several species of rare plants and animals thrive. Many of these sites are nationally significant in their own right and together make Sandy Run Savannas State Natural Area one of the state's most diverse areas.

**Beech Creek Bog State Natural Area** - Beech Creek Bog was the first mountain bog protected in the state parks system. The state ranked site represents one of the rarest natural communities in the Southern Appalachians and in North Carolina.

**Lea Island State Natural Area** - Lea Island is an undeveloped barrier island south of Topsail Island, and in 2000 the General Assembly authorized the creation of Lea Island State Natural Area. Without human disturbance, the island is home to many species of shore birds, beach plants, and is also a nesting area for sea turtles. Many more migrant bird species use the island as a stopover in the spring and fall.

**Bear Paw State Natural Area** - The name originates from the Cherokee name for the mountain, Yonah-wayah or bear's paw. This nationally-ranked high elevation summit is the headwaters for Dutch Creek and habitat for many rare species.

**Bullhead Mountain State Natural Area** - Bullhead Mountain is located north of Stone Mountain State Park on the Blue Ridge escarpment. The site contains many excellent examples of mountain forest types and habitat for rare species. A major migratory route for hawks and eagles is also visible from the peak and this site has been an important for surveying these important birds.

**Lower Haw River State Natural Area** - The lower section of the Haw River above Jordan Lake is nationally significant due to the rare species living in the river. The bluffs and floodplain forests along the river are also significant.

**Yellow Mountain State Natural Area** - The Roan Mountain region has long been known for its biological, geologic, and scenic resources and has been the subject of studies for state park potential. Yellow Mountain State Natural Area will focus on an area around Little Yellow Mountain (Big Bald) and south to Raven Cliffs. From the grassy and heath balds to the cove forests, the area supports endemic Southern Appalachian and northern mountain species.

**Mountains-to-Sea State Trail** – The Mountains-to-Sea Trail was conceived in the 1970's as a continuous foot trail across North Carolina from Great Smoky Mountains National Park in the mountains to Jockey's Ridge State Park on the beach. By the 1990's there had been significant progress in building the trail, but major gaps remained, especially in the Piedmont. In 2000, the General Assembly made the Mountains-to-Sea State Trail a unit of the state parks system, enabling DPR to acquire and manage segments of the trail.

## LAND PROTECTION

A total of 46,340 acres have been added to the state parks system from July 1999 through December 2008 (Table 1.2). This includes the establishment of 15 new units and the expansion of existing units. Not included is the 2,601-acre acquisition at Grandfather Mountain State Park added in 2009.

**Table 1.2. Growth of the North Carolina State Parks System 1999-2008 (New areas in bold)**

STATE PARKS (land area only)		July 1, 1999 Size (acres)	Dec 31, 2008 Size (acres)	Acreage Added
	Bay Tree	609	609	0
	Carolina Beach	420	420	0
New	<b>Carvers Creek</b>	<b>0</b>	<b>1,395</b>	<b>1,395</b>
New	<b>Chimney Rock</b>	<b>0</b>	<b>4,111</b>	<b>4,111</b>
	Cliffs Of The Neuse	751	892	141
	Crowders Mountain	3,034	5,126	2,092
	Dismal Swamp	14,344	14,344	0
New	<b>Elk Knob</b>	<b>0</b>	<b>2,898</b>	<b>2,898</b>
	Eno River	2,636	4,139	1,503
	Fort Macon	389	424	35
	Goose Creek	1,596	1,672	76
	Gorges (3)	7,092	7,443	351
	Hammocks Beach	1,138	1,155	17
	Hanging Rock	6,554	7,049	495
New	<b>Haw River</b>	<b>0</b>	<b>1,334</b>	<b>1,334</b>
	Jockeys Ridge	420	426	6
	Jones Lake	1,669	1,669	0
	Lake James	605	3,515	2,910
	Lake Norman	1,469	1,928	459
	Lake Waccamaw	1,732	1,759	27
	Lumber River (1)	4,047	9,239	5,192
New	<b>Mayo River</b>	<b>0</b>	<b>1,967</b>	<b>1,967</b>
	Medoc Mountain	2,380	3,892	1,512
	Merchants Millpond	3,252	3,352	100
	Morrow Mountain	4,496	4,496	0
	Mount Mitchell	1,800	1,946	146
	New River (1)	1,538	2,359	821
	Pettigrew (2,5)	1,144	4,471	3,327
	Pilot Mountain	3,703	3,651	-52
	Raven Rock	3,549	4,694	1,145
	Singletary Lake	649	649	0
	South Mountains	14,069	18,048	3,979
	Stone Mountain	13,747	14,210	463
	William B. Umstead	5,439	6,000	561
<b>Total</b>	<b>34 State Parks</b>	<b>104,271</b>	<b>141,281</b>	<b>37,010</b>
STATE RECREATION AREAS (land area only)		July 1, 1999 Size (acres)	Dec 31, 2008 Size (acres)	Acreage Added
	Falls Lake	5,035	5,035	0
	Fort Fisher	287	287	0
	Jordan Lake	3,916	3,916	0
	Kerr Lake	3,000	3,002	2
<b>Total</b>	<b>4 State Recreation Areas</b>	<b>12,238</b>	<b>12,240</b>	<b>2</b>



<b>STATE NATURAL AREAS (land area only)</b>		<b>July 1, 1999 Size (acres)</b>	<b>Dec 31, 2008 Size (acres)</b>	<b>Acreage Added</b>
	Baldhead Island	1,260	1,260	0
New	<b>Bear Paw</b>	<b>0</b>	<b>125</b>	<b>125</b>
New	<b>Beech Creek Bog</b>	<b>0</b>	<b>120</b>	<b>120</b>
New	<b>Bullhead Mountain</b>	<b>0</b>	<b>365</b>	<b>365</b>
	Bushy Lake	3,374	6,343	2,969
	Chowan Swamp	6,066	6,066	0
	Hemlock Bluffs	92	92	0
New	<b>Lea Island</b>	<b>0</b>	<b>25</b>	<b>25</b>
New	<b>Lower Haw River</b>	<b>0</b>	<b>1,022</b>	<b>1,022</b>
	Masonboro Island	106	106	0
	Mitchells Mill	93	93	0
	Mount Jefferson	489	607	118
New	<b>Mountain Bogs</b>	<b>0</b>	<b>193</b>	<b>193</b>
	Oconechee Mtn.	96	162	66
	Run Hill	123	123	0
New	<b>Sandy Run Savannas</b>	<b>0</b>	<b>2,538</b>	<b>2,538</b>
	Theodore Roosevelt	265	265	0
	Weymouth Woods	898	900	2
New	<b>Yellow Mountain</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>Total</b>	<b>19 State Natural Areas</b>	<b>12,862</b>	<b>20,406</b>	<b>7,544</b>

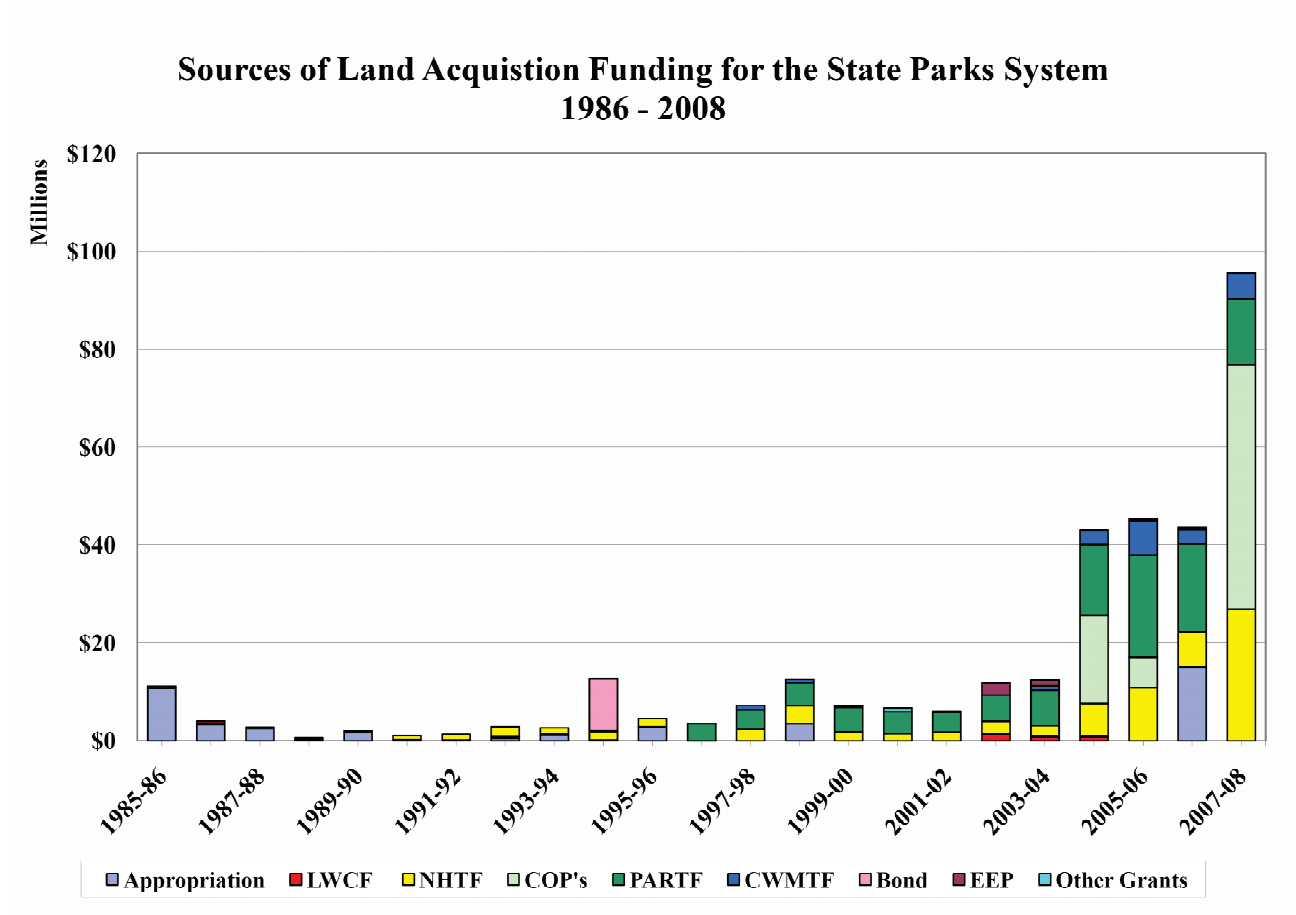
<b>STATE LAKES (water area only)</b>		<b>July 1, 1999 Size (acres)</b>	<b>Dec 31, 2008 Size (acres)</b>	<b>Acreage Added</b>
	Bay Tree	1,418	1,418	0
	Jones	224	224	0
	Phelps	16,600	16,600	0
	Waccamaw	8,938	8,938	0
	Salters	315	315	0
	Singletary	572	572	0
	White	1,068	1,068	0
<b>Total</b>	<b>7 State Lakes</b>	<b>29,135</b>	<b>29,135</b>	<b>0</b>

		<b>July 1, 1999 Size (acres)</b>	<b>Dec 31, 2008 Size (acres)</b>	<b>Acreage Added</b>	<b>1999 Length (miles)</b>	<b>2008 Length (miles)</b>
<b>STATE RIVERS</b>						
	Horsepasture	0	0	0	4.5	4.5
	Linville	0	0	0	13.0	13.0
	Lumber	0	0	0	102.0	102.0
	New	0	0	0	26.5	26.5
<b>Total</b>	<b>4 State Rivers</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>146.0</b>	<b>146.0</b>

<b>STATE TRAILS</b>						
New	<b>Deep River</b>	<b>0</b>	<b>1,274</b>	<b>1,274</b>	<b>0</b>	<b>90</b>
	French Broad River	0	0	0	67	67
New	<b>Mountains-To-Sea</b>	<b>0</b>	<b>511</b>	<b>511</b>	<b>0</b>	<b>1,000</b>
	Yadkin River	0	0	0	130	130
<b>Total</b>	<b>4 State Trails</b>	<b>0</b>	<b>1,785</b>	<b>1,785</b>	<b>197</b>	<b>1,287</b>

		<b>July 1, 1999 Size (acres)</b>	<b>Dec 31, 2008 Size (acres)</b>	<b>Acreage Added</b>
<b>TOTAL</b>	<b>STATE PARKS SYSTEM</b>	<b>158,506</b>	<b>204,846</b>	<b>46,340</b>

The General Assembly has also provided an infusion of capital funds to acquire land and support construction of park facilities. The majority of the funding has been provided through three state trust funds: the Parks and Recreation Trust Fund (PARTF), the Natural Heritage Trust Fund (NHTF), and the Clean Water Management Trust Fund (CWMTF). Other sources of funding are the Ecosystem Enhancement Program (EEP), legislative appropriations, and the federal Land and Water Conservation Fund (LWCF) program. In recent years, supplemental funding has been provided through Certificates of Participation (COPs) to be repaid from future revenues to the trust funds (Figure 1.4) From fiscal year 1999-2000 through fiscal year 2007-2008, a total of \$276.1 million has been made available for state park system land acquisition.



**Figure 1.4. Funding for Land Acquisition in the State Parks System**

## CONTRIBUTION OF STATE PARKS TO LOCAL ECONOMIES

North Carolina’s state parks contribute about \$289 million to local economies annually as well as \$120 million to local residents’ income, according to a study by researchers at N.C. State University conducted for the N.C. Division of Parks and Recreation. Fourteen state parks examined in the year-long study contributed at least \$139 million annually when spending by tourists was combined with spending in the local communities by the parks. The study found that “tourist” visitors to those parks spent an average of \$23.56 a day to enjoy the outdoors.

The study projected the total potential economic impact based on statewide attendance and assumed similar travel and spending patterns for all visitors to the system’s 37 state parks and state recreation areas. For purposes of the study, “tourist” visitors were defined as those non-local visitors whose



primary purpose for a trip was to visit a state park. The researchers interviewed 852 “tourist” visitors in the 14 parks studied and found that the average group contains 3.14 people and the average stay in a local community is 1.73 days. Thus, the average group spends \$127.98 during a park visit for such things as food, lodging, souvenirs, services and equipment.



**Figure 1.5. Canoeing at New River State Park**

The study was conducted by Recreation Resources Service of the Department of Parks, Recreation and Tourism Management at N.C. State University. Researchers visited each of the 14 parks between three and five times during the year interviewing 2,164 visitors to determine a percentage of “tourist” visitors. The data was then analyzed with IMPLAN modeling software, an industry standard for economic impact research. The fourteen parks in the study represent a broad cross-section of the parks system, including some with high day-use attendance as well as those popular for weekend camping trips. Large and small parks, as well as those in urban and rural communities, were studied.

The researchers noted that estimates of annual economic impact are conservative based on the narrow focus of the study. The expenditures of local residents visiting the state parks and “casual” visitors who traveled primarily for other reasons were not included. The study found that the percentage of “tourist” – non-local, primary purpose – visitors varies widely at different types of parks, from 17 percent at Eno River State Park in Durham County to 75 percent at Merchants Millpond State Park in Gates County. Analysis of the research shows that the state parks also make a considerable economic contribution directly to the communities through operations budgets and jobs.

The direct impact of the 14 parks studied was \$15 million in sales, \$10 million in personal income and 256.9 full-time equivalent jobs. The parks’ capital projects were not included. Nor were park fees, such as those fees for camping, since those revenues are returned directly to North Carolina’s general fund. When this park spending is combined with the impact of “tourist” visitor spending, the annual economic impact in 2007 ranged from \$1.73 million at Eno River State Park to \$20 million at Fort Fisher State Recreation Area. In 2007, Eno River State Park had 341,646 visitors and Fort Fisher State Recreation Area had 834,544 visitors.

## PARTNERSHIPS FOR CONSERVATION ACROSS NORTH CAROLINA

Partnerships between the state parks system and conservation organizations across North Carolina have been invaluable in the effort to protect some of the state's most valuable natural resources. The partnership is based on a shared goal of protecting these outstanding resources for future generations. Conservation organizations, such as local land trusts, play an important role in process by helping identify significant resources, contacting land owners and moving quickly to acquire properties on a short deadline if needed. Without these partnerships, the conservation of significant areas would be more difficult, if not impossible. Notable partnerships include:

- In 2006, **Audubon North Carolina** and the state parks system signed a formal partnership agreement to further our common goals. Partnership projects have included counting migrant hawks at Pilot Mountain State Park, printing bird checklists for Haw River State park, cooperating on data input and retrieval, assistance with signage and outreach projects, and hosting training programs for ranger staff. Audubon and State Parks are true partners in bird conservation.
- The state parks system and **The Nature Conservancy** reached an agreement under which a 1,380-acre former Rockefeller family estate in Cumberland County will be donated as part of Carvers Creek Sandhills State Park.
- **The Trust for Public Land** played a key role in negotiations for 102 acres of the Sugar Mountain Bog with a grant from the Natural Heritage Trust Fund.
- At Grandfather Mountain, **The Conservation Fund** acted as intermediary in the negotiation of the agreement between the Hugh Morton family and the State of North Carolina. The Conservation Fund took possession of the 2,601-acre property until the state could set aside funding.
- The **Guilford County Open Space Committee** and the **Piedmont Land Conservancy** were active partners in development of the Haw River State Park.
- At Chimney Rock State Park, the state has received significant help in establishing the new state park from **The Conservation Fund, The Nature Conservancy, the Carolina Mountain Land Conservancy and the Foothills Conservancy of North Carolina** as well as supporters in the local community.
- The **Trust for Public Land** and **Triangle Land Conservancy** facilitated an addition to the Mountains-to-Sea State Trail by helping acquire a keystone tract at the confluence of Marks Creek and the Neuse River. This tract is also part of a larger Marks Creek initiative that includes land acquired the Wake County's open space program.
- **Friends of State Parks (FSP)** is an all-volunteer non-profit group dedicated to the understanding, enjoyment, and protection of the state parks system. They assist with funding for exhibits, publications, programs such as the Junior Ranger program, milestone recognitions – most notably the 75th and 90th anniversary celebrations – and legislative advocacy.
- The **Friends of the Mountains to Sea Trail** have been a long standing partner to build and maintain segments of North Carolina's Mountains-to-Sea State Trail (MST) across North Carolina. To date, more than 400 miles of the trail have been constructed and opened for public use.

## CAPITAL IMPROVEMENTS

Appropriations and Parks and Recreation Trust Fund monies totaling \$139,287,081 were made available to state parks from fiscal year 1999 to fiscal year 2007-2008 for construction of new facilities and improvements to existing facilities. Eighty-one major capital improvement projects were completed as well as numerous smaller projects. These projects included construction of visitor centers, campgrounds, trails, and restrooms and other support facilities. By comparison, the total funding for capital improvements in the state parks system for the previous 75 years was about \$110 million.



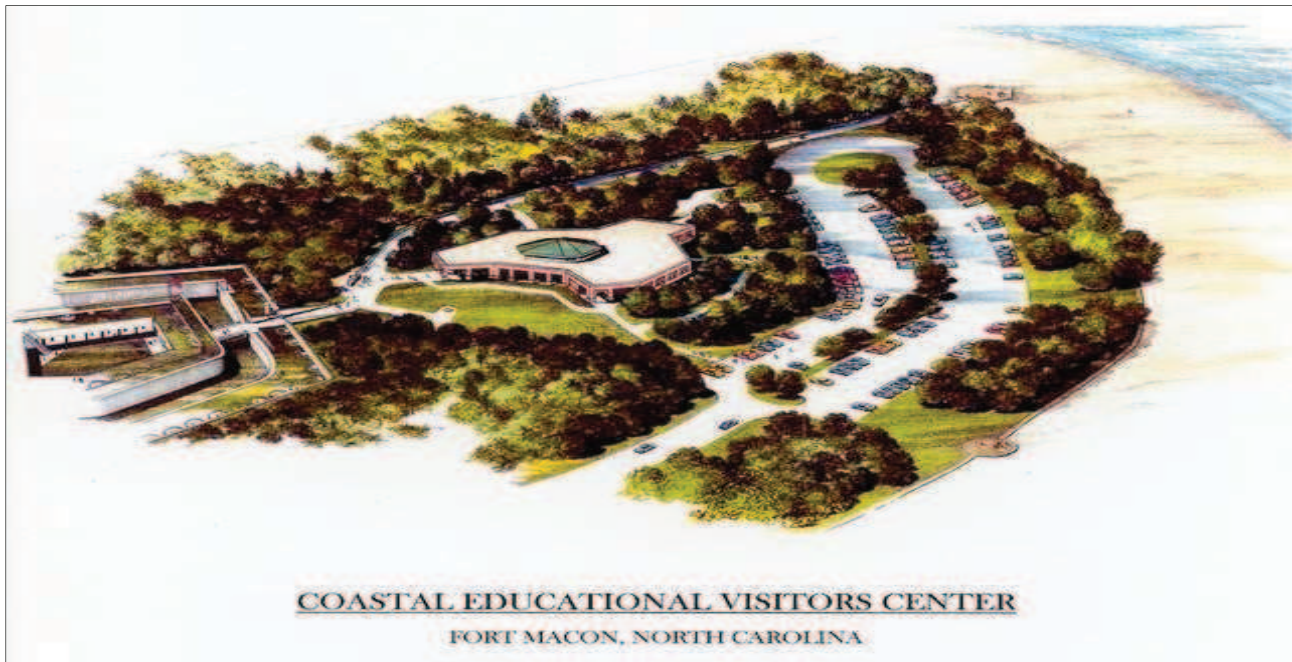
**Figure 1.6. South Mountains State Park Visitor Center**

### Building Green

The state parks system continues its efforts to promote planning and construction practices of infrastructure and buildings that are environmentally responsible and healthy places to live, work and enjoy. The division adopted a policy requiring the pursuit of LEED (Leadership in Energy and Environmental Design) certification through the U.S. Green Building Council's LEED Green Building Rating System for all new, or significantly renovated, buildings having 5,000 square feet or more. Through these efforts, North Carolina has become a national leader in pursuing LEED certification for buildings in the state parks system.

Sustainable and green buildings typically require additional design services and features that are not included in traditional construction. In most cases, the additional costs are recovered within a few years based upon energy savings and other factors. While multiple types of environmentally sound innovative building technology may be considered, the division is particularly interested in technologies that address:





**Figure 1.7. Fort Macon State Park Visitor Center will be LEED certified**

- Ecological site design: on-site erosion control, water purification/ pollution reduction, and stormwater management.
- Transportation: promoting bicycle, pedestrian and transit use where possible.
- Waste reduction: building reuse, job site recycling and efficient use of materials.
- On-site management of sewage and organic wastes, such as gray water systems and biological wastewater treatment
- Energy efficiency in areas such as thermal envelopes, space and water heating, lighting, controls, and appliances.
- Renewable energy: photovoltaics, geothermal pumps, and wind turbines.
- Water efficiency, both domestic and irrigation, including rainwater harvesting for irrigation and toilet flushing.
- Materials and resources: durable building envelopes and long-lived materials or assemblies, recycled-content materials, safer, less toxic materials, innovative application of natural materials.
- Indoor environmental quality, pollution reduction, worker and occupant safety, air cleaning, humidity control, and thermal comfort.
- Operations and maintenance: monitoring energy, water, waste, air quality, and transportation use along with resource-efficient operation practices.

All new and significantly renovated projects for buildings are evaluated for possible Leadership in Energy and Environmental Design (LEED) certification. Careful consideration is given to renovating old buildings versus new construction as well as using previously disturbed sites whenever possible. The division currently has LEED registered projects at Fort Macon (Figure 1.7), as well as at Raven Rock, Merchants Millpond, Pettigrew, Lake James, Cliffs of the Neuse, and Gorges state parks.

### **Making Park Facilities and Programs Accessible**

- DPR evaluated the accessibility of all park facilities in 1999 and committed to spending roughly ten percent of all capital funds to make new and existing facilities accessible to all people. This funding has totaled about \$12.8 million since 1999. Additional funding for special populations is being provided for facilities such as sun shelters, observation platforms, fishing piers, and playground equipment at state recreation areas.
- A new, low-profile observation deck has been constructed at the summit of Mount Mitchell, the highest point in the eastern United States. The circular platform, which is accessible to all visitors, crowns the 6,684-foot peak and presents a 360-degree view of the surrounding Black Mountains. The deck becomes a new focal point for Mount Mitchell State Park, the oldest state park in the North Carolina system and one of the oldest in the nation (Figure 1.8).



**Figure 1.8. Mount Mitchell State Park Observation Tower**

### **Improving Facility Design and Construction**

- DPR capital improvement projects with structures and wastewater typically average 3.3 years from beginning design to completion of construction. DPR continues with efforts to decrease project completion time by expediting reviews.
- Many state park projects are remotely located with limited access and costs can be significantly higher than similar projects that are more accessible. Using in-house staff to complete some repairs is one method that DPR employs to reduce costs.
- Two accounting positions have been added to improve tracking, managing, and reporting of capital improvement project funds.
- A professional engineer has been added to increase in-house capabilities and reduce costs related to facility design and construction.

### **Major Maintenance of Existing Infrastructure**

- Storm repairs totaling \$8,506,072 have been initiated or completed. The Federal Emergency Management Agency (FEMA) and the State of North Carolina shared the cost to repair damage in the parks caused by storms (90 percent FEMA /10 percent State).
- The Facility Inventory and Inspection Program (FIIP) is a computerized database that describes all the facilities and tabulates all the building repair costs. The repair needs are being addressed with capital improvement projects and major maintenance funds. To assist with facility maintenance and management, in 2003 DPR employed a statewide facility maintenance supervisor.
- In the early 1990's, the NC Department of Transportation agreed to provide \$500,000 per year in road and parking lot maintenance within the state parks system. DPR has received \$4.75 million from NCDOT for road projects during the last nine years.
- The six remaining underground storage tanks in state parks have been fitted with leak detection devices. DPR is compliance with state and federal mandates for these tanks and expects to replace them with above ground concrete-encased tanks.
- Dam maintenance and safety issues have been identified at several dams throughout the state parks system. As the needs arise, these maintenance and safety issues are addressed in coordination with the North Carolina Division of Land Quality to comply with all state dam safety laws.



## PARK OPERATIONS

The addition of 15 new units, more than 46,000 acres and many new visitor facilities has significantly challenged the state parks system's operational capacity. In response, the General Assembly has provided additional operating support for the new land and facilities.

- Field staff positions increased from 314 in 1999 to 428 in 2008, an increase of 114 positions or 36.3 percent. During this time, the parks system grew from 158,506 acres to 204,846 acres and added 15 new park units.
- In 1988, the Division of Parks and Recreation (DPR) reported that 33 operational units of the state park system employed 110 public contact staff workers, including park superintendents, park rangers, and clerk-typists. In 2008, there are 253 employees assigned to direct public contact responsibilities, an increase of 130 percent.
- All state park system units that are open to the public employ at least one full-time office assistant with a total of 52 office assistants working in the parks. The number of maintenance staff has increased to meet the needs of a larger park system. In 1988, only 10 of the parks employed maintenance workers. As a result, park rangers performed the bulk of the custodial and facilities maintenance chores at each park.
- By 2008, DPR had expanded its maintenance staff to at least one maintenance mechanic for each park unit and now employs 127 maintenance workers throughout the parks, recreation areas, and natural areas; nearly 13 times more maintenance staff.



**Figure 1.9. Park Ranger Responsibilities**

The state parks system has taken steps to modernize its operations, in some cases adding staff with specialized knowledge and skills and in other cases using technological advances to increase operational efficiency.

- In 2003, the Division of Parks and Recreation added a facilities maintenance manager position to assume responsibility for the overall maintenance program. The duties of this position include acting as lead for maintenance training, standards, and procedures; and supervision of the warehouse facility staffed by three warehouse employees.
- In July 2004, the division added a law enforcement specialist to address specific program needs within the division's rapidly expanding public safety program. This position is responsible for law enforcement data management and the public safety training program.
- In January 2005, the division added the position of radio engineer to handle radio communications. Over 550 hand-held radios, 320 vehicle mobile radios, 38 radio base units, 38 radio repeaters with antennas, and a growing number of vehicle-mounted computers are in use. This equipment is essential for park operations, visitor protection and safety duties.
- Personnel banding of State Park law enforcement commissioned officers has recently been completed. These positions were recently upgraded to pay grades at least as high as commissioned staff in other divisions within the department.
- A centralized reservation system has been developed to automate the rental of campsites, cabins, shelters, and other facilities. The on-line centralized reservation system is available via the internet and significantly modernizes and improves customer service capabilities.
- An enterprise development program was established to foster appropriate corporate sponsorships, to increase revenue generation through such activities as purchases for resale, and to enhance volunteer recruitment and management.

### **Staff Training**

- The division created a web-based system tracking all division-coordinated training. This system provides a record of all training provided to each employee (examples: Law Enforcement, Environmental Education).
- First Responder training is provided for all permanent maintenance staff and all law enforcement staff. DPR now has certified instructors to provide training.
- Since 1999, the number of certified burn bosses has increased from seven to 15. Having fire management instructors enables DPR to provide in-house fire management training, decrease dependence on outside sources and provide greater flexibility for completing prescribed burns.
- All district and park superintendents gain professional management and supervisory training.
- The first maintenance training seminar, a three-day training workshop, was held in 2000 for 45 DPR maintenance staff. A second such seminar was held in 2004 for another 45 DPR maintenance staff. Classes offered included welding, carpentry, and small engine repair.



- An annual Park Safety Coordinator Conference, attended by the safety coordinator from each park, provides training updates on subjects such as OSHA standards and immunization requirements.

### **State Park Advisory Committees**

Thirty-one state parks have park advisory committees and four other parks are forming committees. The 258 committee members represent local governments as well as groups representing businesses, park users, educators, and conservation organizations

The basic functions of park advisory committees are:

- To investigate and determine the needs and interests of the community for recreation programs and facilities and make recommendations to meet those needs in keeping with the mission of the state parks system.
- To provide input and review for master plans, general management plans, and pertinent studies for the planning, acquisition, development, and management of natural resources, facilities and recreation programs.
- To recommend and advise on the acceptance of any grant, gift, contribution, or donation made available to the park.
- To serve as a forum in introducing innovative and new ideas, concepts, programs, policies, and procedures.
- To work toward favorable public opinion of and support for, state park resources and services through community, regional, and state groups.
- To assist in maintaining the highest standards of professional park and recreation leadership and the quality of programs offered by the park.
- To assist park staff in developing cooperative arrangements with other organizations and private groups.
- To assist staff in recruiting volunteer staff to work with park programs and activities.
- To assist park staff in evaluating programs and activities as well as developing program priorities.

## **NATURAL AND CULTURAL RESOURCE PROTECTION**

### **Environmental Compliance**

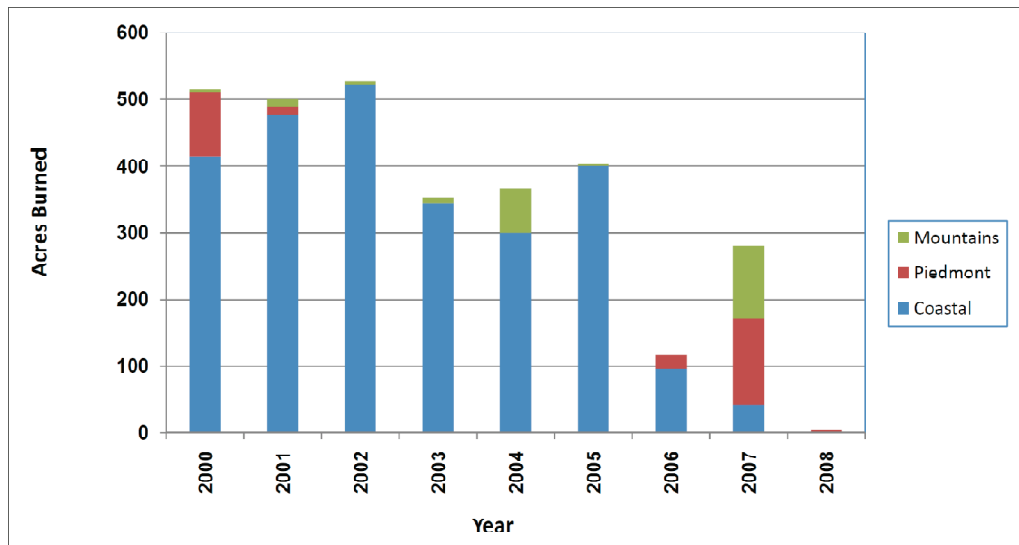
- The Natural Resources Program reviewed over 40 state park projects funded through the Parks and Recreation Trust Fund. Projects included new and existing trail work, visitor center construction, maintenance dredging, swim beach development, and campground construction.
- Guidelines were developed for stream crossings and the use of culverts.
- In 2001, a review of the construction environmental compliance process was initiated between the Engineering and Natural Resources programs to increase understanding of the environmental compliance process and to improve communications.
- A Geographic Information System (GIS) dataset was created to facilitate environmental compliance and park planning. The GIS dataset contains overlays for rare species, natural heritage areas, registered natural areas and park facilities (roads, park buildings, trails, etc.).

### **Regional Conservation Planning**

- DPR has been represented at a number of meetings, including Federal Energy Regulatory Commission relicensing, town and county planning meetings, US Army Corps of Engineers studies and various water quality studies, in order to participate in regional conservation planning efforts.
- DPR has been involved in large-scale water quality studies at Jordan Lake, Merchants Millpond, Lake Waccamaw, Eno River, Kerr Lake and New River. Planning at the watershed level with other landowners and regulatory agencies helps to protect water quality in park lakes, rivers, and streams.

### **Stewardship**

- The following guidelines were developed: fire management (2003), geocaching (2002) and inventory and monitoring (2000), feral hogs (2002), ecological restoration (2003) and draft guidelines have been developed for Pine Plantations (2006).
- The prescribed fire program was initiated or expanded at the following parks: Crowders Mountain, Hanging Rock, Pilot Mountain, South Mountains, and Stone Mountain. Burning in the Piedmont region has expanded significantly at Falls Lake State Recreation Area. South Mountains State Park has been identified as a demonstration site for the Southern Appalachian Fire Learning Network in cooperation with the The Nature Conservancy, Wildlife Resources Commission, the National Park Service, and the US Forest Service. Overall, prescribed burn acreage was trending downward due to staff workloads. In response, DPR obtained a federal grant to establish a roving seasonal fire crew. Burn acreage for 2009 will be significantly higher than in previous years.



**Figure 1.10. Prescribed Fire at North Carolina State Parks 2000-2007**

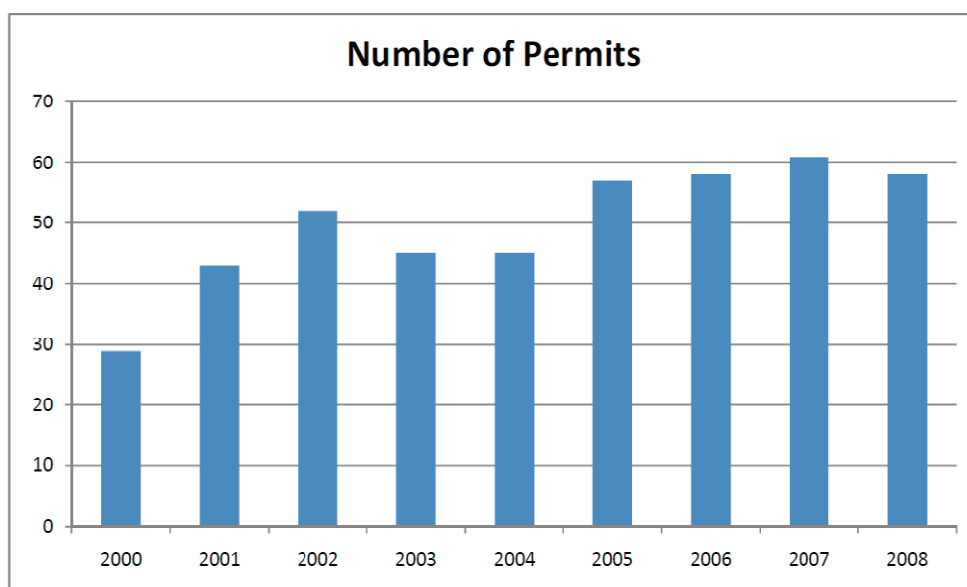
- Terrestrial exotic plant control plans for high priority projects were initiated at the following parks: Pilot Mountain State Park, Raven Rock State Park, Lake Norman State Park, New River State Park, Mitchell Mill State Natural Area, Stone Mountain State Park, Hammocks Beach State Park, Eno River State Park, Jordan Lake State Recreation Area and Lower Haw State Natural Area.
- Natural Resources Program staff has conducted a number of exotic invasive workshops to provide field staff with a practical understanding of the safety precautions, techniques and methodologies to control terrestrial exotic invasive species.
- Aquatic weed control has been continuing at a number of parks throughout the system. Most of the projects have been assisted with funding from the Division of Water Resources' Aquatic Weed Council.
- Following development of nuisance animal guidelines in 1999, several management plans have been developed including:
  - a plan to address raccoons raiding sea turtle nests at Hammocks Beach State Park,
  - a feral hog management plan at South Mountains State Park
  - a red fox management plan for Fort Fisher State Recreation Area
  - a black bear management plan for Mount Mitchell State Park and
  - a draft feral hog management plan for Gorges State Park.
- A number of restoration projects were initiated throughout the system including:
  - Eno River State Park: removal of the Pleasant Green Dam;
  - Stone Mountain State Park: stream restoration on Big Sandy Creek;
  - New River State Park: stream restoration at NC 221 and Wagoner Road Access areas;
  - Hammocks Beach State Park: bulkhead removal with shoreline restoration and parking lot removal with associated water quality improvements; and
  - Hanging Rock State Park: re-introduction of Schweinitz's sunflower.

## **Natural Resource Inventory and Monitoring**

- DPR developed a web-based database called the Natural Resources Inventory Database (NRID) to record all species identified throughout the system. The database allows staff and researchers to enter records of individual species and allows park visitors to create species checklists on-line.
- Since going on-line in 2003, a total of 173,745 web queries of the NRID and a total of 115,745 records have been added. In addition, the NRID allows for uploading photos of individual species, natural resource management activities, and natural community types. To date, there have been 11,813 photos uploaded.
- The Natural Resources Program conducted intensive park surveys across the system for amphibians, bats, birds, crustaceans, insects, plants, reptiles, small mammals, spiders, and terrestrial and aquatic mollusks.
- Initial inventories were performed at new state park units including Carvers Creek State Park, Sandy Run Savannas State Natural Area, Beech Creek Bog State Natural Area, Gorges State Park, and Chimney Rock State Park.
- Monitoring projects in state parks expanded to include numerous species. Examples are:
  - Eastern hellbender and common mudpuppy surveys at New River State Park
  - Green salamander population monitoring at Gorges and Chimney Rock state parks
  - Rafinesque's big-eared bat, southeastern Myotis roost tree, and Least trillium monitoring at Merchants Millpond State Park
  - Red-cockaded woodpecker monitoring at Carvers Creek State Park
  - Golden sedge monitoring at Sandy Run Savannas State Park
- Six inventory workshops were conducted: Rare species (North District); amphibian and reptile inventory (South District and West District); and mammal inventory (two workshops in the West District and one in the North District).

## **Research**

- DPR issued 448 scientific research and collecting permits from 2000 to 2008. These research projects covered a wide range of natural science topics, including: intensive bog vegetation surveys; citizen-science monitoring of Eastern Painted Buntings at coastal parks; fossil excavation at Lake Waccamaw; and hydrologic restoration work at Lake Phelps (Figure 1.11).
- Two white-tailed deer exclosures were erected at Stone Mountain State Park for long term monitoring to assess possible over-population impacts on park resources.
- A multi-year trout stream study has begun at Stone Mountain State Park, in collaboration with North Carolina State University and the NC Wildlife Resources Commission.
- A long-term vegetation study on the effects of pine plantation restoration was begun at Sandy Run Savannas State Natural Area.



**Figure 1.11. Number of Research Activity Permits Issued by Year.**

- A multi-year Carolina gopher frog reintroduction program was planned and initiated for Carolina Beach State Park, in collaboration with the NC State Museum of Natural Sciences Herpetology Unit.
- A multiple-agency partnership, The Box Turtle Collaborative Working Group, was established to provide long-term data on eastern box turtles across the state.
- Audubon North Carolina, in partnership with NC DPR, has identified Important Birding Areas (IBA) across the state.
- A migrant bird banding station was established at Weymouth Woods State Natural Area, and a Monitoring Avian Productivity and Survivorship (MAPS) program bird banding station was established at Eno River State Park.

#### **Natural and Cultural Resources Inventories**

- Park lands were included in 15 county natural heritage surveys. The Natural Heritage Trust Fund provided partial funding for these projects, which verified old records and documented new occurrences of rare species and high quality natural communities.
- From 2000 to 2008, archaeological surveys were conducted at six park units. The studies were conducted prior to the initiation of various capital improvement projects. All of the studies were conducted by professional archaeologists contracted by DPR and supervised jointly by DPR and staff from the Office of State Archaeology.

## INTERPRETATION AND EDUCATION

The North Carolina Division of Parks and Recreation offers a wide range of educational opportunities and resources. Interpretation and Education (I&E) program areas include professional development (I&E Training), exhibits and museums, Environmental Education Learning Experiences (EELEs), youth programs, and strategic planning.



**Figure 1.12. Interpretation and Education in the State Parks System**

### Interpretation and Education Training

- A DPR staff directive in 1999 mandated that all park rangers, superintendents and interpretation and education specialists achieve their North Carolina Environmental Education Certification within three years of employment. The certification increases the capacity of division staff to deliver exemplary environmental education programs and fosters partnership networks throughout the state.
- Interpretation and education staff initially revised the division's interpretive training program in 2004. The new training program involves a weeklong Basic Interpretive Training course and a flexible Advanced Interpretive Training program.
- The Advanced Interpretive Training Program continues to evolve to meet the training needs of park ranger staff. New courses include Global Positioning System (GPS) for Natural Resources Managers, Photoshop Basics, Interpretation and Environmental Education for Young Children, and Fire Ecology.



### Department Initiatives in Environmental Education

- The division continues offer a leadership role in the department's North Carolina Environmental Education (EE) Certification Program. The division's I&E specialists advise staff members in the Office of Environmental Education on the continued improvement of the certification program.
- The division provides support to local, state and national environmental education organizations. In 2007, Morrow Mountain State Park hosted the annual conference of the North Carolina Association of Environmental Education Centers. In 2008, Haw River State Park hosted the first Department of Environment and Natural Resources (DENR) Environmental Education Forum, bringing together environmental educators working in state government across North Carolina.

### Exhibits and Museums

- Capital improvement exhibit projects at the following parks were recently completed: Dismal Swamp, Jones Lake, Jordan Lake, Kerr Lake, Medoc Mountain, New River and South Mountains. Merchants Millpond, Cliffs of the Neuse, Raven Rock, Gorges and Fort Macon are in the process of being completed.
- An exhibits maintenance fund has provided for necessary repairs to older park museums and exhibit halls such as Weymouth Woods State Natural Area. It has also allowed the renovation of wayside exhibits throughout the park system with a focus on exhibits providing critical park information and safety warnings.



**Figure 1.13. Visitor Center Exhibits at Hammocks Beach State Park**

## Environmental Education Learning Experiences

The Division of Parks and Recreation continues to provide Environmental Education Learning Experience (EELE) workshops for educators in each park with an existing ELEE activity guide. I&E specialists are in the process of developing new EELE activity guides focusing on new parks in the system and the history/mission of the North Carolina State Parks System.

**Table 1.3. EELE Workshops – Annual Comparisons**

<b>Fiscal Year</b>	<b># EELE workshops</b>	<b>Total Attendance</b>
2005-2006	45	508
2006-2007	42	491
2007-2008	53	568



**Figure 1.14. Environmental Education Learning Experience**

## Connecting Nature across Generations

- 2007 was the inaugural year for operating a residential environmental education program at Haw River State Park. Over 5,000 students and adults participated in the environmental education program at Haw River State Park during its first year administered through the division.
- The Division of Parks and Recreation was instrumental as a partner organization in promoting the first annual *Take a Child Outside Week*, September 24 – 30, 2007. This international initiative was first developed by the North Carolina Museum of Natural Sciences to help families and educators engage children in outdoor discovery.



- The division continues to develop junior ranger programs through collaboration with the Friends of State Parks. Junior ranger programs engage elementary age children in meaningful learning by participating in park educational programs, completing an activity booklet, conducting a park stewardship project, and learning about career opportunities in natural resources.

### **Aquatic Programs**

- Many parks in the system have spectacular natural areas that are best observed on the water. In 2008, the division enrolled nine staff members in a Canoe Instructor Certification program and nine staff members in a Kayak Instructor Certification program through the American Canoe Association.

### **Public Interpretation and Education Programs**

- Interpretation & Education programs continue to be popular in the North Carolina state parks system (Table 1.4).

**Table 1.4. I&E Program Attendance – Annual Comparisons**

Fiscal Year	Total Program Attendance	Increase in Attendance
05-06	254,647	
06-07	257,568	+ 2,921
07-08	261,021	+ 3,453

### **Park Interpretive Themes**

- The primary and secondary interpretive themes for several parks were updated during the general management planning process from 2005-2008. Additionally, primary interpretive themes are being developed for new parks in the system.

### **Guidelines**

- The division's Exhibits Coordinators have completed a draft of the *Visitor's Center Exhibit Guidelines* and a draft of the *Wayside Exhibits Guidelines*. Standards and guidelines were developed for the division's website, logo and park informational displays. This has allowed DPR facilities and services to be more easily recognized by the public. In 2008, I&E specialists and the I&E Council worked to revise the Interpretation Guidelines and the Environmental Education Guidelines.

## **PLANNING**

### **General Management Plans (GMPs)**

General management plans are required by the State Parks Act to provide a periodically updated summary of management direction. GMP's include a park purpose statement, an analysis of major resources, park history, building repair needs, road and utility needs, recommendations for land

acquisition and capital improvements, and recommendations for natural resource protection and park operations. In addition to the 21 GMP's that were approved by 2000, the following plans have been completed or are in progress.

- Ten GMPs were completed: Fort Macon, Eno River, Gorges, Cliffs of the Neuse, Jones Lake, Raven Rock, Carolina Beach, Fort Fisher, Lake Waccamaw, and Lumber River state parks.
- Draft GMPs at five park units have been completed and await park advisory committee review: Goose Creek, Medoc Mountain, Mount Mitchell, Pettigrew, and Pilot Mountain.
- GMPs for Crowders Mountain, Eno River, Falls Lake, Hammocks Beach, Jordan Lake, Morrow Mountain, Mount Mitchell, New River, Stone Mountain, Weymouth Woods, and William B. Umstead, are underway and in various stages of completion.
- Starting in 2004, newly completed park general management plans were made available on the website to improve accessibility to park staff and the general public.

### **Park Planning and Design**

In 2007 the Park Design Program was created within the Design and Development Section to administer the park planning and design process for state park units. The program includes a landscape architect as well as a park designer and a GIS analyst. The program oversees the park master planning process for new parks and parks that have added significant new acreage. The master plans, which are used to guide a park's future development, include an analysis of cultural, scenic, recreational, geologic, and biological resources, and a description of long term development recommendations and land acquisition goals. The public in general, as well as park neighbors, local governments, and other agencies are invited to provide input during the master planning process.

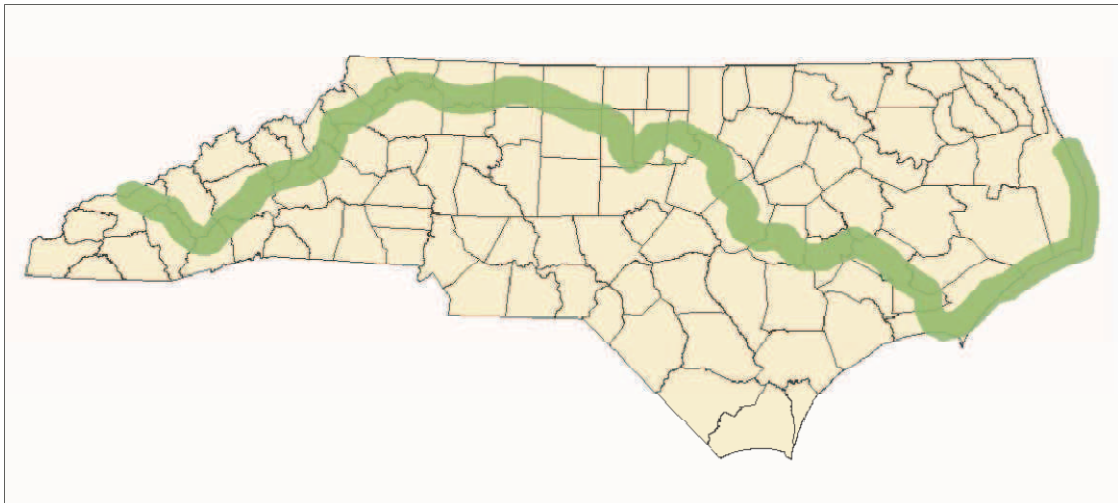
- The Lake James State Park Master Plan was completed in 2006. The addition of over 2900 acres to the park on the north side of Lake James brought with it a new land base and new opportunities for recreation and resource protection.
- The South Mountains State Park Master Plan was completed in November 2007, updating previous park plans. Created in 1974, the park has undergone significant growth and change since the original master plan, including the addition of the Henry Fork and Clear Creek watersheds, almost doubling the size of the park to over 17,000 acres.
- New master plans have been authorized for Haw River State Park, Chimney Rock State Park and Carvers Creek State Park.
  - Authorized as a new unit in 2003, Haw River State Park is the site of the division's only residential environmental education facility. This unit encompasses approximately 1,300 acres on the Haw River and is on the proposed route for the Mountains-to-Sea State Trail.
  - Chimney Rock State Park encompasses over 4,000 acres on the north and south sides of Hickory Nut Gorge and contains operating facilities open to the public.
  - Carvers Creek State Park was authorized in 2005. Containing both significant natural and cultural resources, the master plan will investigate the development potential for the existing park properties and also explore long-range planning within the larger, regional study area.

- A spatial database system is currently under development that will allow the GIS-based management, mapping, retrieval, storage and updating of state parks facilities data. It will gather information used by multiple programs within the division and will include such items as location, functionality, digital imagery, and other characteristics of existing facilities. Some of the important aspects of the spatial database design are its simplicity, remote access by staff using just a web-browser, and data access for mapping and editing purposes by freely available GIS software.

## **STATE TRAILS PROGRAM**

### **North Carolina's Mountains-To-Sea State Trail**

- The Mountains-to-Sea State Trail (MST) was authorized as a new unit of the state parks system in 2000. The Trail was envisioned more than two decades ago to cross the state from the Great Smoky Mountains National Park to Jockey's Ridge State Park on the North Carolina coast. Inclusion in the state parks system has facilitated the final routing of the MST with governmental partners, non-profit organizations and volunteers, all involved in land acquisition, trail construction and management of the Mountains-to-Sea Trail.
- 2001 – 2003 Mountains-to-Sea State Trail East Plan - A conceptual routing plan for the Mountains-to-Sea State Trail from Falls Lake Dam in Wake County to Cedar Island in Carteret County was accomplished with assistance from numerous local governments within the planning corridor.



**Figure 1.15. Mountains-to-Sea State Trail Planning Corridor**

- 2005 - \$1.6 Million for Mountains-to-Sea State Trail - A tangible result of the MST East Plan and the MST East Task Force was an appropriation \$1.6 million of Federal Highway Funds for the trail. Funds helped plan, acquire and build the MST between the City of Raleigh and the Town of Smithfield.

- 2005 – 2006 Mountains-to-Sea State Trail - Piedmont East Planning - DPR partnered with the Piedmont Triad Council of Governments and the counties of Wake, Durham, Orange, Alamance and Guilford to better define the route of the MST from Falls Lake in Wake County to the City of Greensboro’s water supply lakes system.
- 2007 – Mountains-to-Sea Trail Piedmont West Planning - This effort resulted in the identification of two primary routes for the MST: the original rural route linking Greensboro, Hanging Rock and Pilot Mountain State Park to the Yadkin River and west; and an urban route in recognition of the Cities of Greensboro, Kernersville and Winston Salem’s to plan, acquire and build a connector trail between these communities.
- DPR has committed to funding the Mountains-to-Sea State Trail at the level of \$1 million per year. In FY 2007-08, \$8.5 million from the Parks and Recreation Trust Fund was allocated to four projects along the corridor.

### **Comprehensive State and Regional Trails Plan For North Carolina**

- DPR is developing a “Comprehensive State and Regional Trails Plan” for North Carolina. This plan is being developed one region at a time with assistance from the regional Council of Governments, governmental agencies and interested citizens. The goal of these regional trail planning efforts are to identify significant state trails, regionally significant trails and local trails.
- DPR partnered with the High Country Council of Governments to develop a regional trails plan for the counties of Alleghany, Ashe, Avery, Mitchell, Watauga, Wilkes and Yancey. This effort was designed to help local governments cooperatively plan for trails and greenways across jurisdictional boundaries and to set trail priorities within the region.
- DPR partnered with the Land of Sky Council of Governments to develop a regional trails plan for the counties of Buncombe, Henderson, Madison, and Transylvania. The resulting French Broad River Regional Trails Plan will help governmental agencies and non-profit organizations establish set local and regional trail priorities and promote joint applications for federal, state and non-profit funding and grants.

## CHAPTER TWO STATE OF THE SYSTEM

### SYSTEM UNITS

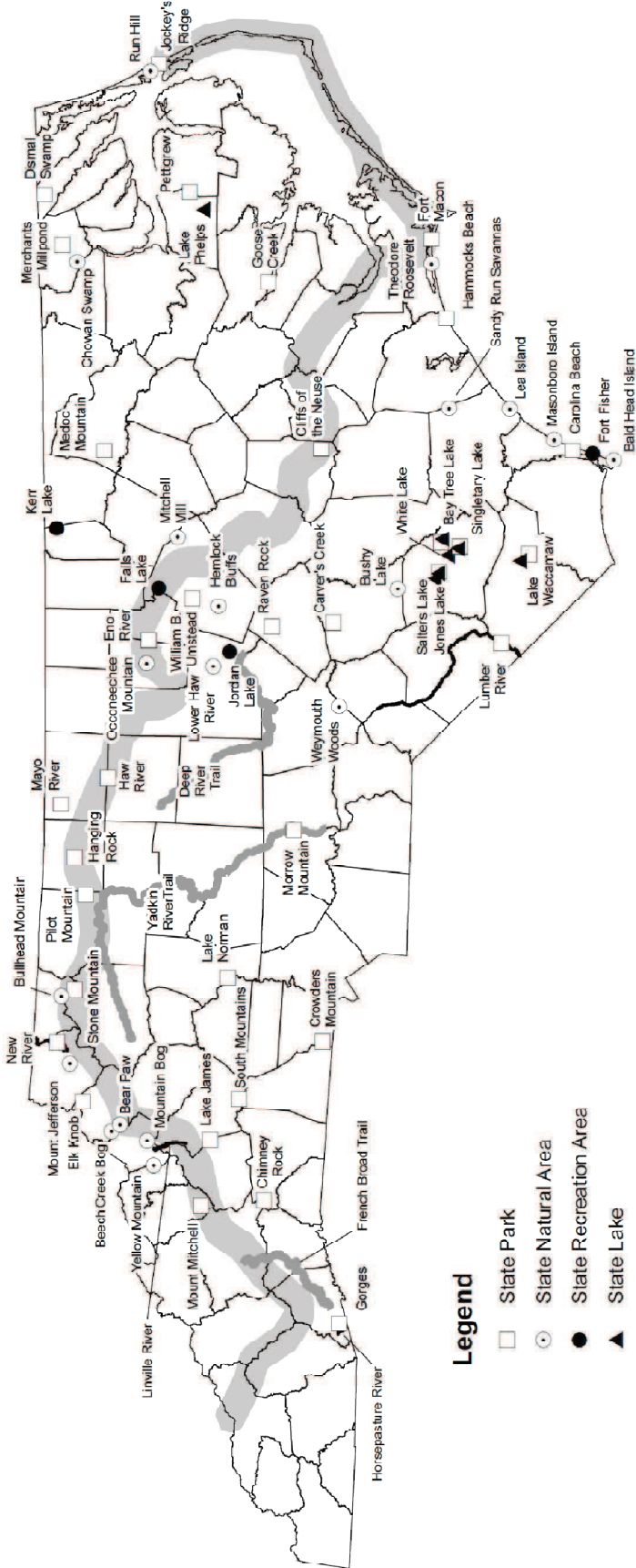
As of December 2008, the North Carolina State Parks System consists of 72 units, 38 of which are operated for the visiting public with on-site staff and regular gate hours. The remaining units are managed in one of the following ways: under an established park, as a satellite unit, or through cooperative and partnership agreements. For example, Lake Phelps State Lake is managed under Pettigrew State Park. Run Hill State Natural Area is a satellite of Jockeys Ridge State Park. Hemlock Bluffs State Natural Area is leased to the Town of Cary in a cooperative agreement and the Mountains-to-Sea State Trail is an example of a protection partnership with other agencies and organizations.

**Table 2.1. Size of the State Parks System**

<b>SIZE OF THE NORTH CAROLINA STATE PARKS SYSTEM As of December 2008</b>			
<b>Unit Type</b>	<b>Units</b>	<b>Size (Acres)</b>	<b>Length(Miles)</b>
State Parks	34	141,281	
State Recreation Areas	4	12,240	
State Natural Areas	19	20,406	
State Lakes	7	29,135	
State Rivers	4	0	146
State Trails	4	1,785	1,287
<b>TOTAL</b>	<b>72</b>	<b>204,847</b>	<b>1,433</b>
Land Area		175,712	
Water Area (State Lakes)		29,135	
<b>TOTAL</b>		<b>204,847</b>	



# North Carolina



August 2008

**Figure 2.1. Map of the North Carolina State Parks System**

**Table 2.2. The 72 State Parks System Units with Acreages as of December 2008**

<b>STATE PARKS (land area only)</b>		<b>STATE RECREATION AREAS</b>	
	<b>Size (acres)</b>	<b>(land area only)</b>	<b>Size (acres)</b>
Bay Tree	609	Falls Lake	5,035
Carolina Beach	420	Fort Fisher	287
Carvers Creek	1,395	Jordan Lake	3,916
Chimney Rock	4,111	Kerr Lake	3,002
Cliffs Of The Neuse	892	<b>Total</b>	<b>4</b>
Crowders Mountain	5,126		<b>12,240</b>
Dismal Swamp	14,344	<b>STATE NATURAL AREAS (land area only)</b>	
Elk Knob	2,898		<b>Size (acres)</b>
Eno River	4,139	Baldhead Island	1,260
Fort Macon	424	Bear Paw	125
Goose Creek	1,672	Beech Creek Bog	120
Gorges	7,443	Bullhead Mountain	365
Hammocks Beach	1,155	Bushy Lake	6,343
Hanging Rock	7,049	Chowan Swamp	6,066
Haw River	1,334	Hemlock Bluffs	92
Jockeys Ridge	426	Lea Island	25
Jones Lake	1,669	Lower Haw River	1,022
Lake James	3,515	Masonboro Island	106
Lake Norman	1,928	Mitchell Mill	93
Lake Waccamaw	1,759	Mount Jefferson	607
Lumber River	9,239	Mountain Bogs	193
Mayo River	1,967	Occoneetchee Mtn.	162
Medoc Mountain	3,892	Run Hill	123
Merchants Millpond	3,352	Sandy Run Savannas	2,538
Morrow Mountain	4,496	Theodore Roosevelt	265
Mount Mitchell	1,946	Weymouth Woods	900
New River	2,359	Yellow Mountain	0
Pettigrew	4,471	<b>Total</b>	<b>19</b>
Pilot Mountain	3,651		<b>20,406</b>
Raven Rock	4,694	<b>STATE LAKES (water area only)</b>	
Singletary Lake	649		<b>Size (acres)</b>
South Mountains	18,048	Bay Tree	1,418
Stone Mountain	14,210	Jones	224
William B. Umstead	6,000	Phelps	16,600
<b>Total</b>	<b>34</b>	Waccamaw	8,938
	<b>141,281</b>	Salters	315
		Singletary	572
		White	1,068
		<b>Total</b>	<b>7</b>
			<b>29,135</b>

<b>STATE RIVERS</b>		<b>Size (Acres)</b>	<b>Length (miles)</b>
Horsepasture		0	4.5
Linville		0	13.0
Lumber		0	102.0
New		0	26.5
<b>Total</b>	<b>4</b>	<b>0</b>	<b>146.0</b>

<b>STATE TRAILS</b>		<b>Size (Acres)</b>	<b>Length (miles)</b>
Deep River		1,274	90.0
French Broad River		0	67.0
Mountains To Sea		511	1000.0
Yadkin River		0	130.0
<b>Total</b>	<b>4</b>	<b>1,785</b>	<b>1287.0</b>

## TYPES OF UNITS

The State Parks Act of 1987 lists six types of units included in the North Carolina State Parks System: State Parks, State Natural Areas, State Recreation Areas, State Trails, State Rivers, and State Lakes.

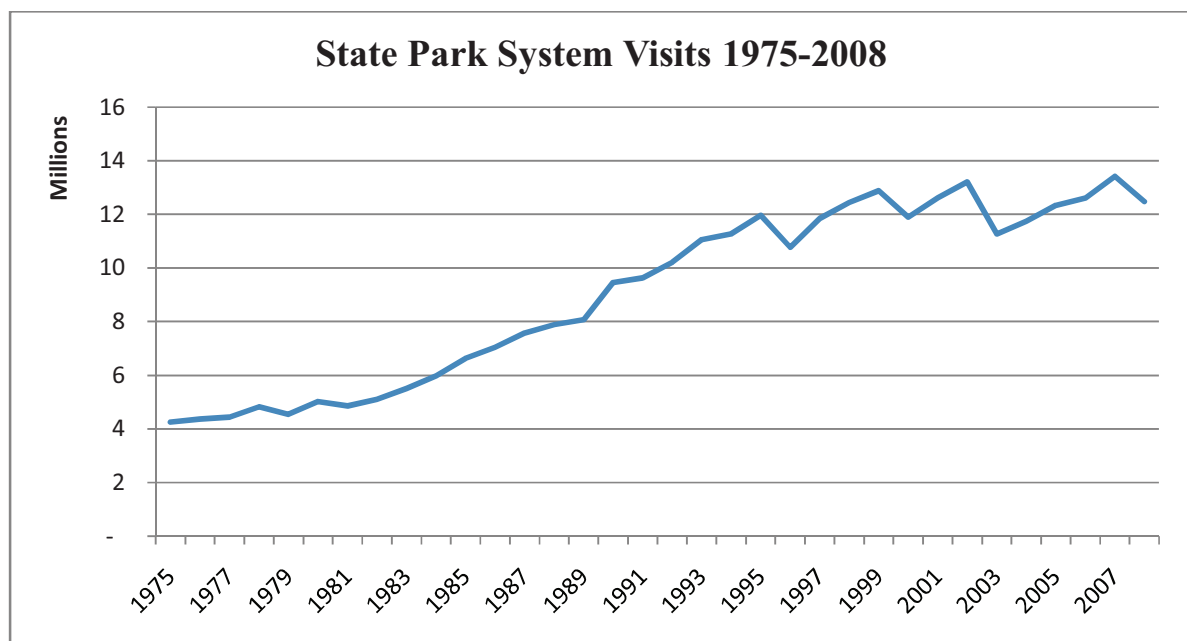
- **State Park** - North Carolina's first State Park was established at Mount Mitchell in 1916 to protect the summit of the highest mountain in the eastern U.S. There are currently 34 State Parks in the system. Generally, State Parks are expected to possess both significant natural resource values and significant recreational values. State Parks are expected to accommodate the development of facilities, but may vary in the extent of development depending upon what can be provided without damage to the scenic or natural features. Facilities are planned and constructed to keep disturbance of natural resources to a minimum and to leave a large portion of each park undisturbed and free from improvements and structures, except for trails.
- **State Natural Area** - State Natural Areas were established as a separate type of system unit in 1963 with the adoption of separate principles for management. The first State Natural Area was created that same year. There are currently 19 State Natural Areas. The purpose of State Natural Areas is focused on preserving and protecting areas of scientific, aesthetic, or ecological value. Facilities are limited to those needed for interpretation, protection, and minimum maintenance. Generally, recreational and public use facilities such as camping, swimming, picnicking and the like are not provided in State Natural Areas.
- **State Recreation Area** - State Recreation Areas are sites where the primary purpose is outdoor recreation, rather than preservation. More intensive development of facilities is provided than in State Parks. Protection and enjoyment of the natural resources are still important, and the sites are expected to contain scenic and attractive natural features. Development is planned and constructed to keep a "reasonable amount" of each area undisturbed and free from improvements and structures. The first State Recreation Area was added to the system in 1971, and principles to guide the development and operation of State Recreation Areas were adopted in 1974. There are currently four State Recreation Areas.
- **State Trail** - The North Carolina Trails System Act was passed in 1973 to help provide for the state's outdoor recreation needs and to promote public access to natural and scenic areas. The act prescribed methods for establishing a statewide system of scenic trails, recreation trails, and connecting or side trails. The Trails System includes "State Trails", which are designated and managed as units of the state parks system, and "designated trails", which are regional connector trails managed by other governmental agencies or organizations. At present there are four State Trails.
- **State River** - The Natural and Scenic Rivers System was created by the 1971 General Assembly to preserve and protect certain free flowing rivers, their water quality and their adjacent lands for the benefit of present and future generations. The Natural and Scenic Rivers Act established criteria and methods for inclusion of components to the system. Components of the Natural and Scenic Rivers System are State Rivers, and are also units of the state parks system. Currently there are four State Rivers.

- **State Lake** - Chapter 165 of the Laws of 1929 specified that “all lakes now belonging to the State having an area of 50 acres or more” should be “administered as provided for other recreational areas now owned by the State.” This allowed the then-Department of Conservation and Development to assume management authority for seven Coastal Plain lakes that became units of the state parks system known as State Lakes. Most of these are administratively included as part of an adjoining State Park, but one of the lakes (White Lake) has no public ownership on its shoreline.

## VISITATION

Total visitor attendance for 2008 was 12,483,887, down slightly from 2007. Visitation fluctuates from year to year based on weather conditions, facility closures, and the state of the economy, but the trend over time is for increasing visitation (Figure (2.2)).

Park units with the highest attendance have been the state recreation areas located on reservoirs (Kerr Lake State Recreation Area, Jordan Lake State Recreation Area, and Falls Lake State Recreation Area) as well as two coastal parks located in popular vacation destinations (Jockey’s Ridge State Park and Fort Macon State Park). These five park units accounted for over 6 million visits or half of the total state parks system attendance (Table 2. 3).



**Figure 2.2. State Parks System Visitation 1975-2008**

**Table 2.3. State Park Visitation by Park Unit 2008**

<b>North Carolina State Parks System Unit</b>	<b>Total Visits 2008</b>
Carolina Beach State Park	464,838
Chimney Rock State Park	206,626
Cliffs of the Neuse State Park	127,571
Crowders Mountain State Park	349,389
Dismal Swamp State Park	33,754
Elk Knob State Natural Area	6,004
Eno River State Park	349,036
Falls Lake State Recreation Area	788,843
Fort Fisher State Recreation Area	667,818
Fort Macon State Park	1,181,234
Goose Creek State Park	177,933
Gorges State Park	18,403
Hammocks Beach State Park	124,374
Haw River State Park	26,170
Hanging Rock State Park	447,689
Jones Lake State Park	63,696
Jordan Lake State Recreation Area	810,869
Jockey's Ridge State Park	1,403,781
Kerr Lake State Recreation Area	1,154,164
Lake James State Park	375,108
Lake Norman State Park	493,365
Lake Waccamaw State Park	72,802
Lumber River State Park	80,304
Merchants Millpond State Park	227,977
Medoc Mountain State Park	56,697
Mount Jefferson State Natural Area	93,484
Mount Mitchell State Park	181,924
Morrow Mountain State Park	380,220
New River State Park	176,526
Oconeechee Mountain State Natural Area	65,265
Pettigrew State Park	60,599
Pilot Mountain State Park	390,345
Raven Rock State Park	121,577
Singletary Lake State Park	29,668
South Mountains State Park	178,780
Stone Mountain State Park	326,968
Weymouth Woods State Natural Area	50,285
William B. Umstead State Park	722,732
<b>System Total</b>	<b>12,486,818</b>



## VISITOR FACILITIES

In December 2008, the state parks system contained more than 1,300 roofed buildings. This figure does not include bridges, walkways, pavement, trails, or other structures.

**Table 2.4 Summary of Visitor Facilities in the North Carolina State Parks System**

<b>FACILITY</b>	<b>TOTAL</b>	<b>FACILITY</b>	<b>TOTAL</b>
Visitor Center	21	Group Campsite - Drive To	99
Park Office	15	Group Campsite - Walk In	38
Ranger Station	17	Equestrian Campsite	15
Auditorium	16	Horse Stall	33
Meeting Room	15	Natural Swim Area - Ocean or Sound	5
Classroom	22	Natural Swim Area - Freshwater	20
Laboratory	1	Swimming Pool	2
Community Building	10	Bathhouse	21
Museum/Exhibit Hall	24	Concession	11
Historic Building	7	Showerhouse	50
Amphitheater	13	Toilet Building	62
Play Area	8	Composting Toilet	9
Picnic Area	57	Pump and Haul Toilet	18
Picnic Shelter - 2 table	29	Pit Toilet	17
Picnic Shelter - 4 table	14	Boathouse	5
Picnic Shelter - 8 table	36	Boat Dock	21
Picnic Shelter - 12 table	28	Boat Ramp - 1 lane	26
Picnic Shelter - >12 tables	1	Boat Ramp - 2 lanes	5
Sun Shelter	3	Boat Ramp - >2 lanes	3
Cabin - Improved	46	Pier - Fishing	12
Lodging Room	36	Restaurant	3
Campsite w/ Full Hookups	10	Dining Hall - with food service	1
Campsite w/ Water and Electric	1226	Dining Hall - self service	2
Campsite w/ Electric Only	10	Parks with > 5 mi Hiking Trails	22
Campsite w/ No Hookups	1422	Parks with Bicycle Trails	6
Primitive Campsite - Drive To	12	Parks with Equestrian Trails	9
Primitive Campsite - Walk In	145	Parks with Paddle Trails	7
Primitive Campsite - Paddle In	19	Parks with Interpretive Trails	6

## OVERVIEW OF DIVISION PROGRAMS

***Administration*** – Oversees all aspects of Division management and supports frontline visitor services staff.

- **Budget and Procurement Program** – Daily administration, management, and supervision of the division's financial management and procurement functions within the guidelines, rules and procedures set forth by the State of NC and the Department of Environment & Natural Resources.
- **Human Resources Program** – Maintains and effectively manages all personnel functions for the division, including classification, hiring, compensation, benefits, managing quality performance, and career banding. Provides support for all permanent and temporary employees, interprets and administers human resource policies and procedure for the division, and maintains several personnel databases and reports.
- **Public Information Program** – Introduces and explains state parks system initiatives and programs to the public. Also, strives to improve the visitor experience at the parks and broaden visitor appreciation of conservation through interaction with the media, a print program involving brochures, annual reports, etc. and the division's website. Promotes public understanding of the parks system's contribution to the community.
- **Land Protection Program** - Identifies and prioritizes land acquisitions needed to meet multiple park management objectives. Coordinates multi-disciplinary input to land acquisition plans, and administers all real estate acquisition, disposition, and property management activities. Manages funding, databases, records and reports for land acquisition.
- **Enterprise Development Program** – Manages revenue-producing activities such as concessions and retail sales. Develops and implements new initiatives for revenue enhancement.
- **Fiscal Data Management Program** – Develops and administers web-based tools for fiscal data management and project tracking for operations, capital projects, maintenance projects, and real estate transactions. Prepares customized financial reports and provides real-time financial information for all division staff. Also develops web-based data management systems for other purposes, such as visitation records, natural resource data, and interpretive program attendance.

***Park Operations*** - Includes ranger, maintenance and administrative staff who manage park land and visitors on a day-to-day basis. Each park has a Park Superintendent, and the parks are organized into four districts, each with a District Superintendent. The Chief of Operations is located in Raleigh. Operational duties include interpretation and environmental education, public safety and law enforcement, protection and stewardship of natural and cultural resources, and maintenance of buildings and grounds.

- **East District** – encompasses most of the North Carolina coastal plain, includes parks featuring barrier islands, beaches, swamps and riverine wetlands. Also includes one of the seven State Lakes and a major historic feature at Fort Macon. Manages eight State Parks and six State Natural Areas.
- **North District** – stretches from the upper coastal plain to the upper Piedmont, features a variety of rivers, Piedmont forests, monadnocks, large reservoirs, and parks in urban settings. Manages seven State Parks, two State Natural Areas, and two State Recreation Areas.
- **South District** – includes a large portion of the coastal plain with most of the State Lakes, rivers, swamps, sandhills, and many fire-adapted natural communities. Stretches north and west to encompass Piedmont rivers and forests, and nationally known archaeological resources at Morrow Mountain. Manages nine State Parks, five State Natural Areas, and two State Recreation Areas.
- **West District** – stretches from the Virginia border to the South Carolina border, includes parks in the North Carolina mountains and upper Piedmont, features large parks with waterfalls, cliffs, extensive forests, popular reservoir parks, and the highest peak in the eastern US. Manages ten State Parks and six State Natural Areas.
- **Interpretation and Education Program** – trains park rangers to communicate with visitors in a way that fosters personal connections to the parks' unique resources. Training includes a weeklong Basic Interpretive Training, canoe and kayak certifications, and the NC Environmental Education Certification Program. Rangers offer programs for families, school fieldtrips and teacher workshops, reaching more than 300,000 park visitors and an additional 100,000 school children annually. The program also develops educational materials including curriculum guides and junior ranger books, and collaborates with the Exhibits Program by developing text for wayside displays and museum exhibits.
- **Facility Maintenance Program** – supports parks in identifying needs and priorities for preventative maintenance and repairs on buildings, utilities, trails, and other facilities. Assists parks with planning, budgeting, design, contract administration and construction supervision for maintenance projects. Provides training to park staff, ensures compliance with state and federal codes, and guides projects toward green and sustainable designs and materials. Also manages division warehouse operation.

- **Public Safety Program** – supports parks with public safety functions, including law enforcement, search and rescue, wildland fire fighting, and emergency medical services. Assists with investigations of criminal activity, employment background checks, loss or damage of state and personal property, and internal affairs. Oversees public safety communications and law enforcement technology, manages public safety training for all commissioned employees, and acts as division representative to State Emergency Response Team.

***Design and Development*** - plans, contracts, and supervises construction and maintenance of all facilities in the state parks such as visitor centers, campgrounds, picnic areas, trails, exhibits, and maintenance centers.

- **Engineering Program** – coordinates the green and sustainable design and construction of facilities and infrastructure. Contracts for the completion of large capital improvement projects in remote and challenging environments across the state.
- **Park Design Program** – prepares or contracts preparation of park-wide Master Plans and localized facility site plans. Coordinates multi-disciplinary input to facility plans, and arranges for public review and comment on park planning efforts.
- **General Management Planning Program** - coordinates periodic division-wide, multi-disciplinary reviews of all aspects of management for individual parks. Incorporates facility designs, land protection plans, interpretive themes, park operation issues, and natural resource management needs.
- **Exhibits Program** – coordinates design, fabrication, and installation of exhibits statewide, including museums, wayside exhibits, and signage. Develops system-wide standards and goals for using these tools to communicate interpretive messages to the visiting public.

***Regional Planning and Natural Resources*** - includes functions supporting the state parks system as well as grants administration and statewide planning and coordination.

- **Regional Planning Program** – prepares the Statewide Comprehensive Outdoor Recreation Plan (SCORP) and the Systemwide Plan for the state parks system. Also identifies and evaluates potential additions to the system for the division's New Parks for New Century initiative.
- **State Trails Program** – conducts and coordinates regional planning for a statewide system of all types of trails in natural, scenic and urban areas of the state. Supports and advises governmental agencies, non-profit organizations, and volunteer organizations in the planning, development, management or funding of trails. This program also manages the federal Recreational Trails Grant Program and the state's Adopt-A-Trail Grant Program.

- **Natural Resources Program** – plans and implements inventory, stewardship, and protection of natural and cultural resources found in the state parks. Assists parks with prescribed burning, invasive species control, and rare species protection. Also reviews park construction projects for environmental protection and compliance. Works closely with park staff, planning staff, and construction staff, as well as with other DENR agencies.
- **Grants and Special Studies Program** – supports the Parks and Recreation Trust Fund (PARTF), including administration of the PARTF matching grant program for local parks. Also administers the federal Land and Water Conservation Fund (LWCF), which provides matching grants for both state and local parks. Conducts studies on special topics as needed.
- **State Rivers Program** – Monitors compliance with the Natural and Scenic Rivers Act on designated State Rivers, and evaluates proposals for designation of new State Rivers.

***Recreation Resources Service*** (RRS) is a technical assistance program offered through a cooperative partnership between the NC Division of Parks and Recreation and the NC State University Department of Parks, Recreation and Tourism Management.

RRS technical assistance and outreach includes conducting the annual NC Municipal and County Parks and Recreation Services Study, coordinating a statewide teleconference series, offering playground safety training, developing park conceptual plans and providing citizen advisory board resources and training. RRS staff may also be available to assist in conducting special studies for municipal and county departments.



## FUTURE NEEDS

Park master plans and general management plans have identified future needs for land acquisition and facility development in each park. Table 2.5 shows new construction and renovation needs and Table 2.6 shows identified land acquisition needs for each park.

**Table 2.5. Construction and Repair Needs at Existing Parks**

<b>Facility Construction Needs October 2008</b>			
<b>Park Name</b>	<b>New Construction</b>	<b>Repair &amp; Renovation</b>	<b>Total Cost</b>
Baytree Lake	\$7,976,123	\$0	\$7,976,123
Carolina Beach	\$1,508,130	\$1,181,526	\$2,689,657
Chimney Rock	\$0	\$53,285,629	\$53,285,629
Cliffs Of The Neuse	\$1,446,405	\$1,972,819	\$3,419,224
Crowder's Mountain	\$2,305,413	\$4,692,045	\$6,997,458
Dismal Swamp	\$1,731,834	\$0	\$1,731,834
Eno River	\$10,178,471	\$1,998,460	\$12,176,930
Falls Lake	\$7,937,419	\$5,294,438	\$13,231,857
Fort Fisher	\$547,039	\$0	\$547,039
Fort Macon	\$531,522	\$1,824,173	\$2,355,695
Goose Creek	\$7,332,455	\$0	\$7,332,455
Gorges	\$9,820,215	\$0	\$9,820,215
Hammocks Beach	\$6,097,603	\$2,476,932	\$8,574,535
Hanging Rock	\$590,227	\$2,824,403	\$3,414,629
Jockey's Ridge	\$1,413,396	\$705,852	\$2,119,248
Jones Lake	\$848,741	\$1,145,831	\$1,994,572
Jordan Lake	\$5,922,069	\$2,664,887	\$8,586,957
Kerr Lake	\$33,387,738	\$1,161,325	\$34,549,063
Lake James	\$22,143,635	\$249,689	\$22,393,324
Lake Norman	\$9,911,541	\$5,925,353	\$15,836,894
Lake Waccamaw	\$6,061,399	\$0	\$6,061,399
Lumber River	\$16,499,493	\$0	\$16,499,493
Medoc Mountain	\$16,591,879	\$0	\$16,591,879
Merchants Mill Pond	\$1,433,300	\$1,102,903	\$2,536,203
Mitchell's Mill	\$217,491	\$0	\$217,491
Morrow Mountain	\$9,447,495	\$2,970,814	\$12,418,310
Mount Mitchell	\$804,788	\$819,290	\$1,624,078
Mt. Jefferson	\$0	\$2,412,555	\$2,412,555
New River	\$5,043,509	\$0	\$5,043,509
Occoneechee Mountain	\$1,435,978	\$0	\$1,435,978
Pettigrew	\$12,383,295	\$1,038,834	\$13,422,129
Pilot Mountain	\$17,119,139	\$4,699,606	\$21,818,745
Raven Rock	\$3,154,491	\$1,734,372	\$4,888,863
Singletary Lake	\$1,589,726	\$0	\$1,589,726

<b>Facility Construction Needs October 2008</b>			
<b>Park Name</b>	<b>New Construction</b>	<b>Repair &amp; Renovation</b>	<b>Total Cost</b>
South Mountain	\$54,256,350	\$0	\$54,256,350
Statewide	\$6,253,341	\$377,738	\$6,631,079
Stone Mountain	\$2,718,147	\$4,541,217	\$7,259,364
Weymouth Woods	\$0	\$436,011	\$436,011
William B. Umstead	\$928,515	\$22,522,567	\$23,451,082
<b>GRAND TOTAL:</b>	<b>\$287,568,313</b>	<b>\$130,059,269</b>	<b>\$417,627,582</b>

**Table 2.6. State Parks System Land Acquisition Needs**

<b>North Carolina State Parks System Land Acquisition Needs January 1, 2009</b>					
<b>Unit</b>	<b>Planned Acres</b>	<b>Current Acres</b>	<b>Pending Acres</b>	<b>Remaining Needs Acres Estimated Cost</b>	
Baldhead Island	1,280	1,260	0	20	\$0
Bay Tree Lake	2,856	2,027	0	829	\$1,250,000
Bear Paw	500	125	226	149	\$2,000,000
Beech Creek Bog	250	120	0	130	\$3,250,000
Bullhead Mountain	550	365	0	185	\$3,700,000
Bushy Lake	7,367	6,343	0	1,024	\$2,600,000
Carolina Beach	485	420	0	65	\$5,000,000
Carvers Creek	4,000	1,395	1,440	1,165	\$8,000,000
Chimney Rock	8,000	4,111	268	3,621	\$26,000,000
Chowan Swamp	6,066	6,066	0	0	\$0
Cliffs of the Neuse	3,499	892	50	2,557	\$4,000,000
Crowders Mountain	6,714	5,126	0	1,588	\$5,900,000
Deep River	4,000	1,274	0	2,726	\$5,000,000
Dismal Swamp	14,649	14,344	90	215	\$500,000
Elk Knob	10,000	2,898	4,800	2,302	\$20,000,000
Eno River	6,426	4,139	17	2,270	\$12,000,000
Falls Lake	5,035	5,035	0	0	\$0
Fort Fisher	287	287	0	0	\$0
Fort Macon	473	424	0	49	\$500,000
Goose Creek	1,991	1,672	0	319	\$750,000
Gorges	9,641	7,443	199	1,999	\$5,000,000
Hammocks Beach	1,497	1,155	0	342	\$25,000,000
Hanging Rock	9,983	7,049	45	2,889	\$10,000,000
Haw River	4,000	1,334	31	2,635	\$20,000,000
Hemlock Bluffs	97	92	5	0	\$0

North Carolina State Parks System Land Acquisition Needs January 1, 2009					
Unit	Planned Acres	Current Acres	Pending Acres	Remaining Needs Acres Estimated Cost	
Jockey's Ridge	428	426	0	2	\$700,000
Jones Lake	2,238	2,208	0	30	\$80,000
Jordan Lake	3,916	3,916	0	0	\$0
Kerr Lake	3,203	3,002	0	201	\$2,500,000
Lake James	3,975	3,515	4	456	\$4,000,000
Lake Norman	1,995	1,928	0	67	\$1,500,000
Lake Waccamaw	14,025	10,697	438	2,890	\$6,000,000
Lea Island	200	25	120	55	\$1,000,000
Lumber River	12,959	9,239	10	3,710	\$15,200,000
Lower Haw River	3,000	1,022	0	1,978	\$20,000,000
Masonboro Island	106	106	0	0	\$0
Mayo River	4,500	1,967	200	2,333	\$9,000,000
Medoc Mountain	4,351	3,892	0	459	\$2,000,000
Merchants Millpond	4,940	3,352	100	1,488	\$3,750,000
Mitchell Mill	149	93	0	56	\$450,000
Morrow Mountain	6,586	4,496	0	2,090	\$3,500,000
Mountain Bogs	400	193	0	207	\$3,000,000
Mountains-to-Sea	3,000	511	360	2,129	\$20,000,000
Mount Jefferson	1,800	607	307	886	\$15,000,000
Mount Mitchell	2,819	1,946	51	822	\$18,000,000
New River	3,000	2,359	49	592	\$12,000,000
Occoneechee Mountain	231	162	0	69	\$1,200,000
Pettigrew	26,206	21,071	1,103	4,032	\$8,200,000
Pilot Mountain	5,503	3,651	0	1,852	\$8,000,000
Raven Rock	5,467	4,694	115	658	\$6,000,000
Run Hill	123	123	0	0	\$0
Sandy Run Savannas	6,000	2,538	0	3,462	\$10,000,000
Singleary Lake	1,221	1,221	0	0	\$0
South Mountains	20,861	18,048	337	2,476	\$12,400,000
Stone Mountain	16,867	14,210	0	2,657	\$26,000,000
Theodore Roosevelt	265	265	0	0	\$0
Weymouth Woods	1,583	900	0	683	\$3,500,000
White Lake	1,068	1,068	0	0	\$0
William B. Umstead	6,200	6,000	0	200	\$11,000,000
Yellow Mountain	4,000	0	850	3,150	\$10,000,000
<b>TOTAL</b>	<b>282,831</b>	<b>204,847</b>	<b>11,215</b>	<b>66,769</b>	<b>\$394,430,000</b>

# **CHAPTER THREE**

## **RESOURCE EVALUATION**

### **INTRODUCTION**

The significant archaeological, geologic, scenic, recreational and biological resources of North Carolina should be represented in a completed state parks system. These resources have been categorized into 108 themes. Significant progress has been made in the last five years to improve the representation of these themes in the state parks system. Seventeen biological themes are better represented than 5 years ago; four of these are now listed as adequately protected. Despite the recent gains several themes continue to be under-represented.

This chapter contains an evaluation of the archaeological, geologic, scenic, and biological resources in the state parks system and identifies themes inadequately protected by the system. Expansion of the state parks system to provide additional protection to these inadequately represented themes is a high priority. The provision of recreational resources will be addressed through the planning process for individual units of the state parks system. This site-specific analysis is needed to mesh the system's mission of preserving unique natural resources and providing public recreation. Public preferences for outdoor recreation activities are presented in Chapter Four.

### **EVALUATION**

To fulfill these mandates for the first Systemwide Plan, five committees were formed to analyze the unique resource categories cited in the Act. Committees were composed of academic and state experts and representatives of relevant citizen groups. They were charged with fulfilling the following objectives:

1. Define resource themes within each of the five resource categories;
2. Determine the significance of themes within geographic regions;
3. Identify representation of themes within state parks system units;
4. Evaluate the representation of themes within geographic regions; and
5. Rank the amount of protection that park units provide for significant biological, geological, scenic and archeological resources.

Biological, geological, scenic and recreational resources were reevaluated by the Division of Parks and Recreation (DPR) for this plan update. The archaeological resources have not been reevaluated since the original plan because there are no "very high" protection needs. The evaluation of biological and geological resources has been revised in consultation with the Natural Heritage Program and the NC Geological Survey.

### **Definition of Resource Themes**

Within each resource category cited in the State Parks Act (archeological, geological, scenic, recreational and biological) are subcategories called resource "themes". The committees identified 108 themes that should be protected in order to preserve representative examples of unique biological, geological, scenic, and archeological resources in a comprehensive state parks system (Table 3.1). Definitions of themes are included in Appendix D.

### **Significance of Themes Within Regions**

After identifying resource themes, the committees rated their significance within four natural regions: Tidewater, Coastal Plain, Piedmont, and Mountain. The committees determined the level of significance of each theme in each region and rated the level of significance as "high", "moderate", "low", or "none" based on the quality, quantity and diversity of the theme in the region. For themes that did not exist in a region, no rating is assigned. The significance of themes within regions is found in the columns labeled "Significance" in Tables 3.2 through 3.5.

### **Representation of Themes in Parks Within Geographic Regions**

The next step in the process is to determine whether resource themes are adequately represented in the state parks system within each region. The adequacy of the protection within the regions is rated as either "adequate", "moderate", "little", or "none". Themes that do not exist in a region were not labeled. Judgments were based upon the quality, quantity and diversity of the theme being protected. Committee results and staff updates from the addition of more than 44,000 acres at 62 park units are listed in columns labeled "Representation" in Tables 3.2 through 3.5.

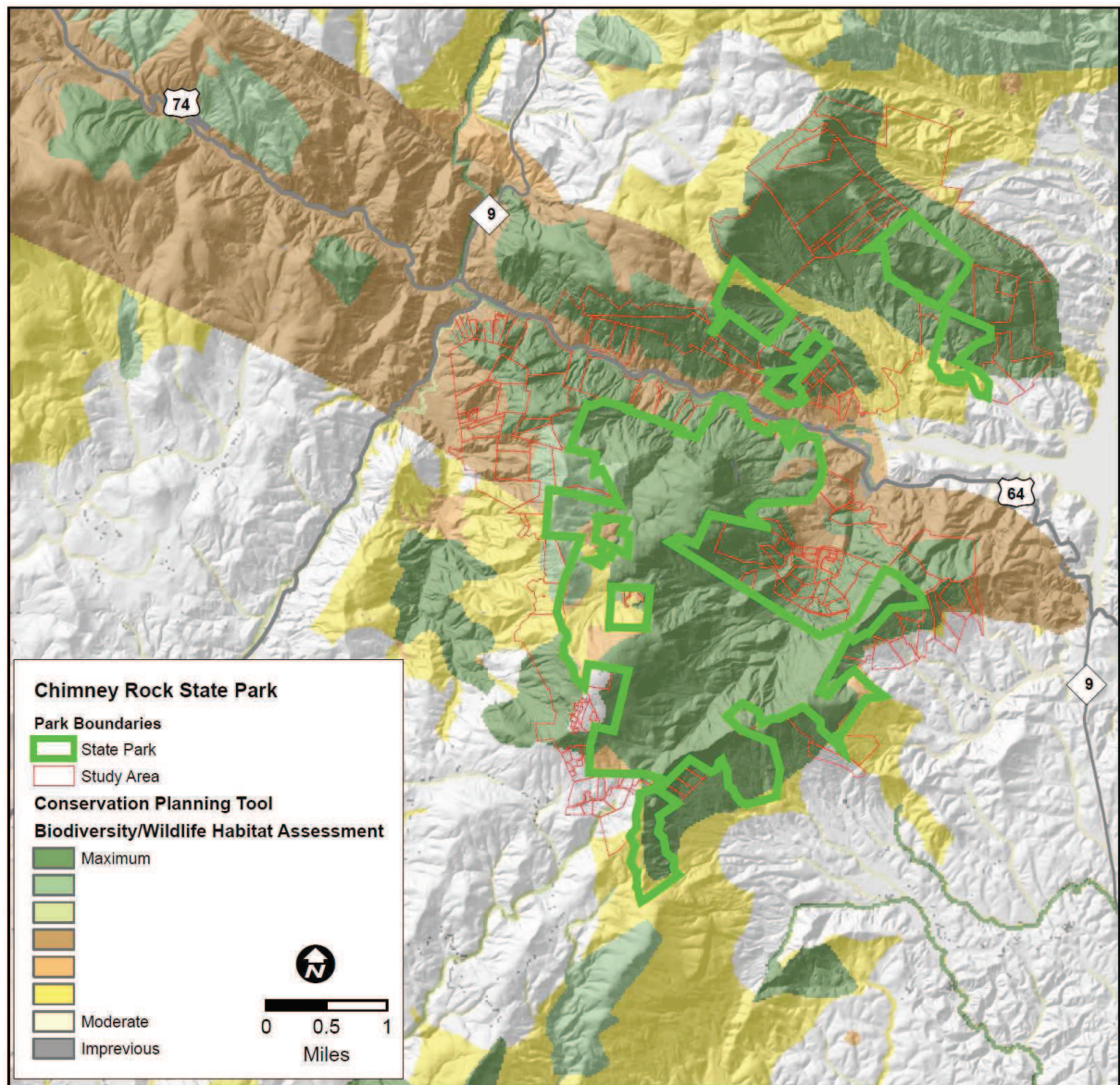
### **Duplications and Deficiencies in the State Parks System**

Deficiencies in the North Carolina state parks system exist where there is inadequate representation of unique archeological, geological, scenic, recreational, and biological themes (Tables 3.2 through 3.5). An indication of deficiencies and duplications can be derived by examining the representation and significance of themes defined by the resource committees.

### **Role of the One NC Naturally Conservation Planning Tool**

The division has committed to participating in the Department's Conservation Planning Tool (CPT). The CPT provides a framework for land conservation and sustainable growth across the state by identifying the resources required for a healthy environment. The primary assessment used by the division is the Biodiversity and Wildlife Habitat Assessment. This assessment contains summaries of much of the information already used by the division as well as additional information. Although the CPT does not contain enough detail in its assessments to fully evaluate a potential new park unit, it is very useful for estimating the scope of a unit and potential connections to other conservation priorities.





**Figure 3.1. Chimney Rock State Park area – overlay of the Conservation Planning Tool: Biodiversity and Wildlife Habitat Assessment**

**Table 3.1. Themes Identified by Resource Evaluation Committees**

BIOLOGICAL	GEOLOGICAL	ARCHEOLOGICAL	SCENIC
<p>Spruce-Fir Forests  Grass and Heath Balds  Northern Hardwood Forests  Mountain Cove Forests  Piedmont and Coastal Plain    Mesic Forests  Piedmont and Mountain Dry    Coniferous Woodlands  Montane Oak Forests  Piedmont and Coastal Plain    Oak Forests  High Elevation Rock Outcrops  Low Elevation Cliffs and Rock    Outcrops  Coastal Plain Marl Outcrops  Granitic Flatrocks  Mafic Glades and Barrens  Maritime Grasslands  Maritime Upland Forests  Dry Longleaf    Pine Communities  Blackwater Coastal Plain    Floodplains  Brownwater Coastal Plain    Floodplains  Piedmont and Mountain    Floodplains  Riverine Aquatic Communities  Mountain Bogs and Fens  Upland Seepages and    Spray Cliffs  Piedmont Upland Pools    and Depressions  Coastal Plain Nonalluvial    Mineral Wetlands  Peatland Pocosins  Streamhead Pocosins  Wet Pine Savannas  Coastal Plain Depression    Communities  Natural Lake Communities  Maritime Wetland Forests  Freshwater Tidal Wetlands  Estuarine Communities</p>	<p>Barrier Islands and Shoreline  Estuaries  Continental Shelf  Relict Coastal Features  Carolina Bays  Fluvial Depositional Features  Peatlands and Interstream    Wetlands  Natural Lakes and Ponds  Caves, Sinks, and Springs  Dissected Uplands  Inselbergs (Monadnocks)  Cliffs  Exfoliation Outcrops  Gorges, Rapids, Waterfalls  Mass Wasting Features  Faults, Joints, and Related    Features  Folds and Related Features  Intrusions  Volcanic Features  Metamorphic Features  Sedimentary Features  Fossils  Unusual Rock Types</p>	<p>PREHISTORIC  Village  Campsite/ Activity Area  Shell Midden  Burial/Cemetery  Quarry/Soapstone  Quarry/Other  Shelter/Cave  Rock Art  Trail/Path  Underwater  Other</p> <p>HISTORIC  Recreation  Public Works  Public/Civic/Religious  Commercial  Urban/Domestic  Rural/Domestic  Cemetery  Industrial  Mills  Transportation  Military  Underwater  Other</p> <p>STANDING STRUCTURE  Recreation  Public Works  Public/Civic/Religious  Commercial  Urban/Domestic  Rural/Domestic  Cemetery  Industrial  Mills  Transportation  Military  Other</p>	<p>Scenic Vistas  Reservoirs/Lakes  Waterfalls  Rivers  Whitewater Streams  Forests  Meadows and    Grasslands  Swamps  Pocosins  Marshes  Gorges  Rock Outcrops  Islands  Caves and Cliffs  Bays and Estuaries  Seashores  Scenic Highways</p>

## ARCHEOLOGICAL THEME REPRESENTATION

Five archeological themes have high protection needs: prehistoric village (Coastal Plain, Piedmont), prehistoric burial/cemetery (all regions), standing structure mills (Mountain), historic industrial (Piedmont, Mountain) and historic commercial (Piedmont, Mountain). The most duplicated themes include prehistoric campsite/activity areas, historic rural-domestic, and standing structure rural-domestic.

Archeological themes as defined by the archeological committee are relatively well covered by the state parks system. This is not to say they are well preserved or interpreted, but simply that most archeological themes exist, or are likely to exist, within the state parks system. Expansion needs to protect significant archeological themes are identified by bold capital letters in Table 3.2. The committee recommended that the state should take action to preserve inadequately protected themes before establishing new units to represent themes that are already well represented and protected within the state parks system.

Archeological surveys have been conducted in portions of 19 units of the state parks system as part of the capital development construction process. Prior to ground-disturbing activities (e.g., road construction, capital improvements), archeological surveys are often required to identify and evaluate any cultural resources that may be adversely affected. Such a piecemeal approach to identifying archeological values within state parks has resulted in an uncoordinated and inadequate inventory.

The archeological committee also made the following recommendations:

1. The state parks system should consider conducting cultural resource surveys and evaluations in-house. Doing so would considerably speed up the planning process, facilitate compliance with regulatory requirements, and aid in the development of interpretive programming. It is recommended that DPR employ two professional archaeologists (master's degree or better) and one laboratory technician to manage the cultural resource program. In addition, an architectural historian should be hired under contract to conduct a comprehensive inventory and evaluation of all standing structures in the parks.
2. It is recommended that DPR continue training staff in the overall principles and procedures of cultural resource management. Proposed program topics include:
  - a. current state cultural resource protection laws (e.g., the Archeological Resources Protection Act, the Unmarked Human Burial and Human Skeletal Remains Act);
  - b. the general prehistory and history of North Carolina;
  - c. identification and treatment of cultural materials;
  - d. proper approaches to recording and interpreting cultural resources in general; and
  - e. cultural resource preservation and management procedures.
3. DPR should employ one or more trained individuals to compile and synthesize the extant cultural resource information available within DPR and the Division of Archives and History.

**Table 3.2. Statewide Significance of Archeological Themes and Their Representation in the State Parks System**

REGIONS								
THEMES	TIDEWATER		COASTAL PLAIN		PIEDMONT		MOUNTAIN	
	Significance	Representation	Significance	Representation	Significance	Representation	Significance	Representation
PREHISTORIC ARCHEOLOGICAL: Village	High	Adequate	HIGH	MODERATE	HIGH	MODERATE	High	Adequate
	High	Adequate	High	Adequate	High	Adequate	High	Adequate
	High	Adequate						
Burial/Cemetery	HIGH	MODERATE	HIGH	MODERATE	HIGH	MODERATE	HIGH	MODERATE
Quarry—Soapstone			None	Little	None	Little	High	Moderate
Quarry—Other			None	Little	High	Adequate	High	Moderate
Shelter/Cave			High	Adequate	High	Adequate	High	Adequate
Rock Art			None	Little	High	Moderate	High	Moderate
Trail/Path	None	Little	None	Little	High	Adequate	High	Moderate
Underwater	High	Adequate	High	Adequate	High	Adequate	High	Moderate
Other	None	Little	None	Little	None	Little	None	Little
HISTORIC ARCHEOLOGICAL: Recreation	High	Adequate	High	Adequate	High	Adequate	High	Adequate
	High	Adequate	High	Adequate	High	Adequate	High	Moderate
	High	Adequate	High	Adequate	High	Adequate	High	Adequate
Commercial	High	Adequate	High	Adequate	High	Moderate	High	Moderate
Urban—Domestic	None	Little	High	Adequate	None	Little	None	Little
Rural—Domestic	High	Adequate	High	Adequate	High	Adequate	High	Adequate
Cemetery	High	Adequate	High	Adequate	High	Adequate	High	Adequate
Industrial	High	Adequate	High	Adequate	HIGH	LITTLE	HIGH	LITTLE
Mills	High	Adequate	High	Adequate	High	Adequate	None	Little

**Table 3.2. Statewide Significance of Archeological Themes and Their Representation in the State Parks System (continued)**

THEMES	REGIONS							
	TIDEWATER		COASTAL		PIEDMONT		MOUNTAIN	
	Significance	Representation	Significance	Representation	Significance	Representation	Significance	Representation
Transportation	High	Adequate	High	Adequate	High	Moderate	High	Moderate
Military	High	Adequate	High	Adequate				
Underwater	High	Adequate	High	Adequate	High	Moderate		
Other			None	Little				
STANDING STRUCTURES: Recreation			High	Adequate	High	Adequate	High	Adequate
Public Works			High	Adequate	High	Adequate	High	Moderate
Public/Civic/Religious			High	Adequate			High	Adequate
Commercial			High	Adequate			High	Moderate
Urban—Domestic			High	Adequate				
Rural—Domestic			High	Adequate	High	Adequate	High	Adequate
Cemetery			High	Adequate	High	Moderate	High	Moderate
Industrial			High	Adequate			High	Moderate
Mills	High	Adequate	High	Adequate	High	Adequate	<b>HIGH</b>	<b>MODERATE</b>
Transportation			High	Adequate	High	Moderate	High	Moderate
Military	High	Adequate	High	Adequate				



## GEOLOGICAL THEME REPRESENTATION

Twelve geological themes were rated as having very high expansion needs in at least one region. Four of these twelve themes had very high expansion needs in more than one region, making a total of 17 theme-region combinations rated as having very high expansion needs. These 17 very high expansion needs are highlighted in Table 3.3 by bold type and shading. Very high expansion needs are those that have high significance in a region and have little or no representation in the state parks system.

Five geological themes and theme-region combinations have high expansion needs (Table 3.3). High expansion needs are these that have high significance in a region and have moderate but not adequate representation in the state parks system. They are indicated in Table 3.3 by bold type, but have no shading.

During the past five years, one theme in the Mountain Region improved from none to moderate representation, and therefore from very high to high needs, due to new acquisitions since the last System Plan. Another theme in the Piedmont went from moderate to adequate representation. Under-represented themes include: continental shelf (Tidewater), cliffs (Tidewater), volcanic features (Mountain), fossils (Tidewater, Coastal Plain, Piedmont), caves/sinks/springs (Coastal Plain, Piedmont), relict coastal features (Tidewater, Coastal Plain), mass wasting features (Coastal Plain), unusual rock types (Tidewater, Mountain), folds and related features (Mountain), sedimentary features (Mountain), gorges/rapids/waterfalls (Coastal Plain), and fluvial depositional features (Mountain). Themes that are duplicated include: barrier islands/seashores, natural lakes/ponds, Carolina bays, peatlands and interstream wetlands, estuaries, and inselbergs.

Fossils, caves/sinks/springs, and unusual rock types have little coverage across all regions. On the other hand, barrier islands, Carolina bays, exfoliation outcrops, intrusions, and metamorphic features have adequate representation. The Piedmont offers the most protection to geological themes within the state parks system, whereas the Tidewater offers the least. Additional surveys of geological resources in the System should be conducted in partnership with the North Carolina Geological Survey.

**Table 3.3. Statewide Significance of Geological Themes and Their Representation in the State Parks System**

THEMES	REGIONS							
	TIDEWATER		COASTAL PLAIN		PIEDMONT		MOUNTAIN	
	Significance	Representation	Significance	Representation	Significance	Representation	Significance	Representation
Barrier Islands and Shorelines	High	Adequate	None		None		None	
Estuaries	High	Adequate	Little	None	None		None	
Continental Shelf	<b>HIGH</b>	<b>NONE</b>	None		None		None	
Relict Coastal Features	<b>HIGH</b>	<b>LITTLE</b>	<b>HIGH</b>	<b>NONE</b>	None		None	
Carolina Bays	High	Adequate	High	Adequate	None		None	
Fluvial Depositional Features	High	Adequate	High	Adequate	High	Adequate	<b>HIGH</b>	<b>LITTLE</b>
Peatlands and Interstream Wetlands	High	Adequate	High	Adequate	None		None	
Natural Lakes and Ponds	High	Adequate	High	Adequate	None		None	
Caves, Sinks, and Springs	High	Adequate	<b>HIGH</b>	<b>NONE</b>	<b>HIGH</b>	<b>LITTLE</b>	<b>HIGH</b>	<b>MODERATE</b>
Dissected Uplands	Little	None	High	Adequate	High	Adequate	High	Adequate
Inselbergs (Monadnocks)	None		Little	None	High	Adequate	High	Adequate
Cliffs	<b>HIGH</b>	<b>NONE</b>	High	Adequate	High	Adequate	High	Adequate
Exfoliation Outcrops	None		None		High	Adequate	High	Adequate
Gorges, Rapids, and Waterfalls	None		<b>HIGH</b>	<b>LITTLE</b>	High	Adequate	High	Adequate
Mass Wasting Features	None		<b>HIGH</b>	<b>NONE</b>	High	Adequate	<b>HIGH</b>	<b>MODERATE</b>
Faults, Joints, and Related Features	None		Little	None	High	Adequate	<b>HIGH</b>	<b>MODERATE</b>
Folds and Related Features	None		Little	None	High	Adequate	<b>HIGH</b>	<b>LITTLE</b>
Intrusions	None		Little	Adequate	High	Adequate	High	Adequate
Volcanic Features	None		Little	None	High	Adequate	<b>HIGH</b>	<b>NONE</b>
Metamorphic Features	None		High	Adequate	High	Adequate	High	Adequate
Sedimentary Features	High	Adequate	High	Adequate	<b>HIGH</b>	<b>MODERATE</b>	<b>HIGH</b>	<b>NONE</b>
Fossils	<b>HIGH</b>	<b>NONE</b>	<b>HIGH</b>	<b>LITTLE</b>	<b>HIGH</b>	<b>NONE</b>	Little	None
Unusual Rock Types	<b>HIGH</b>	<b>NONE</b>	High	Adequate	<b>HIGH</b>	<b>MODERATE</b>	<b>HIGH</b>	<b>LITTLE</b>

Notes: Very high expansion needs are shaded. High expansion needs are shown in **BOLD CAPITAL** letters.  
Where no entry has been made, themes are not applicable.

## SCENIC THEME REPRESENTATION

Eight scenic themes are rated as having very high expansion needs (Table 3.4: very high expansion needs are shaded; high expansion needs are shown in bold capital letters). These include: meadows/grasslands (Tidewater, Coastal Plain, Piedmont), waterfalls (Piedmont), rivers (Tidewater), islands (Tidewater, Piedmont), rock outcrops (Coastal Plain), caves/cliffs (Coastal Plain, Piedmont, Mountain) and bays/estuaries (Tidewater).

All scenic themes had some representation in the state parks system, although significant scenic highways had no representation within the Tidewater and Coastal Plain regions. Across all regions, approximately half the scenic themes are represented in state parks. Additional units in the Piedmont region are proposed to serve a rapidly expanding population and in the Mountain region to preserve significant resources.

**Table 3.4. Statewide Significance of Scenic Themes and Their Representation in the State Parks System**

THEMES	REGIONS									
	TIDEWATER		COASTAL PLAIN		PIEDMONT		MOUNTAIN		Representation	Significance
	Significance	Representation	Significance	Representation	Significance	Representation	Significance	Representation		
Scenic Vistas	HIGH	MODERATE	HIGH	MODERATE	HIGH	MODERATE	HIGH	MODERATE	HIGH	MODERATE
Reservoirs/Lakes	HIGH	MODERATE	High	Adequate	High	Adequate	HIGH	MODERATE	HIGH	MODERATE
Waterfalls					HIGH	LITTLE	High	Adequate		
Rivers	HIGH	LITTLE	HIGH	MODERATE	HIGH	MODERATE	HIGH	MODERATE	HIGH	MODERATE
White Water Streams					HIGH	MODERATE	HIGH	MODERATE	HIGH	MODERATE
Forests	HIGH	MODERATE	High	Adequate	High	Adequate	High	Adequate	High	Adequate
Meadows/Grasslands	HIGH	LITTLE	HIGH	LITTLE	HIGH	LITTLE	HIGH	LITTLE	HIGH	MODERATE
Swamps	High	Adequate	High	Adequate						
Pocosins	HIGH	MODERATE	HIGH	MODERATE						
Marshes	HIGH	MODERATE	HIGH	MODERATE						
Gorges									HIGH	MODERATE
Rock Outcrops			HIGH	LITTLE	HIGH	MODERATE	HIGH	MODERATE	HIGH	MODERATE
Islands	HIGH	MODERATE			HIGH	LITTLE	HIGH	LITTLE		
Caves/Cliffs	HIGH	NONE	HIGH	LITTLE	HIGH	LITTLE	High	Adequate		
Scenic Highways	HIGH	NONE	HIGH	NONE	HIGH	LITTLE	HIGH	LITTLE	HIGH	LITTLE
Bays/Estuaries	HIGH	LITTLE								
Seashores	HIGH	MODERATE								

Notes: Very high expansion needs are shaded. High expansion needs are shown in **BOLD CAPITAL** letters. Where no entry has been made, themes are not applicable.

## BIOLOGICAL THEME REPRESENTATION

Over 116 natural community types have been identified and described in North Carolina (Schafale and Weakley, 1990). These have been grouped into 32 biological themes based on similarities in environment and vegetation. Each of the themes is fully described in the Natural Heritage Program Biennial Protection Plan (Division of Parks and Recreation, 1993).

As land within North Carolina is altered for agriculture, forestry, industry, and residential development, one of the consequences is a reduction of natural diversity in the landscape. Undisturbed natural communities in North Carolina are very diverse, varying in geology, soil type, topography, moisture, flora, and fauna. It is the purpose of the state parks system to protect representative examples of the state's natural diversity for the benefit and enjoyment of all the citizens. At present, the state parks system includes representative examples of many of the state's biological themes. However, many themes are not adequately represented. Expansion of the state parks system for protection of biological diversity should focus on the themes which are not yet adequately represented.

Thirteen biological themes are rated as having very high expansion needs (Table 3.5; very high expansion needs are shaded; high expansion needs are shown in bold capital letters). These include: grass and heath balds (Mountain), northern hardwood forests (Mountain), coastal plain marl outcrops (Tidewater), mafic glades and barrens (Piedmont and Mountain), brownwater coastal plain floodplains (Coastal Plain), riverine aquatic communities (Tidewater and Piedmont), mountain bogs and fens (Mountain), piedmont upland pools and depressions (Piedmont), coastal plain nonalluvial mineral wetlands (Tidewater), peatland pocosins (Tidewater), streamhead pocosins (Coastal Plain), wet pine savannas (Tidewater and Coastal Plain), and coastal plain depression communities (Tidewater and Coastal Plain).



**Table 3.5. Statewide Significance of Biological Themes and Their Representation in the State Parks System**

Themes	Regions								
	Tidewater		Coastal		Piedmont		Mountain		
	Significance	Representation	Significance	Representation	Significance	Representation	Significance	Representation	
Spruce-Fir Forests							HIGH	MODERATE	
Grass and Heath Balds							HIGH	LITTLE	
Northern Hardwood Forests							HIGH	MODERATE	
Mountain Cove Forests							HIGH	Adequate	
Piedmont and Coastal Plain Mesic Forests	HIGH	MODERATE	High	Adequate	High	Adequate	Little	None	
Piedmont and Mtn Dry Coniferous Woodlands					Moderate	Moderate	HIGH	Adequate	
Montane Oak Forests					Moderate	Adequate	HIGH	Adequate	
Piedmont and Coastal Plain Oak Forests	MODERATE	LITTLE	High	Adequate	HIGH	Adequate	Little	Little	
High Elevation Rock Outcrops							HIGH	MODERATE	
Low Elevation Cliffs and Rock Outcrops	HIGH	NONE	Moderate	Adequate	HIGH	MODERATE	HIGH	MODERATE	
Coastal Plain Marl Outcrops	HIGH	NONE	MODERATE	NONE					
Granitic Flatrocks					HIGH	MODERATE			
Mafic Glades and Barrens					HIGH	NONE	HIGH	NONE	
Maritime Grasslands	High	Adequate							
Maritime Upland Forests	HIGH	MODERATE							
Dry Longleaf Pine Communities	HIGH	MODERATE	HIGH	MODERATE	MODERATE	NONE			
Blackwater Coastal Plain Floodplains	HIGH	MODERATE	HIGH	MODERATE	Little	None			
Brownwater Coastal Plain Floodplains	Little	None	HIGH	LITTLE					
Piedmont and Mountain Floodplains			Moderate	Adequate	HIGH	MODERATE	HIGH	MODERATE	
Riverine Aquatic Communities	HIGH	LITTLE	HIGH	MODERATE	HIGH	MODERATE	HIGH	MODERATE	

Themes	Regions								
	Tidewater		Coastal		Piedmont		Mountain		
	Significance	Representation	Significance	Representation	Significance	Representation	Significance	Representation	
Mountain Bogs and Fens									
Upland Seepages and Spray Cliffs									
Piedmont Upland Pools and Depressions									
Coastal Plain Nonalluvial Mineral Wetlands	HIGH	MODERATE	MODERATE	NONE	HIGH	MODERATE	Little	None	
Peatland Pocosins	HIGH	MODERATE	High	Adequate					
Streamhead Pocosins	Little	Little	HIGH	MODERATE					
Wet Pine Savannas	HIGH	MODERATE	HIGH	MODERATE	MODERATE	NONE			
Coastal Plain Depression Communities	HIGH	MODERATE	HIGH	LITTLE					
Natural Lake Communities	HIGH	MODERATE	High	Adequate					
Maritime Wetland Forests	HIGH	MODERATE							
Freshwater Tidal Wetlands	HIGH	MODERATE							
Estuarine Communities	High	Adequate							

## CHAPTER 4

# TRENDS AFFECTING OUTDOOR RECREATION IN THE STATE PARKS SYSTEM

Accurate predictions of changes facing North Carolina and their impact on the state and its outdoor recreation needs are important if the state is to meet those needs. Much of what citizens can do today about the future quality of life is dependent upon anticipating future trends and planning accordingly. Major trends that will affect public outdoor recreation follow.

### POPULATION GROWTH

From 1990-2000, the state's population grew 21.3 percent and totaled over 8 million people. The growth rate reflects the significant in-migration of people who are relocating to North Carolina. In fact, two-thirds of the growth rate is because of people moving to the state.

This trend has continued in the 21<sup>st</sup> Century, with growth rates of 18 percent and 15 percent projected for the first two decades, respectively. By 2020, the state's population will have grown to nearly 11 million, up from 6.6 million in 1990 (Figure 4-1). This increase of nearly 4.5 million people represents a total increase of 65 percent in 30 years. By contrast, it took 80 years, 1910 to 1990, to add 4.5 million people to the state's population.

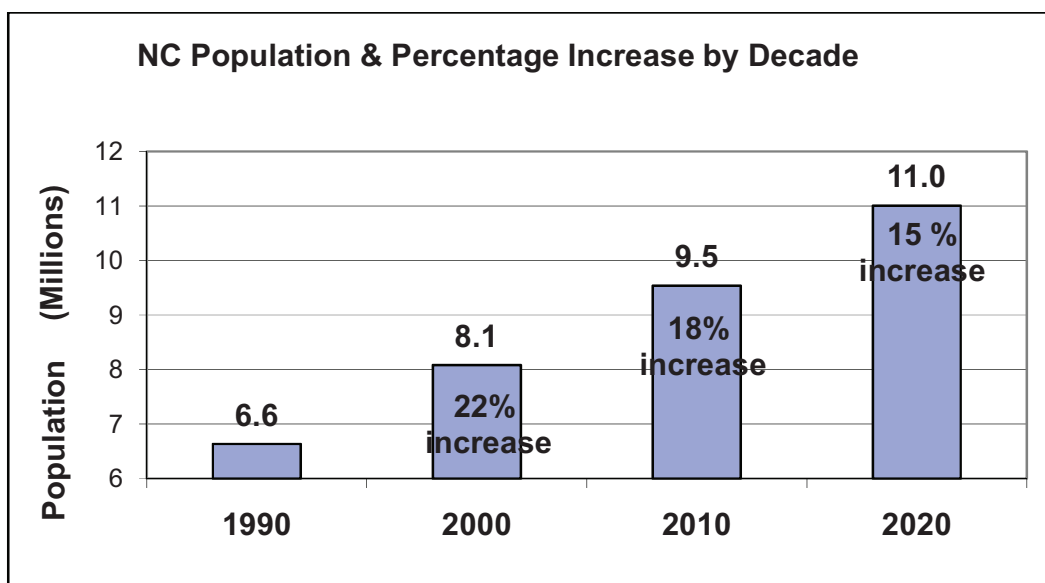


Figure 4.1. North Carolina's Population Increase 1990-2020

Higher population growth is occurring in the large metropolitan areas across the state. One third of the growth in North Carolina's population this decade is the two largest counties, Mecklenburg and Wake counties. The growth in the top ten counties, nearly 1 million people, has accounted for about two-thirds of the population increase in the state from 2000-2010.

**Table 4.1. Top Ten Counties by Population Increase 2000-2010**

<b>Ten NC Counties with the Largest Increase in Population 2000-2010</b>				
<b>County</b>	<b>2000 Population</b>	<b>2010 Population</b>	<b>Population Increase</b>	<b>Percent Increase</b>
Wake	627,846	920,298	292,452	46.6 %
Mecklenburg	695,370	936,874	241,504	34.7 %
Union	123,772	207,738	83,966	67.8 %
Guilford	421,048	480,028	58,980	14.0 %
Johnston	121,900	171,548	49,648	40.7 %
Cabarrus	131,063	179,365	48,302	36.9 %
Forsyth	306,063	352,810	46,747	15.3 %
Durham	223,314	267,086	43,772	19.6 %
New Hanover	160,327	202,411	42,084	26.2 %
Iredell	122,660	162,353	39,693	32.4 %
<b>Totals</b>	<b>2,933,363</b>	<b>3,880,511</b>	<b>947,148</b>	<b>33.4 %</b>

North Carolina's population has been and will continue to be among the fastest growing in the United States. In the year 2000, North Carolina ranked 11<sup>th</sup> in total population in the nation. By 2020, North Carolina is projected by the US Census Bureau to be the ninth most populous state in the nation, passing both Michigan and New Jersey.

**Table 4.2. Most Populous States in the US: 2000 and 2020**

<b>Most Populous States - 2000 and 2020</b>			
<b>2000</b>		<b>2020</b>	
<b>Rank</b>	<b>State</b>	<b>Rank</b>	<b>State</b>
1	California	1	California
2	Texas	2	Texas
3	New York	3	Florida
4	Florida	4	New York
5	Illinois	5	Illinois
6	Pennsylvania	6	Pennsylvania
7	Ohio	7	Ohio
8	Michigan	8	Georgia
9	New Jersey	9	North Carolina
10	Georgia	10	Michigan
11	North Carolina	11	New Jersey

## **RAPID DEVELOPMENT OF LAND**

Increasing population causes the landscape to change from a more rural character and become more urban. Communities at the coast and in the mountains become larger towns as retirees move into these areas. The Piedmont crescent attracts and influx of job seekers. The result is more people seeking houses, roads, and services. The changes can be seen across North Carolina.

In the years to come, not only will more citizens be demanding outdoor recreation areas and facilities, but land available for outdoor recreation will be shrinking as development takes place to accommodate the population growth. Without an increase in recreational areas and facilities, existing ones can be expected to become increasingly crowded and negatively impacted by use and surrounding development. New areas need to be identified and steps taken to acquire them prior to their being impacted by or lost to development.

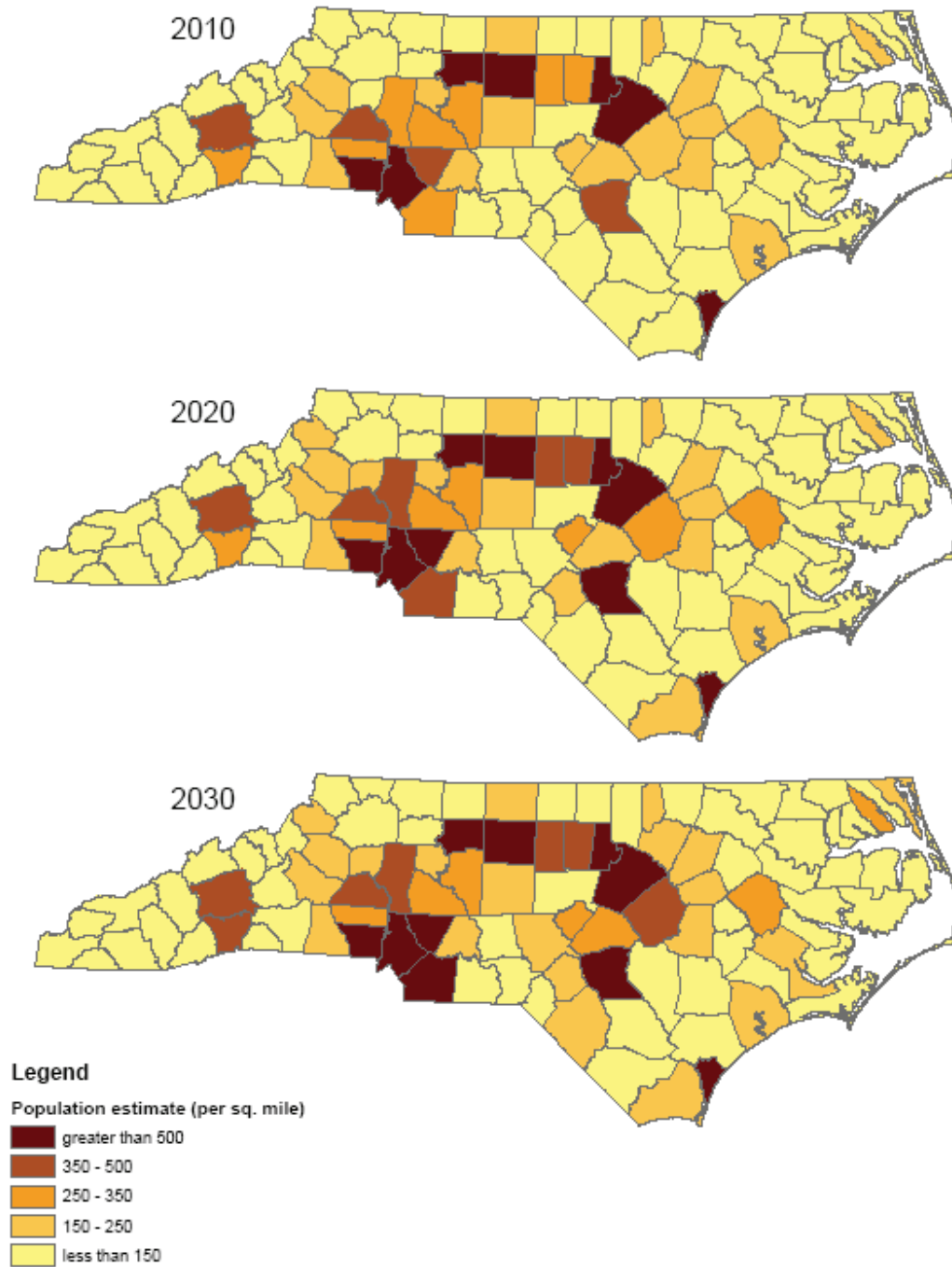


**Table 4.3. Single-Family Building Permits 1995-2007**

<b>North Carolina Single-Family Building Permits</b>				
<b>Year</b>	<b>Number of Dwelling Units</b>		<b>Average Value per Dwelling Unit (Dollars)</b>	
	<b>Units</b>	<b>Percent Change</b>	<b>Value</b>	<b>Percent Change</b>
1995	47,703	-	100,100	-
1996	51,796	9	104,600	4
1997	55,529	7	107,800	3
1998	62,389	12	115,800	7
1999	64,056	3	119,700	3
2000	59,061	-8	130,800	9
2001	62,679	6	132,200	1
2002	66,400	6	136,800	3
2003	66,883	1	142,300	4
2004	77,147	15	153,300	8
2005	84,765	10	163,00	6
2006	82,710	-2	177,700	9
2007	70,339	-15	184,200	4
<b>Averages</b>	65,497	4	136,031	5

Even considering the recent economic downturn in new housing construction, single-family building permits increased from 47,703 in 1995 to 70,339 in 2007, an increase of 47.45 percent in the 12 year period. The increased demand for housing as well as increased affluence of residents has also increased housing prices by an average of five percent annually (Table 4-5).

Another measure of the changing landscape is population density, people per square mile, which is increasing across the state. In 2010, North Carolina will have about 195 people per square mile. During the next 20 years, the population density for the state will increase to 255 per square mile which is an increase of over 30 percent (Figure 4-2).



**Figure 4.2 Population Density by County 2010 - 2030**

## LONGER, HEALTHIER LIVES

The North Carolina population is aging as “Baby Boomers” retire, birth rates have slowed and average life expectancy increases. The median age in the state rose from 26.5 in 1970 to 36.2 in 2000. By the year 2010, the median age is projected to rise to 38.5.

People are living longer (Table 4-4). Improved living conditions, medical discoveries, advances in healthcare and knowledge about the effects of lifestyle have all contributed to the longer lives. Questions about how long life spans can be extended through discoveries of biological research are being debated, but the trend of increased life expectancy is projected to continue. Lifestyle choices, including participating in recreation and exercise, can affect an individual’s life span.

**Table 4.4. Life Expectancy at Birth, 1900-2005**

	1900	1920	1940	1960	1980	2000	2005
<b>Average</b>	49.2	56.4	63.6	69.9	73.9	75.4	77.8
<b>Men</b>	47.9	49.9	57.7	65.5	70.1	71.8	75.2
<b>Women</b>	50.7	57.4	65.9	73.2	77.6	78.8	80.4

Source: National Vital Statistics System

Not only are lives getting longer, but they are likely to be healthier at all ages. Continued improved medical care, drug discoveries, biotechnology advances and technological innovations are expected. Even with millions more people reaching retirement age, the number of people in nursing homes declined nationwide during the 1990s, according to surveys by the Duke Center for Demographic Studies. The Center also found that Medicare recipients are much less likely to be disabled than 20 years ago. Healthy people are more likely to participate in outdoor recreation. With longer and healthier lives, people are remaining active in their chosen activities longer in life, creating additional demand for outdoor recreation areas and facilities.

While the elderly participate in outdoor recreation less frequently than younger persons, they participate more frequently than in past years. An increasing interest in physical fitness and improved health has led to more participation. When higher participation rates are coupled with large increases in the over-65 age group, the elderly will demand services to a much greater degree than they do now.

Increased demand can therefore be expected for activities that have high participation by older Americans. These include walking, sightseeing, attending family gatherings, visiting a beach or waterside, picnicking, visiting a historic site or nature center, birdwatching and attending sporting events. Older Americans also participate in a wide variety of other outdoor recreation activities including wildlife viewing, attending concerts, nature study, fishing, swimming, motor boating, biking and golf. Participation in team sports and other physically demanding activities are, as one might expect, considerably higher for the young and middle-aged than for the elderly. (National Survey on Recreation and the Environment, 2000)

## **PREFERENCES FOR OUTDOOR RECREATION ACTIVITIES**

The 2002-2007 National Survey on Recreation and the Environment (NSRE) is the eighth in a series of national surveys started in 1960 by the Outdoor Recreation Resources Review Commission and now coordinated by the USDA Forest Service. The survey was accomplished by interviewing approximately 90,000 Americans aged 16 and over in random-digit-dialing telephone samplings. In 2007, the U.S. Forest Service prepared an analysis of responses to the NSRE for residents from North Carolina.

The NSRE has yielded just fewer than 3,000 total surveys for North Carolina during this period. The primary purpose of the NSRE and was to learn about approximately 85 specific outdoor recreation activities of people aged 16 and over in the United States. Questions from the NSRE broadly address areas such as outdoor recreation participation, demographics, household structure, lifestyles, environmental attitudes, natural resource values, constraints to participation, and attitudes toward management policies. The following information is excerpted from the USFS report “National Survey of Recreation and the Environment: North Carolina and the North Carolina Market Area.”

The NSRE found that over 97 percent of Americans age 16 and over participated in at least one of the 80 recreation activities surveyed during the year prior to their interview. While reasons for participation are varied – for exercise and health, as part of a vacation, for team or individual competition, or just for fun – it is obvious that demand for outdoor recreation is high (Table 4-5). Some of the most popular activities in North Carolina are provided by the state parks system. These include nearly all natural resource-based activities such as viewing scenery or wildlife, picnicking, visiting beaches and swimming, camping, and fishing as well as using trails for walking, hiking, and bicycling.

**Table 4.5: Percentage of Residents Participating in Outdoor Recreation Activities**

Percentage of NC Residents Participating in Outdoor Recreation Activities					
Rank	Activity	Percent	Rank	Activity	Percent
1	Walk for pleasure	82	41	Coldwater fishing	11.5
2	Family gathering	74.6	42	Hunting (any type)	9.9
3	Gardening or landscaping	65.4	43	Inline skating	9.5
4	Driving for pleasure	58.2	44	Rafting	9.3
5	View/photo natural scenery	57	45	Soccer outdoors	9
6	Visit nature centers, etc.	52.9	46	Volleyball outdoors	9
7	Sightseeing	52.9	47	Softball	8.9
8	Picnicking	50	48	Basketball outdoors	8.5
9	Attend sports events	48.6	49	Backpacking	8.4
10	Visit a beach	44.2	50	Use personal watercraft	8
11	Visit historic Sites	43.1	51	Sledding	8
12	View/photo other wildlife	43	52	Horseback riding (any type)	7.8
13	View/photo wildflowers, trees	41	53	Horseback riding on trails	7.3
14	Swimming in an outdoor pool	39.9	54	Big game hunting	7.2
15	Swimming in lakes, streams, etc.	39.7	55	Canoeing	6.7
16	Yard games, e.g., horseshoes	38.5	56	Small Game hunting	6.4
17	View/photograph birds	34	57	Waterskiing	6.3
18	Bicycling	31	58	Downhill skiing	6.1
19	Boating (any type)	31	59	Mountain climbing	5.3
20	Freshwater fishing	30.9	60	Football	4.2
21	Attend outdoor concerts, plays, etc.	30.6	61	Caving	4.2
22	Visit a primitive area	29.8	62	Snorkeling	4.1
23	Day hiking	29.7	63	Sailing	3.7
24	Running or jogging	28.3	64	Baseball	3.5
25	Visit a farm	28.2	65	Anadromous fishing	3.1
26	View/photograph fish	26.5	66	Kayaking	3.1
27	Gather mushrooms, berries, etc.	26.3	67	Handball or racquetball	3.1
28	Warmwater fishing	25.9	68	Snowboarding	3.1
29	Visit other waterside (not a beach)	24.4	69	Orienteering	3
30	Motorboating	22.5	70	Rowing	2.5
31	Boat tours or excursions	21.7	71	Rock climbing	2.3
32	Drive off-road (any type)	20.7	72	Ice skating outdoors	2.1
33	Developed camping	20.5	73	Surfing	1.8
34	Visit archeological sites	18	74	Migratory bird hunting	1.7
35	Snow/ice activities (any type)	17.9	75	Snowmobiling	1.5
36	Saltwater fishing	17	76	Scuba diving	1
37	Mountain biking	15.7	77	Cross country skiing	1
38	Tennis outdoors	14.8	78	Windsurfing	0.5
39	Primitive camping	14.6	79	Snowshoeing	0.2
40	Golf	13.9	80	Ice fishing	0



## TRENDS FOR OUTDOOR RECREATION ACTIVITIES

In addition to population growth, outdoor recreation demand has also been fueled by increased participation. The 2002-2007 National Survey on Recreation and the Environment (NSRE) and earlier versions of the survey have documented this increase. The NSRE found that 89 percent of people age 16 and older participated in at least one activity in 1982/83; 94.5 percent in 1994/95; and 97.6 percent in 1999/2000. Some of this increase can be attributed to the longer list of activities used in the more recent surveys. Even so, it appears that participation overall is increasing. While there is little room for continued increases in the percentage of persons participating, the trend does not indicate any drop in the rate of participation. Additional recreational lands and facilities are needed to meet the additional demand created by increased participation.

**Table 4.6. NC Resident Participation & Percent Change by Activity Type**

<b>Activity Type</b>	<b>Percent participating 1995</b>	<b>Millions of participants 1995</b>	<b>Percent participating 2006</b>	<b>Millions of participants 2006</b>	<b>Percent change in # participants 1995-2006</b>
Trail/street/road activities	66.1	3.713	85.7	5.812	56.5
Individual sports	20.2	1.137	28.2	1.913	68.2
Team sports	26.5	1.490	21.6	1.468	-1.5
Spectator activities	56.1	3.152	62.4	4.232	34.3
Viewing/learning activities	68.8	3.865	81.7	5.543	43.4
Snow/ice activities	11.8	0.662	17.9	1.212	83.1
Camping	21.8	1.226	28.7	1.949	59.0
Hunting	9.4	0.528	9.9	0.670	26.9
Fishing	26.7	1.500	36.7	2.493	66.2
Boating	28.7	1.612	31.0	2.105	30.6
Swimming (natural, pool, snorkeling)	50.8	2.856	53.1	3.605	26.2
Outdoor adventure activities	33.0	1.853	51.2	3.475	87.5
Social activities	67.8	3.811	88.2	5.986	57.1

Between 1995 and 2006, every outdoor recreation activity increased except for team sports (-1.5% change, 21.6% participating). The highest percentage of participants increase occurred in outdoor adventure activities (87.5% change, 51.2% participating). Also increasing were snow/ice activities (83.1% change, 17.9% participating), and individual sports (68.2% change, 28.2% participating) (Table 4.6).

The most participated in outdoor activity is social activities with nearly 90% of residents participating (57.1% change). Roughly 2,500,000 North Carolina residents fish (66.2% change, 36.7% participating), 670,000 hunt (26.9% change, 9.9% participating), and 2,100,000 boat (30.6% change, 31.0% participating). There was more than a 25% increase in participation in swimming (natural, pool, snorkeling) and more than 50% participated in 2006.

Activities that occur on a trail, street or road had 85.7% of the population participating (56.5% change), and viewing and learning activities had 81.7% participating (43.4% change). Camping is an activity enjoyed by more than a quarter of residents (59.0% change), and spectator activities are enjoyed by roughly two-thirds of residents (34.3% change).

Table 4-7 examine trends in North Carolina resident outdoor recreation participation by overall number participating, percent participating, and the percent change in number of participants. The 1995 data is from the 1995 NSRE survey, and the 2006 data is from the NSRE survey from 1999-2006.

Additional information about trends for recreation participation in four regions of North Carolina (north, south, east and west) is presented in Appendix B.

**Table 4.7. North Carolinians Participating and Percent Change by Activity**

<b>Activity</b>	<b>Percent participating 1995</b>	<b>Millions of participants 1995</b>	<b>Percent participating 2006</b>	<b>Millions of participants 2006</b>	<b>Percent change in # participants 1995-2006</b>
Snowboarding	1.0	0.055	3.1	0.211	283.6
Kayaking	1.0	0.058	3.1	0.209	260.3
Snowmobiling	0.6	0.031	1.5	0.105	238.7
View or photograph fish	11.6	0.652	26.3	1.782	173.3
Ice skating outdoors	1.2	0.066	2.1	0.139	110.6
Soccer outdoors	5.2	0.294	9.0	0.612	108.2
Jet skiing	4.9	0.273	8.0	0.545	99.6
View wildlife (besides birds)	25.6	1.438	42.0	2.848	98.1
Caving	2.6	0.144	4.2	0.283	96.5
Drive off-road	12.7	0.716	20.7	1.407	96.5
Sledding	5.3	0.295	8.0	0.544	84.4
Day hiking	20.3	1.139	29.7	2.012	76.6
Tennis outdoors	10.6	0.598	14.8	1.006	68.2
Coldwater fishing	8.3	0.468	11.5	0.781	66.9
Primitive camping	11.5	0.646	14.6	0.993	53.7
Walk for pleasure	65.4	3.673	82.0	5.564	51.5
Rafting	7.4	0.418	9.3	0.630	50.7
Warmwater fishing	20.8	1.170	25.9	1.756	50.1
View birds	27.0	1.517	33.5	2.269	49.6
Horseback riding	6.4	0.358	7.8	0.528	47.5
Bicycling	25.4	1.427	31.0	2.100	47.2
Family gathering outdoors	61.2	3.438	74.6	5.062	47.2
Developed camping	17.2	0.969	20.5	1.392	43.7
Yard games, e.g., croquet	32.5	1.827	38.5	2.610	42.9
Picnicking	43.8	2.459	50.0	3.390	37.9
Saltwater fishing	15.0	0.842	17.0	1.156	37.3

<b>Activity</b>	<b>Percent participating 1995</b>	<b>Millions of participants 1995</b>	<b>Percent participating 2006</b>	<b>Millions of participants 2006</b>	<b>Percent change in # participants 1995-2006</b>
Swimming in lakes, streams, etc.	36.1	2.031	39.7	2.695	32.7
Cross country skiing	0.9	0.050	1.0	0.066	32.0
Canoeing	6.2	0.347	6.7	0.455	31.1
Visit archeological sites	16.8	0.946	18.0	1.224	29.4
Attend outdoor sports events	45.5	2.560	48.6	3.294	28.7
Attend outdoor concerts, etc.	29.5	1.658	30.6	2.074	25.1
Visit nature centers, etc	51.1	2.870	52.9	3.587	25.0
Golfing	13.4	0.755	13.9	0.940	24.5
Mountain climbing	5.2	0.291	5.3	0.357	22.7
Running or jogging	28.7	1.612	28.3	1.923	19.3
Rowing	2.5	0.143	2.5	0.168	17.5
Motorboating	23.2	1.304	22.5	1.529	17.3
Sightseeing	54.7	3.074	52.9	3.591	16.8
Visit historic sites	44.9	2.521	43.1	2.927	16.1
Sailing	3.9	0.222	3.7	0.253	14.0
Big game hunting	7.7	0.433	7.2	0.489	12.9
Pool swimming	42.9	2.413	39.9	2.710	12.3
Handball or racquetball outdoors	3.4	0.192	3.1	0.210	9.4
Rock climbing	2.6	0.145	2.3	0.158	9.0
Small game hunting	7.1	0.398	6.4	0.433	8.8
Orienteering	3.4	0.191	3.0	0.207	8.4
Backpacking	9.4	0.530	8.4	0.572	7.9

## **IMPLICATIONS OF DEMOGRAPHIC AND SOCIOECONOMIC TRENDS**

- Increasing population and concomitant development pressures underscore the importance of conserving land and water resources, providing additional recreational opportunities in appropriate places, and developing interpretative centers and environmental education that will enhance an appreciation for the state's natural heritage and promote public health and an environmental ethic in all citizens.
- An increasing cosmopolitan and educated proportion of the North Carolina population participates in outdoor recreation more frequently, usually on weekends and close to home. This pattern creates a greater demand for higher quality outdoor recreation near population centers.
- As two-wage-earner families become more common and urban lifestyles predominate, these families will have less time to plan outings. Better information systems about state parks, such as the centralized reservation system, will help increase public awareness of recreational opportunities as well as planning a visit more convenient.
- State park visitation, particularly at parks near large urban areas, will continue to grow because of the trend toward frequent trips to nearby parks for one day or weekend visits.
- Use of mountain bicycles, personalized water craft, and all-terrain/off highway vehicles has increased dramatically in the state. Pressure to provide opportunities for use within state park units has increased.
- The growing elderly population has more leisure time but participates in active leisure activities less frequently than do younger age groups. The elderly are more concerned with the safety, quality and accessibility of park facilities. The ADA stipulates that both facilities and programs should be accessible to all visitors. Newly constructed park facilities will be accessible and older facilities renovated to meet ADA standards.
- Walking for pleasure is the most popular outdoor recreational activity in the state and region. Over half of state and regional residents participate in viewing or photographing natural scenery, visiting a nature center, driving for pleasure or sightseeing. Therefore, it is important that residents receive information regarding access to these areas.
- Many of the state's most popular activities involve few specialized skills or equipment. These include walking for pleasure (82%), attending family gatherings (74.6%), gardening or landscaping (65.4%), driving for pleasure (58.2%), and viewing and photographing natural scenery (57.0%).



- As gas prices continue to rise, more residents may choose to recreate at areas that are close to home. This could decrease out-of-state visitors, but could increase park use by North Carolina residents. Information on the location and access of nearby recreation opportunities could increase user rates.
- Emphasis on a variety of opportunities such as interpretation, biking, walking, swimming, and lodging at a specific location may encourage visitation.

## **SURVEY OF RECREATIONAL RESOURCE NEEDS**

During the month of October in 2008, five Park Advisory Committee (PAC) meetings were held. Meeting locations were at: Lumber River State Park in Orrum, NC; Fort Fisher State Recreation Area in Kure Beach, NC; Crowders Mountain State Park in Kings Mountain, NC; Pilot Mountain State Park in Pinnacle, NC; and Dismal Swamp State Park in South Mills, NC. These meetings were an opportunity to give the PAC members and the general public an introduction to the recreational resources survey and to seek comments. The purpose of the survey was to receive feedback on what types of recreational facilities are desirable in state parks as well as a review and ranking of statements regarding the state park system and what the division should focus on over the next five years.

The Division of Parks and Recreation sought to increase survey participation of those most intimately familiar with state parks by ensuring that all PAC members were notified of the survey through their park superintendent. The survey was made available in hardcopy format and available via a web link of the survey on the NC Parks website homepage. In addition to seeking PAC member participation, the survey was made available to the general public.

Information promoting the on-line survey was widespread. On October 3, 2008, the division issued a press release to inform the various statewide and local media outlets of the recreational resources survey and its purpose. Friends of State Parks groups, outdoor recreation groups, land conservation partners, and various park supporters were encouraged via email to take the survey on-line. Some local and statewide park user groups circulated the web link of the on-line survey to their members. The survey also received widespread exposure in the Monday, October 6, 2008 on-line edition of the News & Observer which promoted the recreational resources survey to its readers. Other smaller circulation print newspapers ran the division's press release further increasing the exposure of the survey to the public. Government agencies such as the NC Department of Environment and Natural Resources Office of Environmental Education, promoted the survey on their website.

By the time the survey was closed to responses, 3,927 individuals interested in North Carolina state parks completed a survey.

## **Methodology**

The survey consisted of six questions. The first two questions related to state park facilities. Question one provided a list of twenty-six facilities that may or may not currently exist in the park system and asked the survey respondent whether they would use, might use, or not use a given facility type. Question two asked the respondent to consider the twenty-six facility types and to prioritize the top five facilities they most wanted in the state parks system.

Question three and four of the survey sought feedback on various statements about the management and future direction of North Carolina's state parks. In question three, respondents were asked if they strongly agree, agree, disagree, or strongly disagreed to seventeen statements regarding the park system and its operations. Question four asked the respondent to consider the seventeen statements and to prioritize the top five statements that were the most important to improve the state parks system.

Question five was an open-ended question which asked respondents to provide any comments on issues to be considered in the Systemwide Plan. By the close of the survey, 1,832 written comments were received.

The last question of the survey asked the respondent if they are currently a PAC member at a state park in North Carolina. Names of PAC members, park info and name of park superintendents were collected as a means of comparing PAC members' responses to those of the general public.

## **Survey Limitations**

The recreational resources survey was an informal survey of those persons who have an interest in North Carolina's state parks, and not a scientific study of recreation resources in North Carolina utilizing a random sample of park users; therefore the findings herein should not be regarded as such. The purpose of the survey was to approximate the opinion of the state park users and the current Park Advisory Committee members of the North Carolina state park system.

Given the method of how this survey was performed and advertised (an on-line survey mostly advertised through on-line links, online blogs, and email correspondence), survey responses are heavily biased towards people with access to computers with an internet connection. Valued park user groups such as senior citizens, lower income residents, those with lower educational attainment, and rural residents without internet access are likely to be under-represented in the survey.

To help accommodate the needs of park users desiring to take the survey who did not want (or were unable) to take the survey on-line, hardcopy paper surveys were made available. Ten completed paper surveys were received.

While a scientific sample of state park users would be ideal, the time and financial resources to conduct such a study (and series of studies to keep the data up-to-date) is resource prohibitive. This survey format, while flawed, does provide an appropriate insight into the needs of park users for a relatively low investment of financial resources and staff time.

## 2008 Recreational Resources Survey Results

**Table 4.8. What types of facilities would you use? (All survey respondents)**

	<b>I would use</b>	<b>I might use</b>	<b>I would not use</b>
Back-country primitive campsite	<b>38.9%</b>	32.3%	28.8%
Tent / trailer campsite without hookups	<b>47.9%</b>	31.7%	20.4%
Tent / trailer campsite with hookups	<b>35.2%</b>	30.7%	34.2%
RV / trailer campsite with hookups	22.7%	17.8%	<b>59.5%</b>
Group campsites	30.3%	<b>44.7%</b>	25.0%
Simple cabin (enclosed living space)	37.2%	<b>43.3%</b>	19.5%
Cabin with kitchen, heat, and restroom	<b>45.0%</b>	36.9%	18.0%
Picnic table with grill	<b>68.4%</b>	26.1%	5.5%
Picnic shelter	<b>53.9%</b>	37.0%	9.1%
Playground	29.8%	28.4%	<b>41.8%</b>
Open play area	32.4%	<b>35.8%</b>	31.8%
Nature trail	<b>74.1%</b>	21.3%	4.6%
Hiking trail	<b>79.5%</b>	16.2%	4.3%
Equestrian trail	20.9%	13.9%	<b>65.1%</b>
Mountain bike trail	<b>39.3%</b>	25.4%	35.2%
Multi-use trail	<b>61.2%</b>	30.9%	7.9%
Paddle trails and river access areas	<b>55.5%</b>	33.1%	11.5%
Swimming area	<b>48.4%</b>	38.0%	13.6%
Beach	<b>53.4%</b>	34.0%	12.7%
Boat ramp / dock	30.2%	33.3%	<b>36.5%</b>
Marina	17.6%	30.2%	<b>52.2%</b>
Fishing pier	30.8%	<b>35.8%</b>	33.4%
Museum / educational exhibit	<b>50.7%</b>	37.5%	11.8%
Observation decks	<b>61.0%</b>	31.0%	8.0%
Rock climbing area	30.7%	33.0%	<b>36.3%</b>

The survey found the five ***most popular*** facilities in the park system to be: 1. Hiking Trails (79.5% would use), 2. Nature Trails (74.1% would use), 3. Picnic Table with Grill (68.4% would use), 4. Multi-Use Trail (61.2% would use), and 5. Observation Decks (61.0% would use). (Table 4-8)

The five ***least popular*** facilities were: 1. Equestrian Trails (65.1% would not use), 2. Recreation Vehicles (RV)/Trailer campsite with hook-ups (59.5% would not use), 3. Marina (52.2% would not use), 4. Playground (41.8% would not use), and 5. Boat Ramp/Dock (36.5% would not use).

The survey asked the participants to rank the top five park facilities that they most wanted in state parks. The highest ranked facility was Mountain Bike Trails, with 19.9% of survey respondents selecting this facility as the highest priority. Hiking Trails were selected as the second (16.3%), third (12.7%), and fourth (7.9%) priority facility to have in a state park. The fifth highest priority facility was Museum/Educational Exhibit, with 6.9% selecting this option.

It should be noted that other survey participants felt strongly about Equestrian Trails (13.7% noted this as a first choice), Rock Climbing Areas (5.6% selected as a first choice), Multi-Use Trails (11.8% selected as a second choice), and Nature Trails (7.8% selected as a second choice).

**Table 4.9. To what degree do you agree or disagree with the statements below?  
(All survey respondents)**

	<b>Strongly Agree</b>	<b>Agree</b>	<b>Disagree</b>	<b>Strongly Disagree</b>
It is important to protect North Carolina's unique natural resources, even if it means limiting public access to certain areas.	<b>48.3%</b>	41.5%	8.7%	1.5%
It is important to protect natural and scenic resources by acquiring land even if these areas may not be accessible to the public until planning, design and funding are in place to be developed as park units.	<b>59.5%</b>	34.2%	5.2%	1.1%
NC Parks should add new parks to provide additional recreational opportunities.	<b>60.7%</b>	34.5%	4.4%	0.4%
NC Parks should provide more recreational facilities and activities at its existing parks.	40.4%	<b>43.2%</b>	15.0%	1.4%
Completing land acquisition and construction plans at existing parks should take priority over adding new parks, recreation areas, or natural areas.	19.3%	<b>38.2%</b>	36.6%	5.9%

	<b>Strongly Agree</b>	<b>Agree</b>	<b>Disagree</b>	<b>Strongly Disagree</b>
It is important to locate new parks equitably across the state based on geography and population.	18.9%	<b>45.2%</b>	31.4%	4.4%
It is important to locate new parks based on the need to protect natural and recreational resources regardless of their proximity to centers of population.	<b>49.5%</b>	40.4%	9.2%	1.0%
I would be willing to pay higher fees for improved and expanded state park services and programs.	28.8%	<b>49.7%</b>	18.1%	3.3%
Fees should be kept at a minimum to serve greatest number of people possible.	27.6%	<b>50.9%</b>	18.5%	3.0%
Information on the NC Parks website is sufficient for my needs.	11.4%	<b>65.7%</b>	20.4%	2.5%
The brochures and maps for the state parks I visit are sufficient for my needs.	14.3%	<b>68.4%</b>	16.0%	1.4%
NC Parks should focus on providing more environmental education opportunities for visitors at parks.	27.6%	<b>55.0%</b>	24.9%	1.7%
NC Parks should increase its environmental education programs for public schools curriculum.	27.6%	<b>52.9%</b>	17.4%	2.1%
NC Parks should focus on providing educational opportunities in parks for children and families with children.	22.4%	<b>56.2%</b>	19.3%	2.1%
NC Parks should focus on improving maintenance and cleanliness of its parks.	20.4%	<b>57.4%</b>	21.4%	0.9%
NC Parks should focus on improving natural resource protection.	38.5%	<b>51.2%</b>	9.8%	0.5%
Access at state parks for persons with disabilities needs improvement.	10.4%	<b>45.3%</b>	41.1%	3.2%

The greatest percentage of survey respondents ***strongly agreed*** with the following statements (Table 4-9):

- NC Parks should add new parks to provide additional recreational opportunities. (60.7% strongly agreed)
- It is important to protect natural and scenic resources by acquiring land even if these areas may not be accessible to the public until planning, design and funding are in place to be developed as park units. (59.5% strongly agreed)

- It is important to locate new parks based on the need to protect natural and recreational resources regardless of their proximity to centers of population. (49.5% strongly agreed)
- It is important to protect North Carolina's unique natural resources, even if it means limiting public access to certain areas. (48.3% strongly agreed)

The greatest percentage of survey respondents ***agreed*** with the following statements:

- The brochures and maps for the state parks I visit are sufficient for my needs. (68.4% agreed)
- Information on the NC Parks website is sufficient for my needs. (65.7% agreed)
- NC Parks should focus on improving maintenance and cleanliness of its parks. (57.4% agreed)
- NC Parks should increase its environmental education programs for public schools curriculum. (56.2% agreed)
- NC Parks should focus on providing more environmental education opportunities for visitors at parks. (55.0% agreed)
- NC Parks should increase its environmental education programs for public schools curriculum. (52.9% agreed)
- NC Parks should focus on improving natural resource protection. (51.2% agreed)
- Fees should be kept at a minimum to serve greatest number of people possible. (50.9% agreed)
- I would be willing to pay higher fees for improved and expanded state park services and programs. (49.7% agreed)
- NC Parks should provide more recreational facilities and activities at its existing parks. (43.2% agreed)

The following statements had ***a high level of disagreement***:

- Completing land acquisition and construction plans at existing parks should take priority over adding new parks, recreation areas, or natural areas. (38.2% agreed and 36.6% disagreed)
- It is important to locate new parks equitably across the state based on geography and population. (45.2% agreed and 31.4% disagreed)



- Access at state parks for persons with disabilities needs improvement. (45.3% agreed and 41.1% disagreed)

The survey respondents ranked the *top five priority statements* as follows:

- First Priority: It is important to protect North Carolina's unique natural resources, even if it means limiting public access to certain areas. (25.5% selected this as their first priority)
- Second Priority: It is important to protect natural and scenic resources by acquiring land even if these areas may not be accessible to the public until planning, design and funding are in place to be developed as park units. (19.4% selected this as their second priority)
- Third and Fourth Priority: It is important to locate new parks based on the need to protect natural and recreational resources regardless of their proximity to centers of population. (16.7% selected this as their third priority and 10.8% selected this as their fourth priority)
- Fifth Priority: NC Parks should focus on improving natural resource protection. (11.3% selected this as their fifth priority)

Additional survey analysis about activity and facility preferences as well as other public opinion about state parks is contained in Appendix C.

## **CHAPTER 5**

### **STRATEGIC DIRECTIONS**

Although expressed in different words over the years, the mission and long term goals of the North Carolina State Parks System have been adhered to since the first state park was established at Mount Mitchell in 1916. The strategies used to achieve these goals have adapted to changing circumstances, trends, and opportunities.

#### **MISSION**

The mission of the Division of Parks and Recreation is to protect North Carolina's natural diversity, to provide and promote outdoor recreation opportunities throughout the state, and to exemplify and encourage good stewardship of natural resources for all citizens of and visitors to North Carolina.

#### **LONG TERM GOALS**

- Preserve and protect high quality, representative examples of the biological, geological, archaeological, scenic, and recreational resources of North Carolina by including such resources in the state parks system for public enjoyment, education, and inspiration.
- Offer a wide range of safe and enjoyable outdoor recreation opportunities in the state parks system by developing and staffing appropriate public facilities.
- Support recreation opportunities provided by other agencies and local governments by offering training and technical assistance, and by administering grant programs for park, trail, and greenway acquisition and development.
- Maintain and enhance the ecological quality of park resources by conducting appropriate stewardship activities and by careful planning and management of visitor use patterns and park development projects.
- Promote understanding of and pride in the natural heritage of the state by providing environmental education and interpretive materials and programming for teachers, students, and park visitors.

## TWENTY YEARS AGO

At the end of 1988, the North Carolina State Parks System consisted of 54 units, totaling 126,767 acres, with annual attendance of 7,894,178 visitors. The state parks system contained examples of the state's most outstanding natural resources, primarily acquired through donations. Few resources, however, were available to manage the parks and provide visitor services. In addition, land acquisition funding was sporadic, and opportunities to acquire new units were delayed or missed. Capital improvements were typically projects constructed by the Civilian Conservation Corps during the 1930's. The 1988 Systemwide Plan identified major problems:

*Inadequate appropriations for operations have limited administration of most units to custodial management. Lack of funding for development, repair, renovation, and maintenance has resulted in a state parks system infrastructure which is in decline. Inadequate land acquisition appropriations has caused loss of critical lands to incompatible private development, loss of important buffers and land proposed for park development.*

Inadequate and sporadic funding had resulted in a huge backlog of construction, maintenance and land acquisition needs, and inadequate operating funds left field staff overwhelmed, frustrated, and unable to protect resources and serve visitors at a professionally acceptable level. Only 10 units had maintenance employees, only 12 units had office assistants, and some units had no staff at all.

The major strategic directions for that decade were to establish a recurring, predictable source of funding for land acquisition and capital development, and to increase operating support to approach the per capita average of other state park systems in the southeast.

In 1993, voters approved a \$35 million state parks improvement bond referendum, and in 1994, the North Carolina General Assembly established the North Carolina Parks and Recreation Trust Fund (PARTF). The General Assembly made an initial appropriation of \$1 million to the PARTF to fund improvements in state parks, to fund grants for local governments and to increase public access to the state's beaches. In 1995, the General Assembly dedicated funds from the excise stamp tax to the trust fund starting in FY 1996-97. The Parks and Recreation Authority, a citizen board appointed by the governor and General Assembly, was also created to allocate funds from the PARTF to projects in state parks and to grants for local governments. In FY 1996-1997, revenues to the trust fund totaled \$18,057,792, of which \$11,447,949 was available to the state parks system for land acquisition, capital development and maintenance.

During that decade, the General Assembly also added significantly to the state park operating budget. Sixty new maintenance positions were added, as well as 34 new office assistants. Falls Lake and Jordan Lake state recreation areas together added 26 new positions, and an additional 35 new ranger positions were added across the state. The General Assembly supported the staffing of new land and facilities that were added to the system.

## **TEN YEARS AGO**

By the end of 1998, the status of the state parks system was quite different. The number of units had increased to 59, total acreage had increased to 150,333, and annual visitation had increased to 12,800,862. Revenue to the trust fund for FY1998-1999 was \$24,446,067, of which \$15,629,059 was available for state park capital needs. With bond and PARTF funding, many of the most urgent land inholdings and critical safety and health project needs were being addressed. The prospect of annual, recurring funds made it possible to conduct facility planning in a systematic, predictable way.

Meanwhile, funding had become available from other sources as well. The Natural Heritage Trust Fund, also funded by the excise stamp tax, provides grants for acquisition of lands with important natural and cultural resource value. The Clean Water Management Trust Fund, established in 1996, provides grants for acquisition of riparian buffer lands. Both of these trust funds have provided generous grants to the state parks system.

In addition, public support for protection of open space was growing. In 1999, Governor James B. Hunt proposed to permanently protect an additional one million acres of farmland, open space, and conservation lands in the State. In 2000, the state's General Assembly codified this goal in statute.

The time was right for a major expansion of the state parks system. The strategic directions in the 2000 Systemwide Plan were to complete the land acquisition and development envisioned in master plans for existing parks, and to add carefully selected new park units to the system. Criteria were identified, proposed sites were evaluated, and new units were added to enhance the system as a whole and to help the system fulfill its statutory purpose for future generations. Because PARTF is indexed to the real estate excise tax, the booming real estate markets of the 2000's generated revenue exceeding projections. The legislature also authorized special indebtedness (bonds) for land acquisition. Prior planning made it possible for the division to take advantage of significant opportunities to add important new state parks, state natural areas, and state trails to the system.

## **TODAY**

At the end of 2008, the situation had changed again. The state parks system has grown to 72 units with a total of 204,847 acres. Visitation in 2008 was 12,483,887, fluctuating from a high of 13,487,740 in 2007. Revenue to PARTF for FY 2008-2009 is projected to be less than \$31 million, down from a high of \$57,555,437 in FY 2005-2006. From the reduced revenues for this year, the Governor has transferred some to address a major budget shortfall, leaving even less for state park projects. Like many states, North Carolina is suffering the effects of the nationwide economic downturn. Long term goals for the state park system remain the same, yet the system's strategic directions must respond to the challenges of current times.

## **STRATEGIC DIRECTION #1**

### **CONTINUE EXPANSION OF THE STATE PARKS SYSTEM**

In spite of these economic challenges, the state parks system can continue to grow and improve. The current economic downturn has reduced the funding available for land acquisition and facility development. Nevertheless, public support for open space protection and new park units remains high (Chapter 4). North Carolina continues to be an attractive place for development, and strong population growth is anticipated in the coming decades. There is a continuing need to protect important natural resources and to provide outdoor recreation opportunities. With reduced revenues, there will be continued emphasis on careful planning and evaluation of statewide priorities to ensure the best use of more limited funding.

#### **Implementation**

**New Parks for a New Century** – DPR will continue to implement the New Parks for a New Century Program – evaluating and prioritizing the natural resources of the state, and identifying appropriate targets for land protection to incorporate significant sites into the state parks system.

- Over the next few years, emphasize the protection of State Natural Areas and State Trails that generally require less capital development and less intensive operation.
- For State Parks, focus on completing land acquisition, preparing plans, hiring staff, and developing facilities for existing parks, particularly the new parks that have been added in recent years.
- Respond to new opportunities, and carefully evaluate proposals for new units to ensure the best use of limited funding and to ensure that new units contribute to the achievement of our mission and long term goals.
- Focus on protecting natural resource themes identified as priorities in Chapter 3 (Resource Evaluation) including fossils, caves and sinks, grass and heath balds, mafic glades and barrens, and brownwater floodplains.

#### **Land Protection**

- Identify, prioritize and implement priority land protection projects, with emphasis on completing existing parks and protecting high priority resource themes.

#### **Capital Development**

- Identify recreational needs, prepare master plans and general management plans, establish statewide priorities, and administer a capital development program for planning, design and construction of park facilities, both at newly established and previously existing parks.
- Continue to use the Project Evaluation Program (PEP) to establish priorities for funding capital improvement projects.

## **STRATEGIC DIRECTION #2**

### **PROVIDE THE BEST POSSIBLE VISITOR EXPERIENCE**

DPR can improve the quality of the park visitor's experience by better coordinating all aspects of the operation to focus on connecting visitors to the state's unique natural resources in a purposeful, planned manner.

The visitor experience has two components. The internal experience is the visitor's perspective, which is created by a combination of feelings, sensations and prior experiences. This is unique to every visitor. The external component consists of the many separate pieces outside the visitor – the road conditions in the park, the cleanliness of the campgrounds, the clarity and readability of park signs, and the friendliness of park staff are just a few examples. Integrating all these pieces is the key to providing great visitor experiences.

The division is made up of many individual programs, each responsible for a part of the visitor's experience: operational policies, park design, constructed facilities, natural resource management, recreational activities, visitor services, interpretation, trails, signage, brochures, public information, and others. By focusing on collaboration and coordination among these programs, DPR seeks to provide purposeful, consistent, authentic experiences for visitors.

#### **Implementation**

##### **Get More and Better Feedback on Visitor Needs and Perspective**

- Update visitor use and preference studies on a regular basis. Include studies on park users and non-users.
- Use internet-based software to collect user feedback to better plan for park facilities and to improve visitor experiences.
- Use a wide range of data from the centralized reservation system to identify trends and visitor demand in order to better target capital development to visitor needs.
- The survey of recreational resource needs (Chapter 4 and Appendix C) found that some user groups with unmet needs expressed an interest to help the parks system develop and maintain the facilities they desire to use. Provided that the facility type is in accordance with the division's mission and is properly designed and sited – such requests should be considered.
- Track international, national, and statewide recreation trends.

##### **Evaluate and Improve Visitor Information Resources**

- Improve how park signs connect visitors to the park environment around them by focusing on purposeful interpretation and deliberate placement of displays, markers and directional signs.



- Inventory signs systemwide, and develop park interpretive exhibit plans.
- Use the website to make park data more accessible and user-friendly.

#### **Evaluate and Implement Facility Improvements**

- Use visitor feedback to help identify and evaluate new facilities and activities.
- Give priority to providing basic public services at every park and to expanding accessibility for all people to state park facilities. All new projects will provide accessibility in accordance with the standards of the American Disabilities Act.
- Provide for effective wayfinding designs as part of park master plans.
- Integrate trail routing and design with interpretation and education themes for each park.
- Provide a variety of opportunities for public input in the facility planning process.

#### **Evaluate and Implement Operational Improvements**

- Modernize and improve customer service capabilities with the new on-line centralized reservation system.
- Evaluate the National Park Service system of establishing zones within park units based on management objectives for resource management and visitor experience to determine if this approach would assist in improving the visitor experience in each park.

#### **Improve Organizational Collaboration**

- General management plans will identify visitor experience goals and methods of implementation to enhance the experience of visitors as a component of the park planning process.
- The division's Public Information Office, Interpretation and Education (I&E) Program, the Exhibits Program, and field staff will collaborate to improve the ways the public connects to park natural resources through the agency's various publications, brochures, signs and website.
- Collaborate with local governments and adjacent landowners to improve visitor experience by reducing the adverse effects of development on park water quality, scenic beauty, and serenity.

## **STRATEGIC DIRECTION #3 INCREASE EFFICIENCY AND REDUCE COSTS**

The recent rapid growth of the state parks system, increased visitation, and high public interest in Division services has placed great demands on DPR's resources and capabilities. DPR operates and maintains state park units open to the public 364 days per year (all park units are closed on Christmas Day), including law enforcement, public safety, education, natural resource protection, and visitor services. In addition, much work remains to be done to acquire, plan, staff, and develop newly established park units. DPR has increased its staffing in both park operations and central office support services, yet the system's growth threatens to outpace the agency's capabilities. The recent economic downturn is likely to present the challenge to economize without compromising mission or quality.

Particularly for the near future, state revenues are expected to continue to be reduced. The division's challenge will be to manage the rapid growth of the parks system while maintaining excellence in state park operations and stewardship. It will be essential to increase DPR's organizational effectiveness, and to foster efficient use of funds and resources available to the division.

### **Implementation**

#### **Land Protection**

- Pursue a range of funding sources in addition to the state trust funds, including donations, bargain sales, and federal grants.
- Streamline and improve data management for all property transactions.
- Streamline and improve the land acquisition process including planning and setting priorities, as well as collaboration with private land trust partners, the State Property Office, and staff of the state conservation trust funds.

#### **Design and Development**

- Pursue multiple funding opportunities for modifications to existing facilities.
- Coordinate with other recreation providers to avoid duplication of services.
- Emphasize maintenance to extend the life of facilities and to protect public investments.
- Design sites and facilities to minimize staff travel distances and patrol time, to streamline maintenance costs, and to reduce energy costs.
- Pursue new technologies appropriate for state parks construction, maintenance, and operation. Explore using recycled materials, low waste systems, renewable energy and energy savings. Use environmentally friendly materials. All facilities larger than 5,000 square feet will be LEED-certified and all others will use "green" building standards as a guide for project design and construction.

- Improve interdisciplinary collaboration in project planning in order to target projects to identified needs, to identify constraints early, and to identify potential efficiencies and cost savings.

### **Technology**

- Communication and data sharing among the division's multiple field offices and remote sites will be improved with web-based data sharing.
- All programs will work to improve integration of multiple data sources and formats, including budget data, visitor use statistics, GIS data, and natural resource inventory.
- Take advantage of technological advances to improve park operations, both in the central office and in the field.
- Continue to develop and implement the division-wide fiscal data management system.
- Automate and streamline data collection, management and sharing.
- Develop ways to identify, track and demonstrate cost efficiencies.
- Use the website to publish increasing portions of public information electronically. Maps, brochures, reports, and newsletters will be increasingly formatted for web distribution, although there will continue to be a demand for printed materials.
- Explore the use of new communication opportunities, such as Facebook, Twitter, RSS, and other technological innovations.
- Develop a new database to collect and compile interpretation and education statistics, to better target services and facilities.

### **Operations**

- Continue to improve and enhance the centralized reservation system to improve both efficiency and customer service.
- Use the central warehouse to increase efficiencies in purchase and distribution of supplies and materials.
- Over time, as funding allows, convert vehicle fleet to more fuel-efficient vehicles. Evaluate use of vehicles and develop ways of reducing vehicle and fuel costs.
- Evaluate energy use patterns in buildings to identify cost-saving measures; including replacing the existing lighting in exhibit halls with more efficient LED lighting.
- Request an increase in the cost threshold for requiring the competitive bidding process for small repair and renovation projects to streamline the process and reduce costs.

**Exhibits**

- Implement digital asset management system to improve coordination and timeliness of projects.
- Explore ways of restructuring the program to best meet system wide management needs, and to reduce travel costs.
- Inventory and evaluate signage in parks so that data is available for use when maintenance projects are begun.
- Identify energy efficiency improvements in museums and incorporate these into museum maintenance projects.

**Revenue**

- Evaluate ways to increase revenue generation through such activities as purchases for resale and facility rentals.
- Evaluate using cooperating associations to increase park programs and revenues.

**Staff Retention**

- Improve personnel retention, thus reducing staff turnover, hiring and training expenses, by pursuing salary improvements for critical classes of employees commensurate with increasingly complex responsibilities.

**Natural and Cultural Resource Management**

- Explore the use of statewide seasonal crews to conduct resource management activities economically, such as prescribed burning and invasive species control.
- Conduct natural resource inventory and monitoring work early in the planning process and identify problems early so that corrective actions and management changes can be implemented economically.
- Improve communication between construction and resource management staff and improve the effectiveness and efficiency of the environmental review process.

**Volunteers**

- Explore ways to use available youth corps workers, to enhance volunteer recruitment and retention, to train volunteers to work independently in long-term positions, and in other ways to reduce labor costs and to allow state park units to operate more efficiently.

**Local Grants**

- Continue to automate and streamline administration of all grant programs to reduce costs and to improve accountability and transparency.

## **STRATEGIC DIRECTION #4**

### **SUPPORT LOCAL ECONOMIC DEVELOPMENT**

Even before the most recent economic downturn, the state's rural areas have been increasingly turning to ecotourism for economic growth and stability. The state parks are important regional attractions that can form the cornerstone of these local efforts. In addition, DPR can support local economic development by participating in local and regional tourism initiatives, by coordinating multi-jurisdictional recreation planning, by offering grants for local park and trail projects, and by providing environmental education opportunities for schools and universities.

The division will look for innovative ways to support local economic development, while adhering to the mission and long term goals of the state parks system, keeping public costs reasonable, and avoiding competition with the private sector.

#### **Implementation**

##### **Operations**

- Explore ways to increase support for and participation in community festivals, regional tourism initiatives, local planning projects, and youth job projects.
- Actively seek community input to park planning efforts.

##### **Local Grants**

- Administer the NC Parks and Recreation Trust Fund local grant program, the federal Land and Water Conservation Fund grant program, the federal Recreational Trails Program grants, and the state Adopt-a-Trail grant program for the benefit of other recreation providers.
- Support continued and expanded funding for these programs to enhance recreation and ecotourism development at the local level.

**Regional Trail and Greenway Planning** – There is great public interest and local government support for trail and greenway projects to provide exercise, protect waterways, and enhance tourism.

- Continue working with federal, state, local and private partners to prepare regional trail plans that increase the value of local trail investments by creating larger regional connections.
- Work with local partners to provide grant funding and technical assistance for the implementation of trail and greenway projects.
- Work to accelerate completion of the Mountains-to-Sea State Trail and its connecting corridors.

- Develop a website to disseminate information on trail and greenway opportunities available across the state from various recreation providers.

#### **Educational Support for Communities**

- Increase partnerships with local school districts by offering educational programming targeted toward K-12 teachers and students.
- Partner with universities by making appropriate sites available for college-level field visits and research, and by exploring ways to fund research needed for park management.
- Revise and expand the basic EELEs, and place field-tested EELE activities on the division's website so that educators can search a database and download activities to meet the learning needs of their students.
- Improve the availability of park resources for education by developing a systematic, coordinated approach for disseminating information about interpretation and education programs, interpretive exhibits and brochures and EELEs to teachers, scout leaders and other appropriate individuals.



APPENDIX A

PARK PROFILES

# Carolina Beach State Park

## Summary

With a marina providing access to some of North Carolina's best fishing spots, a secluded camping area beneath towering trees, and miles of hiking trails that traverse a variety of distinct habitats--not to mention the presence of the Venus flytrap, one of the world's most unique carnivorous plants--it's no wonder Carolina Beach State Park is a popular coastal attraction. Located in an area steeped in both history and natural diversity, the park includes a visitor's center with exhibits depicting the wonders of its environment. Visit Carolina Beach State Park to relax, enjoy nature or embark on an eye-opening adventure.

## Interpretive Themes

**Carnivorous Plants:** This theme focuses on the Venus flytrap and other carnivorous plants in the park. It especially focuses on their habitat, management needs and their unique adaptations.

**Diverse Plant Communities:** This theme focuses on the eight distinctive community types, the geologic and coastal history which create these environments, the individual plant adaptations to these communities, the uniqueness of so many plant communities in a very small area and management needs of some of these communities, such as prescribed burning.

**Acreage** (as of 2008): 420 land acres   **Visitation** (2008): 464,838   **County:** New Hanover

## Visitor Facilities (as of 2008)

1 Visitor Center	1 Auditorium
1 Classroom	1 Museum/Exhibit Hall
1 Picnic Area	83 Campsite w/ No Hookups
2 Group Campsite - Drive To	2 Showerhouse
1 Toilet Building	1 Boat Ramp - 1 lane
1 Marina	Park has > 5 mi of Hiking Trails

## Permanent Staff

Park Superintendent - 1  
Park Ranger - 3  
Maintenance Mechanic - 2  
Office Assistant - 1  
Processing Assistant - 1

## Seasonal Staff

Refreshment Stand Clerk - 5  
General Utility Worker - 2  
Park Attendant - 2  
Office Assistant II - 1  
Park Technician - 1

# Chimney Rock State Park

## Summary

In 2005, the N.C. General Assembly authorized a new state park in the scenic Hickory Nut Gorge area of western Rutherford and surrounding counties. The unit was designated as Chimney Rock State Park shortly after the state had acquired Chimney Rock Park, a private nature park surrounding the striking 315-foot spire on the gorge's southern side. In 1902, Lucius B. Morse bought the site. The Morse family developed park facilities including a tunnel and elevator to the rock summit, a visitor center, nature center and a network of hiking trails to geologic points of interest and the 404-foot-tall Hickory Nut Falls.

The greater Chimney Rock State Park currently encompasses roughly 4,000 acres on both north and south sides of the gorge and expansion efforts continue to bring more of the gorge's rich natural resources into conservation. The primary sections of the park are Chimney Rock, World's Edge, and Rumbling Bald. The addition of these lands to the State Parks System brings a large cluster of state and nationally significant sites, centered on the spectacular cliffs, rugged mountains, and unusually rich soils that line the gorge. With 36 rare plant species and 14 rare animal species, it is one of the major centers of biodiversity in the state.

## Interpretive Themes

### Living on the Edge

The Rocky Broad River has cut through the mountainous terrain to create the 14-mile gorge. This has created distinct geological features and a diversity of natural community types including low elevation rocky summit and low elevation granitic dome. These areas are often too steep or rocky to support a closed forest canopy and many rare plant and animal species have adapted to such harsh environmental conditions.

The area's highest peaks and steep slopes host bird species relatively uncommon to the region. Peregrine falcon and ravens prefer these rocky exposed cliffs to lay their eggs. Rocky outcrops facing north also support unique plant species such as roundleaf serviceberry, Biltmore sedge, and eastern shooting star. Life on these outcrops and cliff faces has teetered on the edge for many of these rare species, but with the continued protection of these incredible places they should be able to hang on.

### Geologic Forces Behind the Stunning Scenery of Hickory Nut Gorge

The magnificent cliffs at Chimney Rock State Park tell the story of nearly 500 million years of geologic forces. These unhurried forces include ancient volcanic activity, heat and pressure miles beneath the earth's surface, plate tectonics and erosion. The area is still seismically active with a magnitude 3.1 earthquake 8 miles south of Lake Lure in 2007 and historical earthquake reports in the late 1800's giving Rumbling Bald its name. The Rocky Broad River carves a path 1,800 feet deep through the gorge, ending in man-made Lake Lure. On either side of the river, steep exposed cliffs underscore vegetated ridge tops, demonstrating two distinctly different types of bedrock. The forces of expanding ice between cracks in the cliffs and gravity cause large pieces of cliff to break off. These ongoing rockslides result in remarkable landforms including Chimney Rock, numerous caves and tunnels, and jagged cliff faces.

**Acreage** (as of 2008): 4,111 land acres   **Visitation** (2008): 206,626   **Counties:** Rutherford, Henderson, Buncombe, Polk

## Visitor Facilities (as of 2008)

1 Park Office  
1 Classroom  
1 Picnic Area  
3 Concession  
2 Restaurant

1 Ranger Station  
1 Museum/Exhibit Hall  
1 Picnic Shelter - 12 table  
2 Toilet Building

### Permanent Staff

Park Superintendent - 1  
Park Ranger - 2  
Maintenance Mechanic - 1  
Office Assistant - 1

### Seasonal Staff

Park Attendant - 2  
Park Technician - 2  
General Utility Worker - 1

# Cliffs of the Neuse State Park

## Summary

At the turn of the century visitors flocked to the area. They drank mineral water from local springs to cure their ills and they took riverboat excursions to the cliffs. Things have changed since then, however, the cliffs remain virtually unaltered, standing as a journal of the geological and biological history of the land. Look down this spectacular formation to the river far below, now protected within the boundaries of Cliffs of the Neuse State Park.

## Interpretive Themes

**The Cliffs – A Window into the Geologic Past:** The main feature of the park is the multi-layered cliffs along the banks of the Neuse River just north of Seven Springs. The steep, colorful cliffs are not only an important scenic resource; they are also a valuable educational resource that provides visitors with a view back through time. Most of the exposed cliff layers belong to the Black Creek Formation, which was deposited during the late Cretaceous period more than 66 million years ago. Park programs and museum exhibits demonstrate the geologic processes that formed the cliffs and how geologists and paleontologists observe landforms and fossils to create a picture of the geography, climate and life forms of the Cretaceous period.

**Diverse Natural Communities Representing Three Regions of the State:** The park supports a diversity of flora and fauna within seven natural communities. River margins, flood plains, rolling uplands and ravines are home to an unusual mixture of trees, shrubs and herbaceous plants. Within a relatively small area, visitors are able to see plants and animals typical of the three regions of the state: coast, piedmont and mountains. Programs and exhibits in this theme area help visitors appreciate the biodiversity within the park and encourage them to work with park staff to protect and preserve it.

**Aquatic Habitats in the Park and Water Quality Issues:** Currently, the park has at least four different types of aquatic habitats: the Neuse River and its floodplain, two small creeks, a manmade lake, and a wetland area that was formerly Crumpler Pond. These different habitats represent a valuable educational resource for school groups and others to study water quality and related environmental issues. The water quality issues within the Neuse River basin have been widely reported and are of interest to many park visitors.

**Acreage** (as of 2008): 892 land acres    **Visitation** (2008): 127,571    **County:** Wayne

## Visitor Facilities (as of 2008)

1 Park Office	1 Museum/Exhibit Hall
1 Amphitheater	1 Picnic Area
1 Picnic Shelter - 12 table	35 Campsite w/ No Hookups
4 Group Campsite - Drive To	1 Natural Swim Area - Freshwater
1 Bathhouse	1 Concession
1 Showerhouse	3 Toilet Building
1 Boathouse	

## Permanent Staff

Park Superintendent - 1  
Maintenance Mechanic - 2  
Park Ranger - 3  
Office Assistant - 1

## Seasonal Staff

Lifeguard - 5  
Park Attendant - 4  
Refreshment Stand Clerk - 3  
Bathhouse Operator - 2  
Park Attendant (6 months) - 1  
Park Attendant (3 months) - 1  
Chief Lifeguard - 1  
General Utility Worker - 1

# Crowders Mountain State Park

## Summary

Raptors soar gracefully in the wind; vegetation reaches to the sky; sheer vertical cliffs drop 150 feet. Enjoy the spectacle from a front-row seat. High atop Crowders Mountain, the highest point in Gaston County, views stretch for more than 20 miles.

For a closer view of nature's marvels, walk the park's many miles of trails. The gently rolling landscape of the North Carolina Piedmont offers a variety of terrain. Dip into the valleys; cross the foothills; climb to the peaks. Quiet woods, trickling streams and melodious birds await. These spectacular surroundings, like the unique habitats in many other state parks, would not exist were it not for the efforts of concerned citizens dedicated to protecting our environment from continued threats by man. Visit this mountain treasure.

## Interpretive Themes

The Monadnocks of Crowders Mountain and King's Pinnacle:

The highest two peaks of the Kings Mountain range monadnocks, isolated hills that have resisted erosion. These peaks have many exposed rock outcrops and vertical cliffs as well as diversity of rock types. The park came into existence due to public support to save these monadnocks from the fate of nearby Henry's Knob, which was mined down from a peak to an open pit. The formation and erosion of the Kings Mountain range and the role of the park in protecting these unique kyanite-quartzite monadnocks are the focus of this theme.

Stream and Lake Ecology: This theme focuses on the diversity of plant and animal life found in and around the water. It also concerns the area's water quality and health of the ecosystem.

Diverse Plant Communities: At the various elevations and slopes along Crowders Mountain, a diverse array of plant communities is found. The plant communities are related to the soils, rocks and exposures. The importance of the park in protecting these communities is also a part of this theme.

**Acreage** (as of 2008): 5,126 land acres   **Visitation** (2008): 349,389   **Counties:** Gaston, Cleveland

## Visitor Facilities (as of 2008)

1 Visitor Center  
1 Museum/Exhibit Hall  
2 Picnic Shelter - 8 table  
6 Group Campsite - Walk In

1 Auditorium  
1 Picnic Area  
10 Primitive Campsite - Walk In  
Park has > 5 mi of Hiking Trails

## Permanent Staff

Park Superintendent - 1  
Park Ranger - 5  
Office Assistant - 2  
Maintenance Mechanic - 5

## Seasonal Staff

General Utility Worker - 2  
Park Attendant - 2  
Office Assistant - 1  
Office Assistant II - 1  
Office Assistant-OR-Boulder creek - 1

# Dismal Swamp State Park

## Summary

Feel your daily stresses melt away as you cross the historic Dismal Swamp Canal and walk along the 700-foot boardwalk into this geological wonder. Experience first hand the lush swamp forest and get up-close and personal with the wide variety of wildlife.

For the adventurer, there are 18 miles of hiking and mountain biking trails. Or, enjoy a leisurely paddle down the Dismal Swamp Canal in your canoe or kayak.

Learn why George Washington called the Dismal Swamp “a glorious paradise”, how the swamp was important in the Underground Railroad and the ecological importance of wetlands in the visitor’s center and exhibit hall. All of this and more can be found just 3 miles south of the NC/VA border on US Hwy 17.

## Interpretive Themes

**Formation of the Great Dismal Swamp:** The basic hydrologic requirements for the formation and development of large peat swamps are a humid climate with reasonable uniform rainfall throughout the year, and restricted drainage, both surface and subsurface. The thick, rather impervious clay which underlies the area is an effective seal, preventing either downward or upward movement of water. These unique wetland conditions offer habitat to many distinct plant communities, black bears and nearly 150 species of birds.

**The History of Human Activity in the Swamp:** The commercial and agricultural values of the swamp were explored soon after it was discovered by Colonists, including draining the whole area by ditching. The first canal, now called the Washington Ditch, was probably dug in the late 1760’s to facilitate the harvesting and removal of the timber. During the mid-1800’s, hundreds of shingle flatboats, picturesque passenger ships and freighters plied its length. This had a great effect on the Dismal Swamp as more and more timber was cut and shipped out via the canal and the numerous ditches cut for this purpose.

**Restoration of Natural Processes in the Swamp:** When the swamp was drained, the drier conditions allowed species such as maple and sweet gums to replace the Atlantic white cedar and cypress. Fire suppression also appears to be detrimental to cedar and cypress. A natural-resource management objective of the park is to help restore these natural forces. Water control structures are being placed in some of the ditches to help restore the area’s natural hydrology. A prescribed burn program will benefit the area’s native species.

**Acreage** (as of 2008): 14,344 land acres   **Visitation** (2008): 33,754   **County:** Camden

## Visitor Facilities (as of 2008)

1 Visitor Center  
1 Classroom

1 Auditorium  
1 Museum/Exhibit Hall

## Permanent Staff

Park Superintendent - 1  
Park Ranger - 2  
Maintenance Mechanic - 2  
Office Assistant - 1

## Seasonal Staff

general utility worker - 2



# Elk Knob State Park

## Summary

The park is centered on a series of high ridges and peaks, featuring spectacular scenery and high quality examples of Northern Hardwood Forest and High Elevation Red Oak Forest natural communities. As in the rest of the Amphibolite Mountains area, much of the area is composed of amphibolite, a rock type that produces unusually rich, non-acidic soils with associated rich hardwood forest communities.

Elk Knob State Park is one of the newest additions to the North Carolina state parks system. Currently, it is in an interim development stage with a park office/contact station, picnic area, parking areas, and trail to the summit of Elk Knob, with plans to add a maintenance facility and road improvements. At this time, visitors can hike to the summit by following a steep, rocky road.

## Interpretive Themes

The interpretive themes for this park have not yet been entered.

**Acreage** (as of 2008): 2,898 land acres   **Visitation** (2008): 6,004   **County:** Watauga

## Visitor Facilities (as of 2008)

1 Park Office

1 Picnic Area

1 Classroom

1 Pump and Haul Toilet

## Permanent Staff

Park Superintendent - 1

Park Ranger - 2

Maintenance Mechanic - 1

Office Assistant - 1

## Seasonal Staff

General Utility Worker - 2

Office Assistant - 1

# Eno River State Park

## Summary

Minutes from Durham, Hillsborough, and Chapel Hill the Eno River State Park offers secluded wilderness trails with the serenity of a clear river drifting and cascading over a rocky stream bed. The Eno River is a swift, shallow stream flowing from northwest Orange County into Durham County for 33 miles where it joins the Flat River to become the Neuse and flows into Falls Lake. Its waters roll through wilderness, passing historic mill sites, river bluffs covered with flowering shrubs, and fords used by early settlers.

Rains can turn the river into a raging torrent, yet it quickly settles into a gentle current. It is a chain of rapids, pools, and riffles meandering through forest on a bed of rock.

The valley of the river is narrow and steep walled. The rugged landscape is carved and sculpted by swift flowing water. Eno River State Park lies here, in the beauty of more than 3900 acres of natural resources. Five accesses – Cabe Lands, Cole Mill, Few's Ford, Pleasant Green, and Pump Station – offer entry into this largely unspoiled river environment.

## Interpretive Themes

**River Basin Ecology:** As the park's primary natural feature, the Eno River provides the greatest resource for park staff to present interpretation and environmental education to the visiting public. The Eno River watershed is part of the Neuse River Basin, one of the most heavily populated river basins in North Carolina. As the populations in Durham and Orange counties continue to grow, humans affect water quality, water quantity, and aquatic life from the headwaters of the Eno River in Orange County all the way to the estuaries of the Pamlico Sound. Interpretive programs focus on aquatic life and the importance of the interrelationships between flora, fauna, and humans to the health of the river ecosystem.

**Cultural History:** The Eno River Valley has a rich human history, beginning with numerous Native American tribes that first settled the riverbanks to the more recent developments that threaten the river ecosystem. Programs emphasize the settlement of the area from the 1750s to the early 1900s, while highlighting the milling community. Mill sites, home sites, cemeteries, roads, fords, and signs of agriculture remain for park staff to interpret. Park staff tell the unique story of the park's creation, sharing how the Eno River Association formed to protect the river valley from development and how the Association continues to support the park through land acquisition and preservation.

**Wildlife Habitat Conservation:** The single greatest threat to habitats of the Eno River Valley is development. As Orange and Durham counties continue to grow, land acquisition and management are critical. The park provides crucial habitat—food, water, shelter, and space—for aquatic and terrestrial wildlife by conserving riparian forests and mature upland forests. Park programming covers the identification of habitats and their importance to the health of wildlife populations.

**Geologic Features:** The metavolcanic rock lying under the water's surface and scattered about the valley tells the story of the Eno River's formation. Occoneechee Mountain State Natural Area includes the highest point in Orange County at 867 feet and numerous rock outcrops demonstrating evidence of ancient volcanic activity. The recent publication by the North Carolina Geologic Survey, *A Geologic Adventure Along the Eno River*, interprets the many geologic features found along the park's trails and is an invaluable resource for park staff and the public.

**Acreage** (as of 2008): 4,139 land acres   **Visitation** (2008): 349,036   **Counties:** Durham, Orange

## Visitor Facilities (as of 2008)

1 Park Office	1 Historic Building
2 Picnic Area	1 Picnic Shelter - 8 table
1 Picnic Shelter - 12 table	10 Primitive Campsite - Walk In
3 Group Campsite - Walk In	3 Pump and Haul Toilet
Park has > 5 mi of Hiking Trails	

## Permanent Staff

Park Superintendent - 1  
Park Ranger - 6  
Office Assistant - 1  
Maintenance Mechanic - 2

## Seasonal Staff

Park Technician - 3  
Park Attendant - 2  
General Utility Worker - 2  
Office Assistant II - 1  
Park Naturalist - 1

# Falls Lake State Recreation Area

## Summary

Hours of relaxation await you at Falls Lake State Recreation Area. Just moments away from the hustle and bustle of the city, Falls Lake is a great way to escape urban life. With a 12,000-acre lake and 26,000 acres of woodlands, Falls Lake State Recreation Area offers a choice of recreation areas Beaverdam, B.W. Wells, Highway 50, Holly Point, Rolling View, Sandling Beach and Shinleaf.

Fishing, boating and swimming are only a few of the activities awaiting you on the water. On land, you can enjoy walking, mountain biking or camping along a portion of the state's Mountains-to-Sea Trail. From recreation to environmental education, no matter what you are looking for, you are sure to discover it at Falls Lake.

## Interpretive Themes

**Water-based Recreation and Safety:** Falls Lake affords many recreational opportunities such as fishing, sailing, boating, skiing and swimming. Educational programs in this theme area stress water safety and stewardship. While providing these recreational opportunities to an expanding urban population, we must also maintain the quality of the resource. Balancing quality of life with quality of the environment is a central theme in environmental education.

**Fish and Wildlife Habitats:** The construction of the Falls Lake dam changed the aquatic habitats in the Neuse River. A comparison of the macroinvertebrates and fish species in the Eno River with those in Falls Lake shows how a dramatic change in habitat can affect animal populations. Today, continuous stocking programs in Falls Lake ensure populations of largemouth bass, bluegill, catfish, striped bass and crappie. Forests around the lake offer habitat for nesting bald eagles, wood ducks, song birds and reptiles. Educational programs focus on wildlife habitats, biological communities and how humans interact with these communities.

**Acres** (as of 2008): 5,035 land acres   **Visitation** (2008): 788,843   **Counties:** Wake, Durham, Granville

## Visitor Facilities (as of 2008)

1 Park Office  
1 Community Building  
4 Amphitheater  
4 Picnic Area  
10 Picnic Shelter - 8 table  
169 Campsite w/ Water and Electric  
27 Group Campsite - Drive To  
5 Bathhouse  
6 Toilet Building  
6 Boat Dock  
2 Boat Ramp - 2 lanes  
4 Pier - Fishing  
Park has > 5 mi of Hiking Trails

5 Ranger Station  
1 Historic Building  
4 Play Area  
3 Picnic Shelter - 4 table  
9 Picnic Shelter - 12 table  
144 Campsite w/ No Hookups  
5 Natural Swim Area - Freshwater  
12 Showerhouse  
7 Composting Toilet  
1 Boat Ramp - 1 lane  
2 Boat Ramp - >2 lanes  
1 Marina  
Park has Bicycle Trails

## Permanent Staff

Park Superintendent - 2  
Facility Maintenance Supv - 1  
Park Ranger - 12  
Wastewater Treatment Area OP - 1  
Mechanic - 1  
Office Assistant - 2  
Trades Worker - 1  
Maintenance Mechanic - 11

## Seasonal Staff

Park Attendant - 27  
General Utility Worker - 17  
Park Technician - 13  
Sales Clerk I (Fee Coll) - 8  
Office Assistant II - 1

# Fort Fisher State Recreation Area

## Summary

Enjoy a leisurely day at the ocean shore. Comb the beach for sea stars, keyhole urchins and whelk shells. Or, simply lie back on the sand and enjoy the aerial acrobatics of seagulls, terns and brown pelicans as they soar above the waves. You may want to venture into the mud flats and marshes to watch sandpipers and other shorebirds as they search for food. Learn about endangered species. Loggerhead sea turtles, piping plovers and other rare species nest along this sandy shore. Explore the North Carolina coast; visit Fort Fisher State Recreation Area. This stretch of pristine shoreline offers many enjoyable activities.

Approximately six miles of beach provide all the sun, sand, sea and sky you can soak up in a day. Experience the ocean away from all the crowds. From the recreation area parking lot, an elevated boardwalk leads over the sand dunes to the beach, from where visitors can walk along one of the few remaining undeveloped stretches of shoreline on our southern coast.

Located on the southern tip of Pleasure Island near Wilmington, Fort Fisher lies between the Atlantic Ocean on the east and the Cape Fear River on the west. Here are miles of white, sandy beach for sunning, swimming and fishing. The salt marsh, tidal creeks and mud flats form a natural outdoor laboratory exhibiting the wonders of a coastal environment.

## Interpretive Themes

**Coastal Waterbirds:** This theme focuses on the many species of waterbirds that use the barrier spit in the park during different seasons. Major concepts for interpretive programs include colonial nesting waterbirds, solitary nesting waterbirds, migration patterns, endangered species, bird identification, birds of prey, and park resource management efforts. The Environmental Education Learning Experience (EELE) investigates colonial nesting waterbirds active in the park during the summer months.

**Sea Turtles:** The park protects the threatened loggerhead sea turtle, which nests along the ocean front beach from May through August. Interpretive programs and exhibits in this theme area include sea turtle nesting, life history, migration routes, protection efforts and threats to the turtle's survival.

**Barrier Spit Ecology:** Fort Fisher is a barrier spit, a place of ever-changing sand and water. Programs and other interpretive products in this theme area describe the dynamic geology as well as the plants and animals that have adapted to, and thrive in this unstable environment. Topics include migrating inlets, sand movement along the beach, beach front erosion, human impacts on barrier spit ecology, dune development and successional vegetative communities.

**Recreation:** This theme focuses on safety, beach access points and the main user activities: swimming, walking, nature study and fishing. Through exhibits and programs, visitors are encouraged to minimize their impacts on this fragile area.

**Acreage** (as of 2008): 287 land acres   **Visitation** (2008): 667,818   **County:** New Hanover

## Visitor Facilities (as of 2008)

1 Visitor Center	1 Classroom
1 Museum/Exhibit Hall	1 Natural Swim Area - Ocean or Sound
1 Bathhouse	1 Concession

## Permanent Staff

Park Superintendent - 1  
Park Ranger - 3  
Maintenance Mechanic - 2  
Office Assistant - 1

## Seasonal Staff

Lifeguard - 5  
Refreshment Stand Clerk - 3  
Office Assistant - 2  
Park Attendant - 2  
Park Technician - 2  
General Utility Worker - 1  
Chief Lifeguard - 1  
Refreshment Stand Manager I - 1

# Fort Macon State Park

## Summary

Fort Macon offers public access to the surf, sun and sand of the Crystal Coast—as well as a historic landmark. Located at the eastern end of Bogue Banks, one of a series of barrier islands along the North Carolina coast, the park is surrounded on three sides by water—the Atlantic Ocean, Beaufort Inlet and Bogue Sound. This area of undisturbed natural beauty is the perfect place to explore salt marches and estuaries vital to the coastal ecosystem.

The park is also home to a Civil War fort with a history as intricate and unique as the waterways of the sound. Visit Fort Macon to enjoy the land's natural beauty and soak up some history.

## Interpretive Themes

**The Fort:** Construction of Fort Macon began in 1826 and the fort was garrisoned in 1834. At the start of the Civil War, North Carolina seized the fort from Union forces, but it was later recaptured in 1862 during the only major battle involving Fort Macon. After the Civil War, the fort was a federal prison, then garrisoned again during the Spanish-American War. In 1924, Fort Macon became North Carolina's second state park. The Civilian Conservation Corps restored the fort in 1934-35 and it was garrisoned for a final time during World War II. Interpretation and education programming highlights living conditions at the fort, different uses of the fort throughout history, the fort's architecture and its military history.

**Barrier Island Dynamics:** The geologic evolution of barrier islands is the second primary theme. Major concepts in this theme area include: theories of barrier island formation and migration over time, dune movement and erosion, natural communities adapted to specific barrier island habitats, and human impacts on barrier island dynamics. The Environmental Education Learning Experience (EELE) for the park focuses on barrier islands with activities for the middle grades.

**Acreage** (as of 2008): 424 land acres   **Visitation** (2008): 1,181,234   **County:** Carteret

## Visitor Facilities (as of 2008)

1 Visitor Center	1 Auditorium
1 Classroom	1 Community Building
1 Museum/Exhibit Hall	1 Historic Building
1 Picnic Area	11 Picnic Shelter - 2 table
2 Sun Shelter	1 Natural Swim Area - Ocean or Sound
1 Bathhouse	

## Permanent Staff

Park Superintendent - 1  
Park Ranger - 4  
Maintenance Mechanic - 3  
Office Assistant - 1

## Seasonal Staff

Park Attendant - 8  
Lifeguard - 6  
Refreshment Stand Clerk - 3  
Chief Lifeguard - 1  
Refreshment Stand Manager I - 1  
Bathhouse Manager I - 1  
Park Historian - 1  
Historian - 1

# Goose Creek State Park

## Summary

Giant, old oaks draped in Spanish moss welcome you to this special world where broad, lazy Goose Creek joins the Pamlico River. A primitive camping area, picnic sites, swim beach and hiking and paddling trails offer a variety of ways to savor the tranquil surroundings at Goose Creek State Park. Goose Creek is conveniently located between historic Bath and the original Washington.

Visit Goose Creek State Park. Unwind and soak up the peacefulness; a hectic pace is not permitted.

## Interpretive Themes

**Wetlands:** Wetlands are one of coastal North Carolina's most valuable habitat types. This interpretive theme focuses on the diversity of wetland types and how they evolve; the hydrology and nutrient cycling within wetlands; plant and animal habitats and how the habitats and animal users change through the seasons; the importance of wetlands to people, especially in water quality and flood and erosion control; and the uniqueness of the combination of freshwater and salt water wetlands in the park.

**Diversity of Habitats:** This interpretive theme focuses on the large number of community types and successional stages exhibited in the park. It also focuses on the wide array of niches available in such a small area due to the diversity of habitats.

**Acreage** (as of 2008): 1,672 land acres   **Visitation** (2008): 177,933   **County:** Beaufort

## Visitor Facilities (as of 2008)

1 Visitor Center	1 Auditorium
1 Meeting Room	1 Classroom
1 Laboratory	1 Museum/Exhibit Hall
1 Amphitheater	1 Picnic Area
1 Picnic Shelter - 4 table	1 Picnic Shelter - 8 table
12 Primitive Campsite - Drive To	1 Group Campsite - Drive To
1 Natural Swim Area - Ocean or Sound	2 Toilet Building
2 Composting Toilet	1 Pump and Haul Toilet
1 Boat Ramp - 1 lane	2 Pier - Fishing
Park has > 5 mi of Hiking Trails	Park has Paddle Trails
Park has Interpretive Trails	

## Permanent Staff

Park Superintendent - 1  
Park Ranger - 3  
Maintenance Mechanic - 3  
Office Assistant - 2

## Seasonal Staff

Park Attendant - 4  
General Utility Worker - 2  
Park Technician - 1



# Gorges State Park

## Summary

Plunging waterfalls, rugged river gorges, sheer rock walls and one of the greatest concentrations of rare and unique species in the eastern United States are found within Gorges State Park. An elevation that rises 2,000 feet in only four miles, combined with rainfall in excess of 80 inches per year, creates a temperate rain forest and supports a collection of waterfalls.

On April 29, 1999, thanks to a unique partnership of industry, the environmental community and the state of North Carolina, 10,000 acres of the Jocassee Gorges in Transylvania County were placed in public ownership to be preserved for future generations of North Carolinians. The property was purchased by the state from Duke Energy Corporation, and the transaction created a 2,900-acre gameland managed by the N.C. Wildlife Resources Commission. Currently, Gorges encompasses nearly 7,500 acres and is the only state park west of Asheville.

Because Gorges State Park is so new, the park is still in its planning and development phase. Currently, the park staff is working with local citizens, the park's advisory committee and design and engineering contractors to develop permanent facilities. The road and infrastructure project, begun in the Spring of 2007 affects use at the Grassy Ridge Access. Visitors wishing to visit this area are encouraged to call the park office before visiting for current park conditions.

## Interpretive Themes

**The Steep Terrain of the Blue Ridge Escarpment:** Gorges State Park lies within the Blue Ridge Escarpment, a wide strip of steep, highly dissected land that drops sharply from the eastern edge of the Blue Ridge Mountains to the adjoining Piedmont lowlands. In the park, the escarpment falls from its highest elevation of 3,200 feet to its lowest elevation of 1,200 feet in a distance of only four miles! The park is an ideal place to study geology. The escarpment includes many striking landforms such as large overhangs, cliffs, pavement outcrops, cascades and waterfalls.

**Wet Climate and Abundant Surface Waters:** The park is a very wet place, receiving an average of 80 to 90 inches of rainfall each year. These rains supply the abundant surface waters, which are the main source of weathering and erosion in the park and throughout the Blue Ridge Escarpment. The escarpment has the highest concentration of waterfalls and spray cliffs in eastern North America. The wet gorges and spray cliffs host an amazing diversity of amphibians and tropical plants.

**Natural Communities and Rare Species:** Because it is located in the transition zone between the Piedmont and mountains, the Blue Ridge Escarpment is a refuge for a diverse assortment of species and natural community types. The steep elevation gradient in the park creates differences in hydrology, soils and climate over very short distances, allowing for an ever-changing mosaic of natural communities. Unexpected combinations of Piedmont and mountain species occur, and of the 114 natural community types found in North Carolina, 16 have been documented in the park. These community types range from high-elevation hardwood forests to low-elevation cove forests, and include communities associated with waterfalls and spray cliffs. The deep river gorges harbor an array of isolated species that are tropical in origin. As a result, biologists refer to the escarpment as "the tropics in the mountains."

**Acreage** (as of 2008): 7,443 land acres   **Visitation** (2008): 18,403   **County:** Transylvania

## Visitor Facilities (as of 2008)

1 Park Office  
6 Primitive Campsite - Walk In  
Park has > 5 mi of Hiking Trails  
Park has Equestrian Trails

1 Picnic Area  
1 Pit Toilet  
Park has Bicycle Trails

## Permanent Staff

Park Superintendent - 1  
Park Ranger - 2  
Maintenance Mechanic - 2  
Office Assistant - 1

## Seasonal Staff

Park Attendant - 2  
General Utility Worker - 1  
Park Naturalist - 1

# Hammocks Beach State Park

## Summary

Venture to Bear Island and reward yourself with vivid memories of one of the most unspoiled beaches on the Atlantic coast. Accessible only by passenger ferry or private boat, there's just one thing at Hammocks Beach that's crowded—the list of things to do.

Stroll the beach with laughing gulls and sandpipers. Cast a baited hook into endless rows of foaming breakers. Discover tiny specimens of marine life in tidal pools and mudflats. Use a camera or paintbrush to capture the green and gold grasses that color the salt marshes. Spend the night among the sand dunes, or simply bask in the sun and do nothing at all.

Secluded and tranquil, free from intruding commercialism, Hammocks Beach may not be for everyone, but the island is a retreat for people who welcome the challenges of relentless sun, sand, sea and sky.

## Interpretive Themes

**Loggerhead Sea Turtle:** The loggerhead sea turtle is the focus of the Environmental Education Learning Experience (EELE) for the park, as well as the majority of interpretive programs given to the general public. Major concepts within this theme include the sea turtle's life history, migration routes, nesting requirements and behavior, reasons for endangerment, and park resource management efforts.

**Barrier Island Ecology:** This theme relates the dynamic geology of a barrier island to the associated flora and fauna that must adapt to it. A cross-section of the island reveals different natural communities that have adapted to specific environmental conditions. Some examples of these communities include upper beach, dune grass, salt marsh, and maritime forest. The ways in which humans can affect barrier island ecology is an important concept within this theme.

**Local Cultural History:** The third primary theme focuses on the cultural history of the area. Topics under this theme include the use of Bear Island by Native Americans and pirates, as well as the role Bear Island played in the protection of the mainland during colonial times, the Civil War, and World War II. This theme also includes the role of Dr. Sharpe, the Hursts, the NC Teachers Association, and the Hammocks Beach Corporation in the creation of Hammocks Beach State Park.

**Acres** (as of 2008): 1,155 land acres   **Visitation** (2008): 124,374   **County:** Onslow

## Visitor Facilities (as of 2008)

1 Visitor Center	1 Auditorium
1 Classroom	1 Museum/Exhibit Hall
1 Picnic Area	1 Sun Shelter
14 Primitive Campsite - Walk In	3 Group Campsite - Walk In
1 Natural Swim Area - Ocean or Sound	1 Bathhouse
1 Concession	Park has Paddle Trails

## Permanent Staff

Park Superintendent - 1  
Park Ranger - 4  
Mechanic - 1  
Maintenance Mechanic - 2  
Office Assistant - 2

## Seasonal Staff

Ferryboat Operator - 7  
Lifeguard - 5  
Deckhand - 4  
Office Assistant II - 3  
General Utility Worker - 3  
Park Attendant - 1  
Chief Lifeguard - 1  
Refreshment Stand Manager I - 1  
Bathhouse Manager I - 1  
Naturalist - 1  
Park Technician - 1

# Hanging Rock State Park

## Summary

Not far from the cities of the Triad area, off the four-lane highways there's another North Carolina to be discovered—sheer cliffs and peaks of bare rock, quiet forests and cascading waterfalls, views of the piedmont plateau that stretch for miles.

Hike the trails of Hanging Rock State Park and let nature put life's hectic pace in perspective. Rent a vacation cabin and fall asleep to the lullabies of spring peepers and chorus frogs. Join an interpretive program and discover something new about nature's bounty. Nestled in the hills is a cool mountain lake that beckons to swimmers and fishermen. Picnic areas and campgrounds lend themselves to time spent with family and friends. Hanging Rock State Park awaits you.

## Interpretive Themes

**Geology of Hanging Rock:** The geologic formation known as Hanging Rock is a quartzite monadnock located at the eastern end of the Sauratown Mountain Range. Educational activities emphasize the theories explaining the formation of the park's geologic features.

**Acreage** (as of 2008): 7,049 land acres   **Visitation** (2008): 447,689   **County:** Stokes

## Visitor Facilities (as of 2008)

1 Visitor Center  
1 Classroom  
1 Historic Building  
2 Picnic Area  
1 Picnic Shelter - 8 table  
10 Cabin - Improved  
8 Group Campsite - Drive To  
1 Bathhouse  
2 Showerhouse  
3 Pit Toilet  
1 Boat Ramp - 1 lane  
Park has > 5 mi of Hiking Trails  
Park has Interpretive Trails

1 Auditorium  
1 Museum/Exhibit Hall  
1 Amphitheater  
1 Picnic Shelter - 4 table  
1 Picnic Shelter - 12 table  
73 Campsite w/ No Hookups  
1 Natural Swim Area - Freshwater  
1 Concession  
1 Pump and Haul Toilet  
1 Boathouse  
1 Pier - Fishing  
Park has Equestrian Trails

## Permanent Staff

Park Superintendent - 1  
Park Ranger - 5  
Maintenance Mechanic - 5  
Office Assistant - 2

## Seasonal Staff

Park Attendant - 7  
Lifeguard - 7  
Refreshment Stand Clerk - 3  
Bathhouse Operator - 2  
Office Assistant II - 2  
Chief Lifeguard - 1  
Refreshment Stand Manager I - 1  
Bathhouse Manager II - 1  
Park Technician - 1  
General Utility Worker - 1

# Haw River State Park

## Summary

Haw River State Park grew to nearly 1,000 acres in 2008 when the state parks system completed the purchase of 692 acres. The property was added to about 300 acres the state parks system acquired since 2004 to establish the park and which includes The Summit environmental education center. The Haw River headwaters area was one of only 12 sites in the state deemed suitable for a new state park in the system's 2001 New Parks for a New Century initiative.

The area supports several natural communities within the river floodplain and on the adjacent bluffs and uplands. The river corridor contains a large collection of wetlands, including what may be the largest complex of beaver ponds in the Piedmont. There are several areas with high quality upland forests and a couple of rare plant and animal species, as well as significant historic and archaeological resources.

## Interpretive Themes

The interpretive themes for this park have not yet been entered.

**Acreage** (as of 2008): 1,334 land acres   **Visitation** (2008): 26,170   **Counties:** Rockingham, Guilford

## Visitor Facilities (as of 2008)

8 Meeting Room	2 Classroom
1 Picnic Area	1 Picnic Shelter - 4 table
10 Cabin - Improved	1 Swimming Pool
1 Dining Hall - with food service	36 Dining Hall - self service

## Permanent Staff

Park Superintendent - 1  
Environmental Education Director - 1  
Administrative Assistant - 1  
Food Service Supervisor - 1  
Assistant Environmental Education Director - 1  
Maintenance Mechanic - 2  
Park Ranger - 1  
Food Service Supervisor - 1  
Office Assistant - 1  
Housekeeping Supervisor - 1  
Cook - 1

## Seasonal Staff

Asst Envir Education Instruc - 17  
General Utility Worker (Kitchen) - 8  
General Utility Worker - 8  
Park Technician - 5  
Front Desk Clerk - 1  
nighttime kitchen supervisor - 1

# Jockey's Ridge State Park

## Summary

There are many reasons why millions of people visit Jockey's Ridge State Park. Some come to see the tallest sand dune on the Atlantic coast; others come for the spectacular sunsets.

At Jockey's Ridge State Park you can experience the world of the desert. Shifting sands, high winds, extreme temperatures and a lack of water make the park resemble barren environments such as the Sahara Desert. You also can explore the wonders of an estuarine environment. The tidal waters of the Roanoke Sound, the western boundary of the park, is a rich habitat for a variety of plant and animal life, making these waters the source of much of the sea's bounty.

Whatever the reason for a visit to Jockey's Ridge, a trip to this unique park will give you even more reasons to come back again and again.

## Interpretive Themes

**Sand Dunes:** This theme focuses on the dynamics, movement, and formation of sand dunes. It also concerns the plant and animal adaptations to the dune environment and the cultural history of the dune area. In addition, it focuses on what sand is.

**Diversity of Habitats:** This theme focuses on the plants and animals in the area, how they have created niches for each other, and how they modify sand movement. It also concerns how the plants and animals have adapted to the environment.

**Acreage** (as of 2008): 426 land acres   **Visitation** (2008): 1,403,781   **County:** Dare

## Visitor Facilities (as of 2008)

1 Visitor Center	1 Auditorium
1 Museum/Exhibit Hall	1 Picnic Area
8 Picnic Shelter - 2 table	1 Natural Swim Area - Ocean or Sound

## Permanent Staff

Park Superintendent - 1  
Park Ranger - 4  
Maintenance Mechanic - 2  
Office Assistant - 2

## Seasonal Staff

Park Technician - 3  
Park Attendant - 2  
General Utility Worker - 2  
Office Assistant II - 2

# Jones Lake State Park

## Summary

Venture to Jones Lake State Park and view one of the greatest geological mysteries of the eastern United States—the phenomenon of the Carolina bays. Adjacent to the Bladen Lakes State Forest and home of two natural lakes, Jones and Salters lakes, the 2,208-acre park is a nature lover's delight. Peaceful surroundings and a variety of facilities, including a trail with several outlooks that circles Jones Lake, make this state park a favorite for hiking, picnicking, swimming, fishing and camping.

## Interpretive Themes

Origin of Carolina Bays: Photographs, models, games and investigations will be used to test some of the many theories explaining the formation of Carolina bays. Emphasis is placed on the physical characteristics of the Carolina bays, particularly their geomorphology.

Carolina Bay Ecology: This interpretive theme focuses on the natural communities associated with the aquatic environment of bay lakes, the peat soils within the bays, and the mineral soils of the sand rims. Key animal species, such as the red-cockaded woodpecker and the fox squirrel, are included. Fire plays an important role in the ecology of the Carolina bays by creating and maintaining habitat for the plants and animals.

**Acreage** (as of 2008): 1,669 land acres / 539 water acres **Visitation** (2008): 63,696 **County:** Bladen

## Visitor Facilities (as of 2008)

1 Visitor Center	1 Auditorium
1 Classroom	1 Museum/Exhibit Hall
1 Picnic Area	6 Picnic Shelter - 2 table
1 Picnic Shelter - 12 table	1 Campsite w/ Water and Electric
19 Campsite w/ No Hookups	1 Group Campsite - Drive To
1 Natural Swim Area - Freshwater	1 Bathhouse

## Permanent Staff

Park Superintendent - 1  
Park Ranger - 4  
Maintenance Mechanic - 2  
Office Assistant - 1

## Seasonal Staff

Lifeguard - 5  
Park Attendant - 3  
General Utility Worker - 1  
Bathhouse Manager I - 1  
Bathhouse Operator - 1  
Office Assistant II - 1  
chief lifeguard - 1



# Jordan Lake State Recreation Area

## Summary

Imagine relaxing in a cove, listening to the sounds of water rippling. Then, you feel a firm tug on your fishing line. It's going to be a big one! Picture the surface of the lake glistening, water spraying your face, the boat motor ahead roaring. Suddenly, your skis give way — a splash landing! Hear the laughter of children, smell burgers roasting over a charcoal fire, feel a breeze blowing through the campground. With almost 14,000 acres of water, all this and more is yours to discover at Jordan Lake. The NC Division of Parks and Recreation operates nine recreation areas on the lake — Crosswinds Campground, Ebenezer Church, Parker's Creek, Poplar Point, Seaforth, Vista Point, Robeson Creek, New Hope Overlook, and White Oak Recreation Area. Whether you're looking for fun in the sun or an evening under the stars, Jordan Lake offers it all.

## Interpretive Themes

### Aquatic Resources: We All Live Downstream

Jordan Lake is an important resource for recreation, wildlife and drinking water. Human land use in the watershed affects the lake's water quality. Agricultural land use and urban land use in the watershed contributes to storm water runoff, adding an excess of sediment and nutrients to the lake. Programs in this theme area focus on aquatic life, water quality and water quantity. The popular C.A.S.T. (Catch, A Sure Thing) program introduces children to fish biology, fish identification, fishing techniques and outdoor ethics. Other aquatic programs such as "Pond Life" give visitors a hands-on experience with the aquatic life in one of the ponds in the park.

### Area Wildlife: Predator-Prey

In addition to predator-prey relationships, this theme includes related ecological concepts such as food chain, food web, habitat, adaptation and resource management. Most visitors explore predator-prey relationships through interpretive talks and nature hikes that focus on the bald eagle and other area wildlife, both terrestrial and aquatic. Elementary students participate in activities from the EELE (Environmental Education Learning Experience), Predators and Prey, which emphasizes the bald eagle and its prey. In both the EELE and interpretive programs, human impacts on food chains and animal habitats are discussed and stewardship is encouraged.

### Cultural History

This theme highlights the past human history of the New Hope River Valley. Archaeologists have explored the remains of 450 prehistoric and historic sites in the area and have uncovered many Indian artifacts. Scottish Highlanders settled the area in the 1740s. Interpretive programs illustrate how various cultures used the natural resources of the upper Cape Fear River Basin. The park hosts Heritage Day on the first Saturday of October to celebrate the cultural history of the area.

**Acreage** (as of 2008): 3,916 land acres   **Visitation** (2008): 810,869   **County**: Chatham

## Visitor Facilities (as of 2008)

1 Visitor Center	1 Auditorium
1 Meeting Room	1 Classroom
1 Museum/Exhibit Hall	1 Amphitheater
4 Play Area	5 Picnic Area
3 Picnic Shelter - 4 table	4 Picnic Shelter - 8 table
2 Picnic Shelter - 12 table	1 Picnic Shelter - >12 tables
647 Campsite w/ Water and Electric	401 Campsite w/ No Hookups
24 Primitive Campsite - Walk In	11 Group Campsite - Drive To
7 Natural Swim Area - Freshwater	7 Bathhouse
4 Showerhouse	4 Toilet Building
1 Pit Toilet	9 Boat Ramp - 1 lane
1 Marina	Park has > 5 mi of Hiking Trails

## Permanent Staff

Park Superintendent - 2  
Facility Maintenance Supv - 1  
Wastewater Treatment Area OP - 1  
Park Ranger - 17  
Electrician - 1  
Maintenance Mechanic - 6  
Mechanic - 2  
Trades Worker - 1  
Office Assistant - 2  
Processing Assistant - 1  
Labor Crew Leader - 1

## Seasonal Staff

General Utility Worker - 39  
Park Attendant - 38  
Park Technician - 19  
Office Assistant II - 1  
Front Desk Clerk - 1

# Kerr Lake State Recreation Area

## Summary

Set a course for Kerr Lake State Recreation Area to enjoy sailing, fishing, water skiing and camping. This 50,000-acre, man-made lake is a haven for water sports enthusiasts and landlubbers alike. The lake is situated in the northeast corner of the Piedmont region and lies in both Virginia and North Carolina. The recreation area's headquarters are located north of Henderson at Satterwhite Point. More than 800 miles of wooded shoreline provide access to a variety of fun-filled activities on the lake. Relax and enjoy water sports at any of the seven recreation areas operated by the NC Division of Parks and Recreation along this expansive reservoir.

## Interpretive Themes

**Kerr Reservoir Water Management:** This theme includes a discussion of the Roanoke River Basin and how Kerr Reservoir and Dam is used to control flooding, water quality and water supply in the area.

**Water-related Recreation:** This theme features a short discussion of the many recreation opportunities that exist at Kerr Reservoir, with water safety and stewardship of the area being stressed.

**Fish of Kerr Reservoir:** This theme focuses on the striped bass and its ecosystem.

**Acreage** (as of 2008): 3,002 land acres   **Visitation** (2008): 1,154,164   **County:** Vance

## Visitor Facilities (as of 2008)

1 Visitor Center	1 Park Office
8 Ranger Station	1 Meeting Room
3 Community Building	1 Museum/Exhibit Hall
1 Amphitheater	7 Picnic Area
3 Picnic Shelter - 4 table	8 Picnic Shelter - 8 table
334 Campsite w/ Water and Electric	309 Campsite w/ No Hookups
3 Group Campsite - Drive To	1 Natural Swim Area - Freshwater
15 Showerhouse	18 Toilet Building
15 Boat Dock	9 Boat Ramp - 1 lane
2 Pier - Fishing	2 Marina
Park has Interpretive Trails	

## Permanent Staff

Park Superintendent - 2  
Park Ranger - 13  
Facility Maintenance Supv - 1  
Mechanic - 1  
Office Assistant - 2  
Maintenance Mechanic - 11

## Seasonal Staff

Park Attendant - 76  
General Utility Worker - 10  
Park Technician - 8  
Office Assistant II - 2

# Lake James State Park

## Summary

Tucked away in rolling hills at the base of Linville Gorge is Lake James, a 6,510-acre lake with more than 150 miles of shoreline. This impressive waterway is the centerpiece of Lake James State Park. Here, nature offers scenic vistas of the Appalachian Mountains and beckons to those with an appetite for recreation.

Bring family and friends to one of North Carolina's newest state parks for a variety of activities. Try swimming and sunbathing or enjoy a picnic along the lakeshore. Boat, water ski or fish in cool mountain waters, or take a walk and enjoy an abundance of wildflowers and wildlife along park trails. Lake James offers a variety of ways to enjoy the outdoors.

## Interpretive Themes

**Responsible Aquatic Recreation:** Through aquatic studies, canoeing programs, fishing programs, and wetland hikes, the staff of Lake James State Park teaches the public how to enjoy the lake while minimizing human impacts on the aquatic ecosystem. Water safety is an integral part of all programs in this theme area.

**Wildlife Habitats:** This theme focuses on the natural history and adaptations of animals that live in and around the lake. While learning about birds, mammals, reptiles and amphibians, park visitors have the opportunity to explore habitats in wetlands, woods and the lake itself. A popular annual program illustrates the importance of Lake James as a resting area for migratory waterfowl.

**Acreage** (as of 2008): 3,515 land acres   **Visitation** (2008): 375,108   **Counties:** Burke, McDowell

## Visitor Facilities (as of 2008)

1 Park Office  
1 Picnic Area  
20 Campsite w/ No Hookups  
1 Bathhouse  
1 Showerhouse  
1 Boat Ramp - >2 lanes  
Park has > 5 mi of Hiking Trails

1 Amphitheater  
1 Picnic Shelter - 12 table  
1 Natural Swim Area - Freshwater  
1 Concession  
1 Boat Ramp - 2 lanes  
1 Pier - Fishing

## Permanent Staff

Park Superintendent - 1  
Maintenance Mechanic - 3  
Park Ranger - 3  
Office Assistant - 2

## Seasonal Staff

General Utility Worker - 7  
Refreshment Stand Clerk - 3  
Park Attendant - 2  
Refreshment Stand Manager I - 1  
Park Technician - 1  
Office Assistant (Pt) - 1

# Lake Norman State Park

## Summary

At Lake Norman State Park, fun is just a matter of scale. On one hand, there's the largest manmade lake in the state, Lake Norman. When filled to capacity, its surface area is 32,510 acres with a shoreline of 520 miles and a main channel 34 miles in length — thus its nickname, the "Inland Sea." Thirteen miles of the shoreline are in the state park, which provides boating access.

On another hand, the park boasts its own 33-acre lake where fishing and boating are enjoyed. And with hiking trails, picnic areas, interpretive programs and campgrounds, there's more to Lake Norman State Park than merely water.

## Interpretive Themes

**Outdoor Aquatic Recreation:** The purpose of the park is to provide public access to Lake Norman, North Carolina's largest man-made lake. Under the umbrella of aquatic recreation, activities can be developed on water safety, water quality and water conservation.

**Acreage** (as of 2008): 1,928 land acres   **Visitation** (2008): 493,365   **County:** Iredell

## Visitor Facilities (as of 2008)

1 Park Office  
3 Picnic Area  
33 Campsite w/ No Hookups  
1 Natural Swim Area - Freshwater  
2 Concession  
2 Boat Ramp - 2 lanes  
Park has > 5 mi of Hiking Trails

1 Community Building  
3 Picnic Shelter - 12 table  
5 Group Campsite - Walk In  
1 Bathhouse  
4 Toilet Building  
1 Pier - Fishing  
Park has Bicycle Trails

## Permanent Staff

Park Superintendent - 1  
Park Ranger - 3  
Office Assistant - 1  
Maintenance Mechanic - 3

## Seasonal Staff

General Utility Worker - 5  
Park Technician - 3  
Refreshment Stand Clerk - 2  
Park Attendant - 2  
Refreshment Stand Manager I - 1  
Bathhouse Manager I - 1  
Bathhouse Operator - 1  
Office Assistant II - 1  
Refreshment Stand Manager II - 1  
Bathhouse Manager II - 1

# Lake Waccamaw State Park

## Summary

The cool, tea-colored waters at first appear similar to other lakes in the area, but Lake Waccamaw is one of the most unique bodies of water in the world. You will find here species of animals found nowhere else on the planet, rare plants and endangered animals.

At Lake Waccamaw, you can view one of the greatest geological mysteries of the eastern United States—the phenomenon of Carolina bays. Limestone bluffs along the north shore neutralize Lake Waccamaw's water, making the lake different from any other Carolina Bay. Nearby, you can catch a glimpse of a botanical wonder—the Green Swamp.

From its sandy shorelines to its tree-lined natural areas, Lake Waccamaw offers peaceful surroundings, an intriguing natural history and fun in the sun.

## Interpretive Themes

**Lake Waccamaw Aquatic Life:** This theme emphasizes the diversity of plant and animal life found in the lake, the factors that are responsible for its existence, and the need to protect the lake's water quality.

**Freshwater Mollusks:** This theme focuses on identification of the many species, their habitat requirements, life history, distribution, and vulnerability.

**Endemic Fish:** This theme includes identification of the species, their habitat requirements, life history, distribution, and vulnerability.

**Acres** (as of 2008): 1,759 land acres / 8,938 water acres **Visitation** (2008): 72,802 **County:** Columbus

## Visitor Facilities (as of 2008)

1 Visitor Center  
1 Classroom  
1 Picnic Area  
4 Group Campsite - Drive To  
1 Toilet Building

1 Auditorium  
1 Museum/Exhibit Hall  
4 Primitive Campsite - Walk In  
1 Natural Swim Area - Freshwater  
Park has > 5 mi of Hiking Trails

## Permanent Staff

Park Superintendent - 1  
Park Ranger - 3  
Maintenance Mechanic - 2  
Office Assistant - 1

## Seasonal Staff

Park Attendant - 3  
Park Technician - 1  
Office Assistant II - 1

# Lumber River State Park

## Summary

The Lumber River flows through the south-central portion of our state. The river's headwaters are in Montgomery, Moore, Richmond and Scotland counties where the waterway is known as Drowning Creek. The creek becomes a river at SR 1412/1203 along the Scotland-Hoke county line, and its waters flow into South Carolina, eventually joining the Little Pee Dee River.

Lumber River State Park contains 8,438 acres of land and 115 miles of state natural and scenic waters, 81 miles of which are also designated national wild and scenic waters. The park's recreation activities are currently centered at two access areas, Princess Ann and Chalk Banks. Princess Ann overlooks a unique reverse flow area named Griffin's Whirl. At the access, a bend in the river opens to a long, straight vista that beckons paddlers to take a ride. Chalk Banks, near the town of Wagram on the upper end of the river, has an interesting mixture of plants, fish, and animals from the sandhills and coastal plains regions.

Note: Due to the fluctuating water level of the Lumber River, canoeists and boaters should exercise caution in planning trips on the river. Add extra time for crossing exposed hazards and sandbars. All float times should include additional time to reach take-out points.

## Interpretive Themes

**Water Quality of the Lumber River:** The Lumber River is an excellent example of a Coastal Plain, blackwater river. In 1989, it was designated by the General Assembly as a State River and, later, named as a National Wild and Scenic River. Along with these designations comes the responsibility of the state and its citizens to maintain the excellent water quality of the river and its tributaries. Educational programs within this theme emphasize stewardship and include major concepts such as watershed; river basin; water quality monitoring; water chemistry; sources of water pollution in the river basin; the dependence of aquatic life on water quality; and the relationship of water quality to the surrounding landforms, natural communities and human populations.

**Natural Communities within the Lumber River Corridor:** The Lumber River's significant biological resources include the natural communities of the river, its floodplains and uplands. Educational programs in this theme area focus on the communities of the river channel and backwaters; the communities of the bottomland, swamp and sandbar typical of most blackwater rivers; and the variety of upland communities within the proposed park river corridor. Unusual upland communities, which add to the beauty and scenic character of the river, include the extremely dry, barren sand hills on relict sand dune deposits. Many acres of uplands are fire dependent and must be managed with prescribed fire since natural fire regimes are no longer possible. Ensuring that the public understands the role of prescribed fire in maintaining these communities is crucial to securing the position of prescribed fire as a management tool.

**Water-based Recreation and Safety:** The 115-mile-long Lumber River offers a variety of scenic resources as it meanders through North Carolina's Coastal Plain. Many people enjoy canoeing, fishing and kayaking on the river as well as hiking and picnicking along its banks. While providing these recreational opportunities to an expanding human population, we must also maintain the quality of the resource. Educational programs in this theme area stress stewardship and aquatic safety. Park staff helps visitors and others to enjoy the river in a responsible manner and to participate in its continued protection. The CATCH (youth fishing) program and interpretive canoe hikes are popular educational programs in this theme area.

**Acreage** (as of 2008): 9,239 land acres

**State River:** NATURAL - 34.50 miles RECREATIONAL - 15.50 miles SCENIC - 52.00 miles

**Visitation** (2008): 80,304 **Counties:** Columbus, Hoke, Robeson, Scotland

## Visitor Facilities (as of 2008)

1 Park Office	2 Picnic Area
1 Picnic Shelter - 12 table	23 Campsite w/ No Hookups
2 Primitive Campsite - Walk In	5 Primitive Campsite - Paddle In
11 Group Campsite - Drive To	1 Group Campsite - Walk In
2 Toilet Building	1 Boat Ramp - 1 lane
Park has Paddle Trails	

## Permanent Staff

Park Superintendent - 1  
Park Ranger - 5  
Office Assistant - 1  
Maintenance Mechanic - 2

## Seasonal Staff

Park Attendant - 2  
General Utility Worker - 2



# Mayo River State Park

## Summary

Authorized by the General Assembly in May 2003, the Mayo River State Park is located along the Mayo River from Madison and Mayodan near the confluence with the Dan River north to the Virginia border. The Mayo River is ranked as nationally significant due to its numerous aquatic species. Numerous bluffs are found along the river including one of only two Piedmont Calcareous Cliff communities in the state. These xeric, rocky bluffs of calcite-cemented siltstone and sandstone in the Dan River Triassic Basin are home to rare plants and unique natural communities. Canoeing the river is a popular activity and picnicking, camping and other facilities are planned.

## Interpretive Themes

The interpretive themes for this park have not yet been entered.

**Acreage** (as of 2008): 1,967 land acres   **Visitation** (2008): 0   **County:** Rockingham

## Visitor Facilities (as of 2008)

1 Park Office	1 Historic Building
1 Picnic Area	1 Picnic Shelter - 12 table
1 Toilet Building	

## Permanent Staff

Park Superintendent - 1  
Park Ranger - 1  
Maintenance Mechanic - 1  
Office Assistant - 1

## Seasonal Staff

# Medoc Mountain State Park

## Summary

Should the humdrum of nine-to-five leave you with the urge to travel and explore, head to Medoc Mountain State Park. A pleasurable excursion awaits just a 1.5-hour drive from the Research Triangle.

At Medoc Mountain, the urban refugee finds a welcome tranquility, a chance to embrace the outdoors. Trails beckon as light filters through branches overhead and falls on paths that hold the promise of new frontiers. The peacefulness gives the opportunity to refresh. The silence of the forest is broken only by bird songs and the occasional drumming of the pileated woodpecker. Grab your hiking boots. Load your camera. Spend some time at Medoc Mountain State Park and let nature renew your spirit.

## Interpretive Themes

**Geology:** One of the primary interpretive themes is the geology of Medoc Mountain, focusing on how the mountain was formed and its geologic composition. Emphasis is placed on the unusual rocks and minerals, such as molybdenum and pyrite.

**Ecology of Little Fishing Creek:** This theme focuses on Little Fishing Creek's biological diversity, aquatic habitats, and water quality.

**Park History:** This theme focuses on the area's settlement, the winery, and land-use history.

**Acreage** (as of 2008): 3,892 land acres   **Visitation** (2008): 56,697   **County:** Halifax

## Visitor Facilities (as of 2008)

1 Visitor Center	1 Classroom
1 Museum/Exhibit Hall	1 Amphitheater
1 Picnic Area	1 Picnic Shelter - 8 table
12 Campsite w/ Water and Electric	22 Campsite w/ No Hookups
4 Group Campsite - Drive To	2 Showerhouse
Park has > 5 mi of Hiking Trails	Park has Equestrian Trails

## Permanent Staff

Park Superintendent - 1  
Park Ranger - 2  
Maintenance Mechanic - 3  
Office Assistant - 1

## Seasonal Staff

Park Attendant - 3  
Office Assistant II - 2  
General Utility Worker - 1

# Merchants Millpond State Park

## Summary

An "enchanted forest," primitive species of fish relatively unchanged over millions of years, towering bald cypress trees with massive trunks, luxuriant growths of Spanish moss—this is Merchants Millpond State Park. Here, coastal pond and southern swamp forest mingle, creating one of North Carolina's rarest ecological communities. Together with upland forests, these environments create a haven for wildlife and humanity alike.

Escape the hectic pace of life and find sanctuary in a canoe. Drift along the smooth, dark surface of the millpond and savor the many sights and sounds that come alive in the stillness of the forest. Journey into remote and undisturbed Lassiter Swamp, a place that embodies the spirit of adventure, and see what you can discover.

If canoeing is not for you, fish for game species. Choose from an assortment of camping opportunities or enjoy a picnic beside the millpond. The remarkable surroundings of Merchants Millpond State Park lend themselves to a variety of activities.

## Interpretive Themes

**The Millpond:** This theme focuses on the diversity of plant communities and types of the millpond, particularly the swamp forest. It also focuses on the millpond's animal communities and cultural history of the millpond. A special emphasis is placed on the hydrology of the millpond and its water quality.

**Plant Communities:** This theme concentrates on the diversity of plant communities and habitats in the park, including Lassiter Swamp and its big trees.

**Scenic Value:** This theme focuses on the awe-inspiring beauty and wilderness feeling of the park.

**Acreage** (as of 2008): 3,352 land acres   **Visitation** (2008): 227,977   **County:** Gates

## Visitor Facilities (as of 2008)

1 Visitor Center	1 Auditorium
1 Classroom	1 Picnic Area
1 Picnic Shelter - 8 table	20 Campsite w/ No Hookups
15 Primitive Campsite - Walk In	6 Group Campsite - Drive To
1 Showerhouse	2 Toilet Building
2 Pit Toilet	Park has > 5 mi of Hiking Trails
Park has Paddle Trails	

## Permanent Staff

Park Superintendent - 1  
Park Ranger - 3  
Office Assistant - 2  
Maintenance Mechanic - 3

## Seasonal Staff

General Utility Worker - 3  
Park Attendant - 2  
General Utility Worker - 1  
Office Assistant II - 1

# Morrow Mountain State Park

## Summary

Enjoy the gifts of nature surrounded by the remnants of a once mighty range of peaks. Upon first encounter, the Uwharrie Mountains may seem like a mountainous mirage. These steep, rugged hills—unusual topography for the area—form a stark contrast with the rolling countryside of the piedmont plateau.

Recreation is plentiful in and around the waters of Lake Tillery and the Yadkin / Pee Dee River. Fishing and boating are popular pastimes. Nature lovers can pick from miles of trails to travel on foot or horseback. And for those who want to stay and take it all in, cabins and camping are available. There's really only one word to describe Morrow Mountain State Park: variety. Use the family car or RV, horseback or canoe, put on a pair of hiking boots or dip bare feet in the river, or bait your favorite fishing pole—a visit to Morrow Mountain lets you choose your kind of adventure.

## Interpretive Themes

**Geology of the Uwharries:** The Uwharrie Mountains are part of a larger geologic formation called the Carolina slate belt, composed of slightly metamorphosed volcanic and sedimentary rocks. Metamorphosed rhyolite underlies most of the park's ridges and hills. Because of this rock's hardness, it was used extensively by Native Americans for making projectile points. Rhyolite tools have been found far from the park's location, from Maine to Florida and as far west as Ohio. Metamorphosed basalt (greenstone), a magnesium and iron-rich rock, is found in the rounded boulders scattered throughout the park.

**Acreage** (as of 2008): 4,496 land acres   **Visitation** (2008): 380,220   **County:** Stanly

## Visitor Facilities (as of 2008)

1 Visitor Center	1 Community Building
1 Museum/Exhibit Hall	1 Historic Building
1 Amphitheater	3 Picnic Area
1 Picnic Shelter - 4 table	1 Picnic Shelter - 8 table
1 Picnic Shelter - 12 table	6 Cabin - Improved
22 Campsite w/ Water and Electric	83 Campsite w/ No Hookups
4 Primitive Campsite - Walk In	6 Group Campsite - Drive To
1 Swimming Pool	1 Bathhouse
1 Concession	4 Showerhouse
3 Toilet Building	1 Pump and Haul Toilet
1 Pit Toilet	1 Boathouse
1 Boat Ramp - 1 lane	1 Pier - Fishing
Park has > 5 mi of Hiking Trails	Park has Equestrian Trails
Park has Interpretive Trails	

## Permanent Staff

Park Superintendent - 1  
Park Ranger - 5  
Maintenance Mechanic - 4  
Office Assistant - 2

## Seasonal Staff

Lifeguard - 6  
Refreshment Stand Clerk - 5  
Park Attendant - 4  
General Utility Worker - 2  
Bathhouse Operator - 2  
Park Technician - 2  
Chief Lifeguard - 1  
Refreshment Stand Manager I - 1  
Bathhouse Manager II - 1

# Mount Jefferson State Natural Area

## Summary

Mount Jefferson rises abruptly to more than 1,600 feet above the surrounding landscape, serving as a landmark for area motorists. Acquaint yourself with this mighty peak by viewing it first from the Mount Jefferson Overlook on the Blue Ridge Parkway. Rising as a long, forested prominence, its dark color is conspicuous among neighboring peaks on the Ashe plateau.

Though the mountain is magnificent from a distance, Mount Jefferson is best appreciated up close. On a clear day, you can see for miles from its peak. A great part of Ashe County spreads out below; fields, farms, forests and mountains mingle in kaleidoscopic patterns. On the horizon, the Blue Ridge Mountains form a striking backdrop.

Yet what looms in the distance is no more spectacular than what is right before your eyes, for the forests of Mount Jefferson are a botanical paradise. The interesting and unusual plant life of the park rendered it worthy of designation as a national natural landmark.

## Interpretive Themes

**Geology:** Mount Jefferson appears to be an inselberg, an isolated mountain surrounded by mountain ranges. The outcrops provide an excellent opportunity for interpretive study of the formation and subsequent erosion of the southern Appalachian Mountains.

**Unique Plant Communities:** Mount Jefferson contains a diversified aggregation of unique plant communities, including many disjunct species that usually occur farther north. For example, the population of big toothed aspen on the north-facing slope of the mountain is more commonly seen from West Virginia to Canada.

**Acreage** (as of 2008): 607 land acres   **Visitation** (2008): 93,484   **County:** Ashe

## Visitor Facilities (as of 2008)

1 Park Office

1 Picnic Shelter - 8 table

1 Picnic Area

1 Toilet Building

## Permanent Staff

Maintenance Mechanic - 1

Park Ranger - 2

Office Assistant - 1

## Seasonal Staff

Park Technician - 2

Park Attendant - 1

# Mount Mitchell State Park

## Summary

There are a few places in the world that still stand apart from the ordinary. Rising more than a mile high, surrounded by the gentle mist of low-hanging clouds, Mount Mitchell State Park is one of these extraordinary places.

In the crest of the timeworn Black Mountains lies the summit of Mount Mitchell, the highest point east of the Mississippi. For those who ascend this mighty peak, what looms in the horizon is a feast for the eyes—breathtaking views of the Blue Ridge Mountains, rolling ridges and fertile valleys. Forested and forever misty, 1,946-acre Mount Mitchell State Park will provide you with some of the most tranquil moments you'll ever experience.

## Interpretive Themes

**Mountain Building:** This geological theme explores the formation of the highest mountain range in eastern North America. The story of the formation of the southern Appalachians through structural disturbance of the earth's crust will be depicted, along with the nature of present-day landform features.

**Forest Decline:** This theme includes explanations of how weather, soils, plants, animals and air pollution impact the spruce-fir forest on Mt. Mitchell. It answers a frequently-asked question of park visitors: What is happening to the trees? Scientists have yet to determine exactly what is responsible for the massive dying of Mount Mitchell's Fraser fir and red spruce trees. Natural causes include insect damage, especially the balsam woolly adelgid; ice storms; high winds; drought; and the age of trees. But natural factors alone are not sufficient explanation. Research indicates a correlation between air pollution and forest decline. In fact, four out of five days, Mt. Mitchell is covered in clouds and fog, sometimes as acidic as vinegar. Subjected to such pollution, a healthy tree becomes weak and is unable to fight off natural stresses it could otherwise resist.

**Biological Islands in the Sky:** This theme focuses on the unique plants and animals associated with the mountains in the southern Appalachians that are over 5,500 feet in elevation. The spruce-fir forest on these high southern mountains forms islands in the sky, disjunct from each other and from those in southern Canada, which Mt. Mitchell's most closely resemble.

**Acreage** (as of 2008): 1,946 land acres   **Visitation** (2008): 181,924   **County:** Yancey

## Visitor Facilities (as of 2008)

1 Park Office	1 Meeting Room
1 Classroom	1 Community Building
1 Museum/Exhibit Hall	1 Picnic Area
2 Picnic Shelter - 2 table	9 Campsite w/ No Hookups
1 Restaurant	Park has > 5 mi of Hiking Trails

## Permanent Staff

Park Superintendent - 1  
Park Ranger - 3  
Maintenance Mechanic - 2  
Office Assistant - 1

## Seasonal Staff

Refreshment Stand Clerk - 8  
Park Attendant - 5  
General Utility Worker - 2  
Park Attendant - Double Duty - 2  
Office Assistant II - 2  
Park Technician - 1  
Refreshment Stand Manager II - 1  
Naturalist - 1



# New River State Park

## Summary

Rugged hillsides, pastoral meadows and farmlands surround what is believed to be one of the oldest rivers in North America — the New River. Its waters are slow and placid. Its banks are fertile and covered with wildflowers. Dedicated as a National Scenic River in 1976, this gentle river is the centerpiece of New River State Park.

The New River area still maintains an old-fashioned charm. Mountain roads are narrow and winding, dotted with small farms, churches and country stores. The river itself is tranquil, offering good bass fishing, trout streams, excellent birding and inspiring mountain scenery. But perhaps the best way to absorb and appreciate the river's peacefulness is from the seat of a canoe as it glides across the slow-moving waters. Four areas with access to this waterway make up more than 2,200 acres of New River State Park and provide spots for camping, canoeing, picnicking and fishing.

## Interpretive Themes

**The River's Geologic History:** The New River corridor has many significant geologic resources, including ancient exposed rocks that originated an estimated 1 billion years ago. The New River has been called "the second oldest river in the world," however this claim is a misconception that does not have sufficient scientific evidence. However, evidence does suggest that the region is part of one of the oldest drainages in North America. Land area that now includes the New River watershed likely drained westward before the origin of the Appalachian Mountains nearly 300 million years ago. Today, geologists continue to research and describe evidence of the unique geologic history along the New River.

**The River Ecology:** This theme focuses on the river's natural communities and water quality.

**Cultural History:** This theme focuses on the human-use history of the river corridor including the struggle to maintain the integrity of this quality ecosystem and the preservation of its scenic qualities.

**Water Recreation, Safety and Ethics** This theme aims to balance the diverse recreational uses of the river in a way that provides a safe and enjoyable experience for all. River etiquette issues include respect for other boaters, fishers and shoreline property. Water safety issues include proper river trip planning.

**Acreage** (as of 2008): 2,359 land acres

State River: SCENIC - 26.50 miles

**Visitation** (2008): 176,526 **Counties:** Ashe, Alleghany

## Visitor Facilities (as of 2008)

1 Visitor Center	1 Ranger Station
1 Auditorium	1 Meeting Room
1 Classroom	1 Community Building
1 Museum/Exhibit Hall	3 Picnic Area
1 Picnic Shelter - 8 table	1 Picnic Shelter - 12 table
10 Campsite w/ Full Hookups	10 Campsite w/ Electric Only
25 Primitive Campsite - Walk In	8 Primitive Campsite - Paddle In
1 Group Campsite - Drive To	3 Showerhouse
3 Pit Toilet	Park has Paddle Trails
Park has Interpretive Trails	

## Permanent Staff

Park Superintendent - 1  
Park Ranger - 5  
Office Assistant - 2  
Maintenance Mechanic - 3

## Seasonal Staff

Park Attendant - 9  
General Utility Worker - 2  
Office Assistant II - 2  
Park Technician - 2

# Pettigrew State Park

## Summary

With more than 1,300 acres of land around Lake Phelps and more than 3,000 acres along the Scuppernong River, with an additional 16,600 acres of water, Pettigrew State Park is an ideal blend of nature, history and recreation.

Explore Lake Phelps and examine dugout canoes as ancient as the pyramids. Or cast your line into crystal-clear waters where largemouth bass reign. Take a trip back in time at the grave of a great Confederate general. Or hug a tree as wide as an elephant. Paddle down one of North Carolina's last undeveloped rivers.

Pettigrew exhibits its history among picturesque natural surroundings. Majestic cypress trees tower above as the branches of tulip poplar and swamp chestnut oak provide perches for songbirds. Wildflowers decorate the landscape with a splash of color.

## Interpretive Themes

**Native Americans:** This theme focuses on the Native American culture of northeastern North Carolina, including pottery making and hunting and gathering techniques. It also focuses on the artifacts discovered at the park, particularly the very old dug-out canoes and pottery shards.

**Phelps Lake:** This theme focuses on the uniqueness of the lake. Lake Phelps is unique because of its water quality, size (one of the largest natural lakes in the state), plant and animal life (both seasonal and permanent users), and cultural history (from Native Americans users up to present-day use and impacts).

**Old-Growth Trees:** This theme focuses on the park's big trees. In 2000, there were eight state-record trees, two of which were national champions. The theme also covers the plant communities in which the large trees are found, as well as the animal habitat provided by the trees and their communities. The relationship of the lake to the woodlands is also part of this theme.

**Acreage** (as of 2008): 4,471 land acres / 16,600 water acres **Visitation** (2008): 60,599 **Counties:** Washington, Tyrrell

## Visitor Facilities (as of 2008)

1 Museum/Exhibit Hall  
1 Picnic Shelter - 2 table  
13 Campsite w/ No Hookups  
1 Showerhouse  
2 Boat Ramp - 1 lane  
Park has Bicycle Trails

1 Picnic Area  
1 Picnic Shelter - 4 table  
1 Group Campsite - Drive To  
1 Toilet Building  
Park has > 5 mi of Hiking Trails

## Permanent Staff

Park Superintendent - 1  
Park Ranger - 2  
Maintenance Mechanic - 2  
Office Assistant - 1

## Seasonal Staff

General Utility Worker - 3  
Park Attendant - 2  
Office Assistant - 1

# Pilot Mountain State Park

## Summary

Approach from any direction and see Pilot Mountain rising more than 1,400 feet above the rolling countryside of the upper Piedmont plateau. Dedicated as a National Natural Landmark in 1976, this solitary peak is the centerpiece of Pilot Mountain State Park.

Fun, from relaxation to exhilaration, is easy to find here. Treat yourself to a horseback ride through the woods or challenge the river from raft or canoe. A seven-mile woodland corridor joins two sections of the park, each section offering a wealth of opportunities for outdoor fun. The mountain segment, which includes the two pinnacles, contains most of the visitor facilities. The more primitive river section centers around the lazy, meandering Yadkin River.

## Interpretive Themes

**The Geologic Formation of the Sauratown Mountain Range:** Interpretive programs focus on the formation of the mountains, highlighting the various geologic processes that cause mountain building and the weathering and erosion that shaped Pilot mountain and other geologic features in the park. The significance of this feature as a National Natural Landmark is emphasized.

**Yadkin River Basin:** This theme focuses on how the river has shaped the land around it, from its origin along the eastern Continental Divide to where it joins other rivers in the Piedmont. The river's free-flowing status and subsequent water quality and species composition are highlighted.

**Acreage** (as of 2008): 3,651 land acres   **Visitation** (2008): 390,345   **Counties:** Surry, Yadkin

## Visitor Facilities (as of 2008)

1 Park Office  
1 Picnic Shelter - 8 table  
2 Group Campsite - Drive To  
5 Pump and Haul Toilet  
Park has Equestrian Trails

1 Picnic Area  
49 Campsite w/ No Hookups  
3 Toilet Building  
Park has > 5 mi of Hiking Trails  
Park has Paddle Trails

## Permanent Staff

Park Superintendent - 1  
Park Ranger - 3  
Office Assistant - 1  
Maintenance Mechanic - 3

## Seasonal Staff

Office Aide - 3  
Park Attendant - 3  
General Utility Worker - 2

# Raven Rock State Park

## Summary

Should the humdrum of the work week leave you with the urge to travel and explore, head to Raven Rock State Park. Adventure is just an hour's drive from the Research Triangle and only 45 minutes from the Fayetteville area.

The first feeling you are likely to experience at Raven Rock is one of renewal. Here, the forest reigns as each year the timeless cycle of growth further heals age-old wounds inflicted by man. Nature triumphs as plants compete in the stages of forest succession and the woodlands are restored. High above the Cape Fear River stands Raven Rock, its austere beauty a testament to the forces that have shaped the land. As the river below rushes to join the sea, nature's elements continue to shape the surface of this natural monument.

Spend some time at Raven Rock State Park and let nature refresh your spirit.

## Interpretive Themes

**Geology of Raven Rock:** 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. Students and other park visitors can participate the park's Environmental Education Learning Experience activities and interpretive programs that help them discover the composition 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, 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, 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:** Visitors 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, test water quality and examine 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.

**Acreage** (as of 2008): 4,694 land acres **Visitation** (2008): 121,577 **County:** Harnett

## Visitor Facilities (as of 2008)

1 Ranger Station  
5 Primitive Campsite - Walk In  
5 Group Campsite - Walk In  
Park has Equestrian Trails

1 Picnic Area  
6 Primitive Campsite - Paddle In  
Park has > 5 mi of Hiking Trails  
Park has Paddle Trails

## Permanent Staff

Park Superintendent - 1  
Park Ranger - 2  
Office Assistant - 1  
Maintenance Mechanic - 2

## Seasonal Staff

Park Attendant - 3  
Office Assistant II - 2  
General Utility Worker - 2  
Park Technician - 1

# Singletary Lake State Park

## Summary

Bring your group to Singletary Lake State Park and enjoy group camping in a land of mysterious origins. A portion of the unique Carolina bay ecosystem found nowhere else in the world, Singletary Lake lies within the 35,975-acre Bladen Lakes State Forest.

Developed primarily for organized group camping, the park is comprised of 649 acres of land and a 572-acre natural lake. In addition to group camping, Singletary Lake State Park offers ample opportunities for nature study and recreation.

## Interpretive Themes

**Origin of Carolina Bays:** Photographs, models, games and investigations will be used to test some of the many theories explaining the formation of Carolina bays. Emphasis is placed on the physical characteristics of the Carolina bays, particularly their geomorphology.

**Carolina Bay Ecology:** This interpretive theme focuses on the natural communities associated with the aquatic environment of bay lakes, the peat soils within the bays, and the mineral soils of the sand rims. Key animal species, such as the red-cockaded woodpecker and the fox squirrel, are included. Fire plays an important role in the ecology of the Carolina bays by creating and maintaining habitat for the plants and animals.

**Acreage** (as of 2008): 649 land acres / 572 water acres **Visitation** (2008): 29,668 **County:** Bladen

## Visitor Facilities (as of 2008)

1 Park Office  
14 Cabin - Improved  
1 Natural Swim Area - Freshwater  
2 Dining Hall - with food service

1 Classroom  
2 Group Campsite - Drive To  
1 Pier - No Fishing

## Permanent Staff

Park Superintendent - 1  
Park Ranger - 1  
Office Assistant - 1  
Maintenance Mechanic - 2

## Seasonal Staff

General Utility Worker - 1

# South Mountains State Park

## Summary

Nestled deep in the woods, South Mountains State Park is the perfect place to enjoy nature. Here you can see a majestic mountain range peeking out from the gently rolling landscape of the Piedmont. The park includes elevations up to 3,000 feet, a waterfall dropping 80 feet and more than 40 miles of trails. From equestrian camping to trout fishing, mountain biking to picnicking, a number of activities are available at South Mountains State Park.

Visit one of the state's most rugged parks. Hike the trail to High Shoals Falls to witness the roar of the waterfall as it pours into a large pool. Backpack through the woodlands for primitive camping. Fish for trout in miles of mountain streams, or bicycle along the 17-mile mountain-bike loop.

## Interpretive Themes

Jacob's Fork Watershed Ecology: The study of the Jacob's Fork watershed ecology should focus on two areas: The transition from Piedmont to Mountain in terrain and biotas, and the high quality of the watershed including the sensitive plants and animals that live in and around the river.

**Acreage** (as of 2008): 18,048 land acres   **Visitation** (2008): 178,780   **County**: Burke

## Visitor Facilities (as of 2008)

1 Visitor Center  
1 Classroom  
1 Amphitheater  
1 Picnic Shelter - 12 table  
20 Primitive Campsite - Walk In  
15 Equestrian Campsite  
1 Toilet Building  
6 Pit Toilet  
Park has Bicycle Trails  
Park has Interpretive Trails

1 Auditorium  
1 Museum/Exhibit Hall  
1 Picnic Area  
11 Campsite w/ No Hookups  
15 Group Campsite - Walk In  
33 Horse Stall  
4 Pump and Haul Toilet  
Park has > 5 mi of Hiking Trails  
Park has Equestrian Trails

## Permanent Staff

Park Superintendent - 1  
Park Ranger - 7  
Office Assistant - 2  
Maintenance Mechanic - 3

## Seasonal Staff

General Utility Worker - 8  
Park Attendant - 4  
Office Assistant II - 2



# Stone Mountain State Park

## Summary

Stone Mountain is not immediately visible upon entering the park that bears its name, but this magnificent 600-foot granite dome is well worth the wait. Sunlight and shadows dance across a broad tapestry of stone. White-tailed deer emerge from the security of the forest to graze on meadow grasses at the mountain's base. The scenery is only one attraction of the park.

Test your fly-fishing techniques in more than 20 miles of designated trout waters. Or, with more than 16 miles of trails, take a hike in the park. Designated as a National Natural Landmark in 1975, Stone Mountain is bounded on the north by the Blue Ridge Parkway and on the west by the Thurmond Chatham Game Lands. More than 14,100 acres of mountain beauty offer opportunities for outdoor activities of all kinds.

## Interpretive Themes

**Geology of Stone Mountain:** The geologic formation known as Stone Mountain is a plutonic monadnock of granodiorite, an intrusive igneous rock similar to granite. This rock formed from magma that intruded into surrounding older rock (biotite gneiss) during the Paleozoic era about 390 million years ago. The overlying rock was removed through millions of years of erosion to expose the granodiorite dome known as Stone Mountain.

**Acreage** (as of 2008): 14,210 land acres   **Visitation** (2008): 326,968   **Counties:** Wilkes, Alleghany

## Visitor Facilities (as of 2008)

1 Visitor Center  
1 Museum/Exhibit Hall  
1 Picnic Area  
1 Picnic Shelter - 12 table  
47 Campsite w/ No Hookups  
4 Group Campsite - Drive To  
3 Toilet Building  
Park has > 5 mi of Hiking Trails

1 Meeting Room  
1 Historic Building  
2 Picnic Shelter - 8 table  
41 Campsite w/ Water and Electric  
6 Primitive Campsite - Walk In  
2 Showerhouse  
2 Pump and Haul Toilet  
Park has Equestrian Trails

## Permanent Staff

Park Superintendent - 1  
Park Ranger - 6  
Maintenance Mechanic - 4  
Office Assistant - 1  
Office Assistant III - 1

## Seasonal Staff

Park Attendant - 6  
General Utility Worker - 4  
Office Assistant (Part-Time) - 1  
General Utility Worker - 1  
Office Assistant II - 1

# Weymouth Woods-Sandhills Nature Preserve

## Summary

The Sandhills region consists of nearly one million acres in south-central North Carolina. In the midst of this sandy terrain—famous for golf courses, peach orchards and horse farms—is Weymouth Woods, a 900-acre natural preserve.

A nature preserve, Weymouth Woods is different from traditional parks. This limited-use area serves to preserve and portray the natural features unique to its region. Weymouth Woods is a place where you can look at the longleaf pine forest and see how human actions have affected the environment, where you can learn about rare and endangered species—the red-cockaded woodpecker, the pine barrens tree frog and the bog spicebush.

Walk the sandy paths of Weymouth Woods. Look to the canopy of its stately trees. Listen to the sounds of its woodlands. The fox squirrel, the longleaf pine and the role of fire are just a few of the subjects nature teaches in this fascinating ecosystem.

## Interpretive Themes

**Ecology of the Sandhills:** This theme incorporates the physical and biological characteristics of the fire-dependent longleaf pine community found in the Sandhills. Educational programs emphasize the importance of fire in maintaining this community type and illustrate how plants and animals have adapted to these conditions. Interpretation of this theme is accomplished through slide talks, lectures, hikes, hands-on activities and on-site sampling. The ecology of the Sandhills is the major focus of the preserve's Environmental Education Learning Experience (EELE) and museum.

**The Longleaf Pine Forest:** Weymouth Woods contains some of the oldest longleaf pine trees remaining in the state. Park visitors learn about the life history, historical importance and environmental value of the native longleaf pine through slide talks, hikes, and hands-on activities from the preserve's EELE. The park museum houses a new exhibit on the longleaf pine.

**Fire Ecology:** Longleaf pine forests are natural communities adapted to periodic burning; their survival depends on fire. Understandably, park visitors familiar with the "Smokey the Bear" message have many questions and concerns about the use of fire. Through audio-visual programs, hikes, hands-on activities and museum exhibits, the staff conveys the importance of fire to the maintenance of the Sandhills ecosystem and describes the techniques used for conducting prescribed burns on the preserve.

**Acreage** (as of 2008): 900 land acres   **Visitation** (2008): 50,285   **County:** Moore

## Visitor Facilities (as of 2008)

### Permanent Staff

Park Superintendent - 1  
Park Ranger - 2  
Maintenance Mechanic - 2  
Office Assistant - 1

### Seasonal Staff

Park Attendant - 2  
Naturalist - 1  
General Utility Worker - 1

# William B. Umstead State Park

## Summary

Tucked between the growing cities of Raleigh, Cary, Durham and the corporate world of Research Triangle Park is an oasis of tranquility, a peaceful haven—William B. Umstead State Park.

Here, two worlds merge as the sounds of civilization give way to the unhurried rhythm of nature. Highways fade in the distance as trees, flowers, birds and streams form a more natural community. William B. Umstead is a place to escape the pressures of everyday life, a place to picnic in the pines, to wait for a fish to bite, to take a hike or horseback ride on trails through the woods.

Divided into two sections, Crabtree Creek and Reedy Creek, this 5,579-acre park is easily accessible from Interstate 40 and US 70. Visit William B. Umstead State Park and enjoy this region of wilderness at the city's doorstep.

## Interpretive Themes

**Reclamation, Regeneration and Recovery:** This theme focuses on the changes that have occurred in the park landscape from the park's establishment as a federal conservation and recreation program to its present day state park status. U.S. Government photographs and reports are available describing the condition of park lands in the 1930s. The role of Civilian Conservation Corps' reclamation efforts warrants special emphasis.

**Successional Processes and Second Growth Forests:** This theme describes the natural processes by which the park evolved from barren open lands to diverse, mature natural communities.

**Land Stewardship:** The land stewardship theme focuses on the importance of the park as a large open space in a growing metropolitan area. Aesthetic values and resource management issues such as overuse, noise, and water pollution are emphasized.

**Acreage** (as of 2008): 6,000 land acres   **Visitation** (2008): 722,732   **County:** Wake

## Visitor Facilities (as of 2008)

1 Visitor Center	1 Ranger Station
1 Auditorium	1 Classroom
1 Community Building	1 Museum/Exhibit Hall
2 Picnic Area	1 Picnic Shelter - 2 table
1 Picnic Shelter - 8 table	2 Picnic Shelter - 12 table
6 Cabin - Improved	28 Campsite w/ No Hookups
1 Group Campsite - Drive To	4 Toilet Building
1 Boathouse	Park has > 5 mi of Hiking Trails
Park has Bicycle Trails	Park has Equestrian Trails

## Permanent Staff

Park Superintendent - 1  
Park Ranger - 7  
Maintenance Mechanic - 5  
Office Assistant - 2

## Seasonal Staff

Park Attendant - 10  
General Utility Worker - 2  
Park Technician - 1  
Park Intern - 1

## APPENDIX B

# RESULTS FROM THE NATIONAL SURVEY OF RECREATION AND THE ENVIRONMENT: NORTH CAROLINA AND THE NORTH CAROLINA MARKET REGION

## **NATIONAL SURVEY ON RECREATION AND THE ENVIRONMENT RESULTS BY REGION IN NORTH CAROLINA**

The following information about recreation participation in four regions of North Carolina has been excerpted from the report “North Carolina and the North Carolina Market Region”; a report submitted to the State of North Carolina, Division of Parks and Recreation by the Pioneering Research Group, Southern Research Station, USDA Forest Service, Athens, GA.

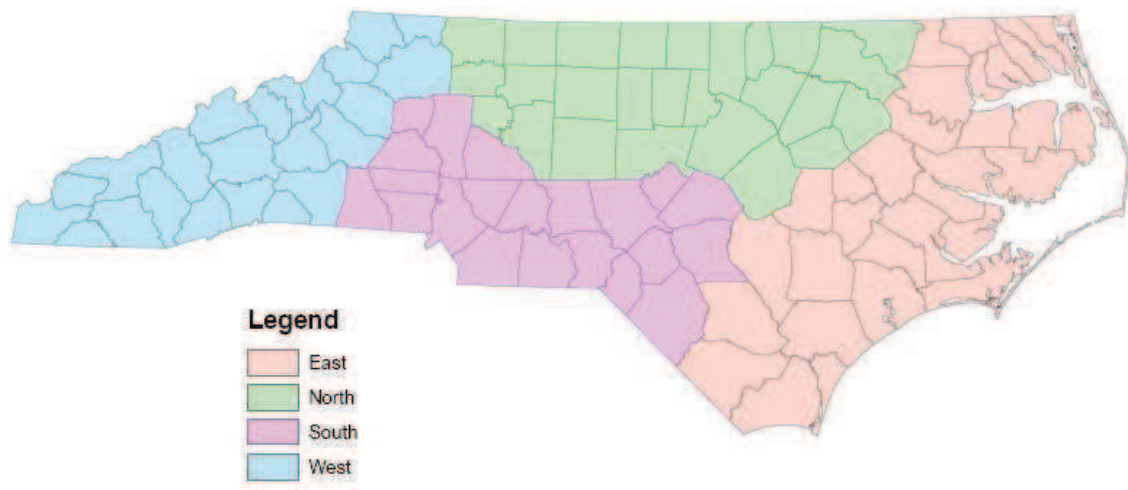
The 2002-2007 National Survey on Recreation and the Environment (NSRE) is the eighth in a series of national surveys started in 1960 by the Outdoor Recreation Resources Review Commission and now coordinated by the USDA Forest Service. The survey was accomplished by interviewing approximately 90,000 Americans aged 16 and over in random-digit-dialing telephone samplings. In 2007, the U.S. Forest Service prepared an analysis of responses to the NSRE for residents from North Carolina.

The NSRE has yielded just fewer than 3,000 total surveys for North Carolina during this period. The primary purpose of the NSRE and was to learn about approximately 85 specific outdoor recreation activities of people aged 16 and over in the United States. Questions from the NSRE broadly address areas such as outdoor recreation participation, demographics, household structure, lifestyles, environmental attitudes, natural resource values, constraints to participation, and attitudes toward management policies. For additional statewide results from the NSRE, please refer to Chapter 4 of this document.

### **Activity Groups and Activities for Residents of North Carolina by Region**

To provide information about regions within North Carolina, the state was divided into four regions; east, north, south, and west (Figure B-1). The regions are roughly defined by major interstate highways that traverse the state and are closely aligned with the four districts used to manage the North Carolina State Parks System. The East Region includes counties east of I-95. The West Region includes counties west of I-77. The North Region includes counties north of I-40 and between I-77 and I-40. The South Region includes counties south of I-40 and between I-77 and I-40.

Figure B-1. NSRE Regions in North Carolina



### **Activity Groups and Activities for Residents in the East Region of North Carolina**

The activities presented below are categorized by activity group for residents of the East Region of North Carolina by percent participating, number of participants, total sample size, and includes the upper and lower bounds of the 95% confidence interval.



Table 3.19: East Region Resident Participation in Nature-Based Land Activities

Activity	Sample size	Percent participating	95% confidence interval lower bound (%)	95% confidence interval upper bound (%)	Number of participants (1,000s)	95% confidence interval lower bound (1,000s)	95% confidence interval upper bound (1,000s)
Visit a farm or agricultural setting	251	25.9	20.5	31.3	297	235	359
Visit a wilderness or primitive area	457	24.3	20.4	28.2	278	234	323
Drive off-road (any type)	412	17.9	14.2	21.6	205	163	248
Developed camping	457	17.4	13.9	20.9	199	159	240
Day hiking	457	17.3	13.8	20.8	198	158	238
Mountain biking	447	16.5	13.1	19.9	189	150	228
Hunting (any type)	486	11.9	9.0	14.8	136	103	170
Primitive camping	430	10.6	7.7	13.5	121	88	155
Big game hunting	348	8.4	5.5	11.3	96	63	129
Small Game hunting	348	7.8	5.0	10.6	89	57	121
Horseback riding on trails	419	5.1	3.0	7.2	58	34	83
Mountain climbing	78	4.0	0.0	8.3	46	0	95
Backpacking	457	3.9	2.1	5.7	45	24	65
Migratory bird hunting	420	3.8	2.0	5.6	44	23	64
Orienteering	57	3.0	0.0	7.4	34	0	85
Rock climbing	78	1.4	0.0	4.0	16	0	46

Table 3.19 presents the most popular nature-based land activity in the East region to be visiting a farm or agricultural setting (25.9%). The second most popular activity is visiting a wilderness or primitive area (24.3%). Around 17% of the population of the East region participates in driving off-road, developed camping, or day hiking, and 16.5% mountain bikes. Primitive camping is enjoyed by over 10% of the population. Almost 12% of the population hunts. Of the various

kinds of hunting, big game hunting ranks highest in popularity (8.4%), followed by small game hunting (7.8%) and migratory bird hunting (3.8%). More than 5% of the population enjoys horseback riding on trails, while less than 5% goes mountain climbing, backpacking, orienteering, or rock climbing.

Table 3.20: East Region Resident Participation in Developed-Setting Land Activities

Activity	Sample size	Percent participating	95% confidence interval lower bound (%)	95% confidence interval upper bound (%)	Number of participants (1,000s)	95% confidence interval lower bound (1,000s)	95% confidence interval upper bound (1,000s)
Walk for pleasure	447	77.9	74.1	81.7	893	849	936
Family gathering	425	74.2	70.0	78.4	850	802	898
Gardening or landscaping for pleasure	47	62.8	49.0	76.6	720	562	878
Driving for pleasure	400	51.9	47.0	56.8	595	539	651
Picnicking	457	44.5	39.9	49.1	510	457	563
Bicycling	458	35.2	30.8	39.6	403	353	454
Yard games, e.g., horseshoes	60	33.8	21.8	45.8	387	250	525
Attend outdoor concerts, plays, etc.	47	28.0	15.2	40.8	321	174	468
Horseback riding (any type)	429	7.0	4.6	9.4	80	53	108

Table 3.20 shows more than 75% of East region residents participate in walking for pleasure, while just under 75% have family gatherings in developed areas. Gardening of landscaping for pleasure is done by 62.8% of the population, and more than 50% enjoys driving for pleasure. Picnicking is enjoyed by 44.5% of the East region population. More than 35% goes bicycling, and 33.8% enjoys yard games like horseshoes. Less than 30% attends outdoor concerts and plays, and just 7.0% rides horses.

Table 3.21: East Region Resident Participation in Water-Based Activities

Activity	Sample size	Percent participating	95% confidence interval lower bound (%)	95% confidence interval upper bound (%)	Number of participants (1,000s)	95% confidence interval lower bound (1,000s)	95% confidence interval upper bound (1,000s)
Visit a beach	463	47.0	42.5	51.5	539	487	590
Swimming in lakes, streams, etc.	469	38.5	34.1	42.9	441	391	492
Swimming in an outdoor pool	211	36.4	29.9	42.9	417	343	492
Saltwater fishing	420	32.1	27.6	36.6	368	316	419
Boating (any type)	470	29.4	25.3	33.5	337	290	384
Freshwater fishing	459	29.1	24.9	33.3	333	285	382
Motorboating	470	23.9	20.0	27.8	274	229	319
Warmwater fishing	410	22.9	18.8	27.0	262	215	309
Visit other waterside (besides beach)	410	17.4	13.7	21.1	199	157	242
Anadromous fishing	405	6.0	3.7	8.3	69	42	95
Coldwater fishing	446	5.4	3.3	7.5	62	38	86
Use personal watercraft	470	4.7	2.8	6.6	54	32	76
Canoeing	470	3.9	2.1	5.7	45	24	65
Rafting	470	3.7	2.0	5.4	42	23	62
Waterskiing	420	3.2	1.5	4.9	37	17	56
Sailing	447	3.1	1.5	4.7	36	17	54
Kayaking	470	2.7	1.2	4.2	31	14	48
Surfing	420	2.4	0.9	3.9	28	10	45
Rowing	446	2.2	0.8	3.6	25	9	41
Snorkeling	419	1.5	0.3	2.7	17	3	31

Activity	Sample size	Percent participating	95% confidence interval lower bound (%)	95% confidence interval upper bound (%)	Number of participants (1,000s)	95% confidence interval lower bound (1,000s)	95% confidence interval upper bound (1,000s)
Scuba diving	419	0.5	0.0	1.2	6	0	14
Windsurfing	420	0.4	0.0	1.0	5	0	11

Exactly 47.0% of East region residents visit beaches, making this the most popular water-based activity in the region. Swimming in lakes and streams is the second most popular with 38.5%, followed by swimming in an outdoor pool with 36.4%. Many forms of fishing are enjoyed by East region residents including saltwater fishing (32.1%), freshwater fishing (29.1%), warmwater fishing (22.9%), anadromous fishing (6.0%), and coldwater fishing (5.4%). Boating of any type is done by 29.4% of the East region, while less than 5% use personal water craft. More than 17% of area residents visit other watersides besides beaches. Between 3-4% of East region residents participate in canoeing, rafting, waterskiing, and sailing, while less than 3% kayak. Surfing is done by 2.4%, and rowing by 2.2%. Only 1.5% of area residents snorkel, while less than 0.5% scuba dive or windsurf.

Table 3.22: East Region Resident Participation in Snow and Ice-Based Activities

Activity	Sample size	Percent participating	95% confidence interval lower bound (%)	95% confidence interval upper bound (%)	Number of participants (1,000s)	95% confidence interval lower bound (1,000s)	95% confidence interval upper bound (1,000s)
Snow/ice activities (any type)	423	8.7	6.0	11.4	100	69	131
Downhill skiing	414	4.4	2.4	6.4	50	28	73
Sledding	105	2.5	0.0	5.5	29	0	63
Snowboarding	414	2.4	0.9	3.9	28	10	45
Cross country skiing	414	1.0	0.0	2.0	11	0	23
Snowmobiling	414	1.0	0.0	2.0	11	0	23
Ice skating outdoors	105	0.0	0.0	0.0	0	0	0
Snowshoeing	78	0.0	0.0	0.0	0	0	0
Ice fishing	107	0.0	0.0	0.0	0	0	0

Table 3.22 shows only 8.7% of the East region population participates in any type of snow/ice activity. Downhill skiing is the most popular with 4.4%, followed by sledding (2.5%), and snowboarding (2.4%). Cross country skiing and snowmobiling is enjoyed by 1.0% of area residents, and no one either snowshoes or ice fishes.

Table 3.23: East Region Resident Participation in Viewing/Learning Activities

<b>Activity</b>	<b>Sample size</b>	<b>Percent participating</b>	<b>95% confidence interval lower bound (%)</b>	<b>95% confidence interval upper bound (%)</b>	<b>Number of participants (1,000s)</b>	<b>95% confidence interval lower bound (1,000s)</b>	<b>95% confidence interval upper bound (1,000s)</b>
View/photograph natural scenery	485	52.3	47.9	56.7	599	549	650
Sightseeing	378	51.9	46.9	56.9	595	537	652
Visit nature centers, etc.	456	44.0	39.4	48.6	504	452	557
Visit historic Sites	406	43.1	38.3	47.9	494	439	549
View/photograph other wildlife	485	42.8	38.4	47.2	490	440	541
View/photograph wildflowers, trees, etc.	484	38.9	34.6	43.2	446	397	495
View/photograph birds	484	35.1	30.8	39.4	402	353	452
View/photograph fish	485	29.9	25.8	34.0	343	296	390
Gather mushrooms, berries, etc.	433	23.1	19.1	27.1	265	219	311
Boat tours or excursions	106	22.7	14.7	30.7	260	168	352
Visit prehistoric/archeological sites	438	19.3	15.6	23.0	221	179	264
Caving	78	1.8	0.0	4.8	21	0	55

Table 3.23 illustrates the most popular viewing/learning activity is viewing/photographing natural scenery with 52.3% of East Region residents participating. Coming in a close second is sightseeing with 51.9%, followed by visiting nature centers with 44.0%. Roughly 43% of area residents visit historic sites or view/photograph other wildlife compared to 38.9%

view/photograph wildflowers, trees, etc., 35.1% view/photograph birds and 29.9% view/photograph fish. Mushrooms, berries, and other food items are gathered by 23.1% of residents. Almost 23% of area residents go on boat tours or excursions, while less than 20% visit prehistoric or archeological sites. Less than 2% participate in caving.

Table 3.24: East Region Resident Participation in Individual Outdoor Sports Activities

Activity	Sample size	Percent participating	95% confidence interval lower bound (%)	95% confidence interval upper bound (%)	Number of participants (1,000s)	95% confidence interval lower bound (1,000s)	95% confidence interval upper bound (1,000s)
Running or jogging	60	22.1	11.6	32.6	253	133	374
Inline skating	40	12.1	2.0	22.2	139	23	254
Tennis outdoors	62	10.5	2.9	18.1	120	33	207
Golf	61	9.8	2.3	17.3	112	26	198
Handball or racquetball outdoors	59	6.6	0.3	12.9	76	3	148

According to Table 3.24, the most popular individual outdoor sport is running or jogging, which is done by 22.1% of area residents. More than 12% inline skate, while 10.5% play tennis outdoors. Less than 10% of residents play golf. Handball or racquetball outdoors is played by 6.6% of area residents.

Table 3.25: East Region Resident Participation in Team Outdoor Sports

Activity	Sample size	Percent participating	95% confidence interval lower bound (%)	95% confidence interval upper bound (%)	Number of participants (1,000s)	95% confidence interval lower bound (1,000s)	95% confidence interval upper bound (1,000s)
Attend outdoor sports events	48	36.4	22.8	50.0	417	261	573
Volleyball outdoors	62	9.5	2.2	16.8	109	25	193
Softball	64	4.6	0.0	9.7	53	0	111
Basketball outdoors	60	3.6	0.0	8.3	41	0	95
Soccer outdoors	61	2.3	0.0	6.1	26	0	70

Activity	Sample size	Percent participating	95% confidence interval lower bound (%)	95% confidence interval upper bound (%)	Number of participants (1,000s)	95% confidence interval lower bound (1,000s)	95% confidence interval upper bound (1,000s)
Baseball	59	1.2	0.0	4.0	14	0	46
Football	57	1.2	0.0	4.0	14	0	46

According to Table 3.25, the most popular team outdoor sport is not an active sport, but rather attending an outdoor sporting event. Over 36% of area residents attend outdoor sports events. Just under 10% play outdoor volleyball, and less than 5% play softball. Basketball is played outdoors by 3.6% of area residents, and outdoor soccer is played by 2.3%. The least popular team outdoor sports are baseball and football, both having a participation rate of 1.2%.

Table 3.26: The 10 Most Popular Outdoor Recreation Activities for East Region Residents of North Carolina

Activity	Sample size	Percent participating	95% confidence interval lower bound (%)	95% confidence interval upper bound (%)	Number of participants (1,000s)	95% confidence interval lower bound (1,000s)	95% confidence interval upper bound (1,000s)
Walk for pleasure	447	77.9	74.1	81.7	893	849	936
Family gathering	425	74.2	70.0	78.4	850	802	898
Gardening or landscaping for pleasure	47	62.8	49.0	76.6	720	562	878
View/photograph natural scenery	485	52.3	47.9	56.7	599	549	650
Driving for pleasure	400	51.9	47.0	56.8	595	539	651
Sightseeing	378	51.9	46.9	56.9	595	537	652
Visit a beach	463	47.0	42.5	51.5	539	487	590
Picnicking	457	44.5	39.9	49.1	510	457	563
Visit nature centers, etc.	456	44.0	39.4	48.6	504	452	557
Visit historic sites	406	43.1	38.3	47.9	494	439	549

Table 3.26 presents the 10 most popular outdoor recreation activities, with walking for pleasure being the most popular (77.9%). Just less than 75% of area residents have outdoor family



gatherings. The third most popular activity is gardening/landscaping for pleasure, which is done by 62.8% of area residents. Around 50% of area residents participate in viewing/photographing natural scenery, driving for pleasure, or sightseeing, and less than 50% visit a beach. About 44% enjoy picnicking or visiting nature centers. Visiting historic sites is done by 43.1% of East region residents.

Table 3.27: The 10 Least Popular Outdoor Recreation Activities for East Region Residents of North Carolina

Activity	Sample size	Percent participating	95% confidence interval lower bound (%)	95% confidence interval upper bound (%)	Number of participants (1,000s)	95% confidence interval lower bound (1,000s)	95% confidence interval upper bound (1,000s)
Rock climbing	78	1.4	0	4.0	16	0	46
Baseball	59	1.2	0	4.0	14	0	46
Football	57	1.2	0	4.0	14	0	46
Cross country skiing	414	1.0	0	2.0	11	0	23
Snowmobiling	414	1.0	0	2.0	11	0	23
Scuba diving	419	0.5	0	1.2	6	0	14
Windsurfing	420	0.4	0	1.0	5	0	11
Ice skating outdoors	105	0.0	0	0.0	0	0	0
Snowshoeing	78	0.0	0	0.0	0	0	0
Ice fishing	107	0.0	0	0.0	0	0	0

According to Table 3.27, the three least popular outdoor activities done by 0.0% of East region residents are ice skating outdoors, snowshoeing, and ice fishing. Both windsurfing and scuba diving are done by less than 0.5% of the population, while only 1.0% participates in snowmobiling or cross country skiing. More than 1.0% plays football or baseball, and 1.4% rock climbs.

#### Activity Groups and Activities for Residents in the North Region of North Carolina

The activities presented below are categorized by activity group for residents of the North Region of North Carolina by percent participating, number of participants, total sample size, and includes the upper and lower bounds of the 95% confidence interval.

Table 3.28: North Region Resident Participation in Nature-Based Land Activities

Activity	Sample size	Percent participating	95% confidence interval lower bound (%)	95% confidence interval upper bound (%)	Number of participants (1,000s)	95% confidence interval lower bound (1,000s)	95% confidence interval upper bound (1,000s)
Visit a farm or agricultural setting	351	30.9	26.1	35.7	805	680	930
Visit a wilderness or primitive area	795	25.1	22.1	28.1	654	576	732
Day hiking	800	24.7	21.7	27.7	644	566	722
Developed camping	801	18.9	16.2	21.6	493	422	563
Drive off-road (any type)	742	16.1	13.5	18.7	420	352	487
Mountain biking	780	16.0	13.4	18.6	417	349	485
Primitive camping	750	11.1	8.9	13.3	289	232	347
Hunting (any type)	857	8.2	6.4	10.0	214	167	261
Backpacking	801	7.3	5.5	9.1	190	143	237
Horseback riding on trails	731	6.1	4.4	7.8	159	115	203
Small Game hunting	489	6.1	4.0	8.2	159	104	214
Big game hunting	610	5.2	3.4	7.0	136	89	182
Mountain climbing	113	5.1	1.0	9.2	133	26	240
Orienteering	67	5.0	0.0	10.2	130	0	266
Rock climbing	113	3.8	0.3	7.3	99	8	190
Migratory bird hunting	604	1.1	0.3	1.9	29	8	50

According to Table 3.28, the most popular nature-based land activity is visiting a farm or agricultural setting with 30.9% of area residents participating. The second most popular activity is visiting a wilderness or primitive area (25.1%). Just under 25% of area residents day hike, while roughly 16% drive off-road or mountain bike. Almost 19% camp in developed areas, while 11.1% camp in primitive areas. Hunting of any type is done by 8.2% of area residents, which is

divided into small game hunting (6.1%), big game hunting (5.2%), and migratory bird hunting (1.1%). Backpacking is enjoyed by 7.3% of residents, and 6.1% ride horseback on trails. Around 5% mountain climb or orienteer, while less than 4% rock climb.

Table 3.29: North Region Resident Participation in Developed-Setting Land Activities

Activity	Sample size	Percent participating	95% confidence interval lower bound (%)	95% confidence interval upper bound (%)	Number of participants (1,000s)	95% confidence interval lower bound (1,000s)	95% confidence interval upper bound (1,000s)
Walk for pleasure	656	83.7	80.9	86.5	2,181	2,108	2,254
Family gathering	614	74.4	70.9	77.9	1,939	1,848	2,030
Gardening or landscaping for pleasure	73	60.1	48.9	71.3	1,566	1,274	1,858
Driving for pleasure	709	55.1	51.4	58.8	1,436	1,339	1,532
Picnicking	801	45.5	42.1	48.9	1,186	1,097	1,274
Bicycling	678	32.2	28.7	35.7	839	748	930
Yard games, e.g., horseshoes	67	30.6	19.6	41.6	797	511	1,084
Attend outdoor concerts, plays, etc.	70	27.7	17.2	38.2	722	448	995
Horseback riding (any type)	629	6.9	4.9	8.9	180	128	232

Table 3.29 shows walking for pleasure as the most popular developed-setting land activity with 83.7% of area residents participating. Almost three-quarters of residents gather with family in developed settings. Roughly 60% enjoy gardening or landscaping for pleasure, while roughly 55% enjoy driving for pleasure. Picnicking is done by 45.5% of area residents, and 32.2% go bicycling. More than 30% play yard games like horseshoes. Activities like outdoor concerts and plays are attended by 27.7% of area residents, while less than 7% ride horseback.

Table 3.30: North Region Resident Participation in Water-Based Activities

Activity	Sample size	Percent participating	95% confidence interval lower bound (%)	95% confidence interval upper bound (%)	Number of participants (1,000s)	95% confidence interval lower bound (1,000s)	95% confidence interval upper bound (1,000s)
Visit a beach	691	46.4	42.7	50.1	1,209	1,113	1,306
Swimming in lakes, streams, etc.	815	39.1	35.7	42.5	1,019	930	1,108
Swimming in an outdoor pool	283	38.3	32.6	44.0	998	850	1,147
Freshwater fishing	807	30.4	27.2	33.6	792	709	876
Boating (any type)	692	30.0	26.6	33.4	782	693	870
Warmwater fishing	584	29.2	25.5	32.9	761	665	857
Visit other waterside (besides beach)	600	26.4	22.9	29.9	688	597	779
Motorboating	692	19.5	16.5	22.5	508	430	586
Saltwater fishing	605	15.2	12.3	18.1	396	321	472
Coldwater fishing	665	9.0	6.8	11.2	235	177	292
Use personal watercraft	692	8.5	6.4	10.6	222	167	276
Canoeing	692	7.6	5.6	9.6	198	146	250
Rafting	814	6.9	5.2	8.6	180	136	224
Waterskiing	604	6.4	4.4	8.4	167	115	219
Snorkeling	604	5.4	3.6	7.2	141	94	188
Sailing	655	4.2	2.7	5.7	109	70	149
Kayaking	692	3.7	2.3	5.1	96	60	133
Anadromous fishing	594	2.7	1.4	4.0	70	36	104
Rowing	655	2.6	1.4	3.8	68	36	99
Surfing	604	1.7	0.7	2.7	44	18	70

Activity	Sample size	Percent participating	95% confidence interval lower bound (%)	95% confidence interval upper bound (%)	Number of participants (1,000s)	95% confidence interval lower bound (1,000s)	95% confidence interval upper bound (1,000s)
Scuba diving	605	1.3	0.4	2.2	34	10	57
Windsurfing	604	0.3	0.0	0.7	8	0	18

Less than 50% of North region residents visit beaches, making this the most popular water-based activity. More than 39% swim in lakes and streams, while more than 38% swim in an outdoor pool. Fishing is a popular activity and can be divided into several categories which include freshwater fishing (30.4%), warmwater fishing (29.2%), saltwater fishing (15.2%), coldwater fishing (9.0%), and anadromous fishing (2.7%). Exactly 30.0% of North region residents participate in boating of any kind, with 19.5% motorboating, 8.5% using personal watercraft, 7.6% canoeing, 6.9% rafting, 4.2% sailing, 3.7% kayaking, and 2.6% rowing. More than a quarter of area residents visit other watersides besides beaches. Waterskiing is done by 6.4% of North region residents, and 5.4% snorkel. Less than 2% surf or scuba dive, and only 0.3% windsurf.

Table 3.31: North Region Resident Participation in Snow and Ice-Based Activities

Activity	Sample size	Percent participating	95% confidence interval lower bound (%)	95% confidence interval upper bound (%)	Number of participants (1,000s)	95% confidence interval lower bound (1,000s)	95% confidence interval upper bound (1,000s)
Snow/ice activities (any type)	641	17.0	14.1	19.9	443	367	519
Sledding	164	6.8	2.9	10.7	177	76	279
Ice skating outdoors	164	4.2	1.1	7.3	109	29	190
Downhill skiing	621	4.0	2.5	5.5	104	65	143
Snowboarding	621	3.0	1.7	4.3	78	44	112
Snowmobiling	621	1.1	0.3	1.9	29	8	50
Cross country skiing	621	0.3	0.0	0.7	8	0	18
Snowshoeing	113	0.0	0.0	0.0	0	0	0
Ice fishing	170	0.0	0.0	0.0	0	0	0

Exactly 17.0% of North region residents participate in any type of snow or ice activity, and the most popular is sledding with 6.8% participating. Around 4% of area residents ice skate outdoors, while snowmobiling is done by 1.1%. Downhill skiing is done by 4.0%, while 3.0% snowboard and 0.3% cross country ski. No one snowshoes or ice fishes in the North region.

Table 3.32: North Region Resident Participation in Viewing/Learning Activities

Activity	Sample size	Percent participating	95% confidence interval lower bound (%)	95% confidence interval upper bound (%)	Number of participants (1,000s)	95% confidence interval lower bound (1,000s)	95% confidence interval upper bound (1,000s)
View/photograph natural scenery	731	56.6	53.0	60.2	1,475	1,381	1,569
Visit nature centers, etc.	678	53.9	50.1	57.7	1,405	1,306	1,504
Sightseeing	550	52.0	47.8	56.2	1,355	1,246	1,465
Visit historic Sites	594	44.3	40.3	48.3	1,154	1,050	1,259
View/photograph other wildlife	735	42.2	38.6	45.8	1,100	1,006	1,194
View/photograph wildflowers, trees, etc.	734	41.7	38.1	45.3	1,087	993	1,181
View/photograph birds	736	33.5	30.1	36.9	873	784	962
View/photograph fish	736	25.5	22.4	28.6	665	584	745
Gather mushrooms, berries, etc.	763	24.1	21.1	27.1	628	550	706
Boat tours or excursions	170	23.4	17.0	29.8	610	443	777
Visit prehistoric/archeological sites	630	17.3	14.3	20.3	451	373	529
Caving	113	3.0	0.0	6.1	78	0	159

According to Table 3.32, the most popular viewing/learning activity is viewing/photographing natural scenery (56.6%). Visiting nature centers is done by almost 54% of area residents, while 52.0% go sightseeing and more than 44% visit historic sites. Around 42% of residents view/photograph other wildlife or wildflowers and trees, while 33.5% view/photograph birds and

25.5% view/photograph fish. Mushrooms and berries are gathered by 24.1% of area residents. Almost a quarter go on boat tours or excursions. More than 17% visit prehistoric/archeological sites, while only 3.0% go caving.

Table 3.33: North Region Resident Participation in Individual Outdoor Sports

Activity	Sample size	Percent participating	95% confidence interval lower bound (%)	95% confidence interval upper bound (%)	Number of participants (1,000s)	95% confidence interval lower bound (1,000s)	95% confidence interval upper bound (1,000s)
Running or jogging	67	27.4	16.7	38.1	714	435	993
Tennis outdoors	65	12.7	4.6	20.8	331	120	542
Golf	75	11.7	4.4	19.0	305	115	495
Inline skating	43	10.0	1.0	19.0	261	26	495
Handball or racquetball outdoors	71	1.6	0.0	4.5	42	0	117

Table 3.33 presents running or jogging (27.4%) as the most popular individual outdoor sport, followed by tennis (12.7%). Less than 12% of area residents golf, and exactly 10.0% inline skate. The least popular individual outdoor sport is handball or racquetball (1.6%).

Table 3.34: North Region Resident Participation in Team Outdoor Sports

Activity	Sample size	Percent participating	95% confidence interval lower bound (%)	95% confidence interval upper bound (%)	Number of participants (1,000s)	95% confidence interval lower bound (1,000s)	95% confidence interval upper bound (1,000s)
Attend outdoor sports events	60	51.5	38.9	64.1	1,342	1,014	1,670
Softball	67	14.9	6.4	23.4	388	167	610
Soccer outdoors	75	12.4	4.9	19.9	323	128	519
Volleyball outdoors	65	10.4	3.0	17.8	271	78	464
Basketball outdoors	67	8.0	1.5	14.5	208	39	378
Baseball	71	4.3	0.0	9.0	112	0	235
Football	68	3.5	0.0	7.9	91	0	206



Table 3.34 presents the most popular team outdoor sports activity to be attending outdoor sports events with more than 51% of North region residents participating. Almost 15% of area residents play softball, and 12.4% play outdoors soccer. Outdoor volleyball is played by 10.4% of residents, while 8.0% play basketball outdoors. Less than 5% of North region residents play baseball (4.3%) or football (3.5%).

Table 3.35: The 10 Most Popular Outdoor Recreation Activities for North Region Residents of North Carolina

Activity	Sample size	Percent participating	95% confidence interval lower bound (%)	95% confidence interval upper bound (%)	Number of participants (1,000s)	95% confidence interval lower bound (1,000s)	95% confidence interval upper bound (1,000s)
Walk for pleasure	656	83.7	80.9	86.5	2,181	2,108	2,254
Family gathering	614	74.4	70.9	77.9	1,939	1,848	2,030
Gardening or landscaping for pleasure	73	60.1	48.9	71.3	1,566	1,274	1,858
View/photograph natural scenery	731	56.6	53.0	60.2	1,475	1,381	1,569
Driving for pleasure	709	55.1	51.4	58.8	1,436	1,339	1,532
Visit nature centers, etc.	678	53.9	50.1	57.7	1,405	1,306	1,504
Sightseeing	550	52.0	47.8	56.2	1,355	1,246	1,465
Attend outdoor sports events	60	51.5	38.9	64.1	1,342	1,014	1,670
Visit a beach	691	46.4	42.7	50.1	1,209	1,113	1,306
Picnicking	801	45.5	42.1	48.9	1,186	1,097	1,274

According to Table 3.35, the most popular outdoor recreation activity for the North region of North Carolina is walking for pleasure with 83.7% of residents participating. The second most popular with almost 75% is gathering with family, followed by gardening or landscaping for pleasure (60.1%). More than 55% of area residents view/photograph natural scenery or drive for pleasure. Nature center are visited by 53.9%, and 52.0% of residents enjoy sightseeing. Just more than half of residents attend outdoor sports events, and less than half either visit beaches (46.4%) or picnic (45.5%).

Table 3.36: The 10 Least Popular Outdoor Recreation Activities for North Region Residents of North Carolina

Activity	Sample size	Percent participating	95% confidence interval lower bound (%)	95% confidence interval upper bound (%)	Number of participants (1,000s)	95% confidence interval lower bound (1,000s)	95% confidence interval upper bound (1,000s)
Rowing	655	2.6	1.4	3.8	68	36	99
Surfing	604	1.7	0.7	2.7	44	18	70
Handball or racquetball outdoors	71	1.6	0.0	4.5	42	0	117
Scuba diving	605	1.3	0.4	2.2	34	10	57
Migratory bird hunting	604	1.1	0.3	1.9	29	8	50
Snowmobiling	621	1.1	0.3	1.9	29	8	50
Cross country skiing	621	0.3	0.0	0.7	8	0	18
Windsurfing	604	0.3	0.0	0.7	8	0	18
Snowshoeing	113	0.0	0.0	0.0	0	0	0
Ice fishing	170	0.0	0.0	0.0	0	0	0

The least popular outdoor activities the North region are ice fishing and snowshoeing, possibly because of limited opportunities. Less than 0.5% of the population either windsurfs or skis cross country. Barely more than 1% snowmobile or hunt migratory birds or scuba dive. A small percentage of North area residents surf (1.7%) and still fewer play handball or racquetball outdoors (1.6%). There are roughly 68,000 area residents who row.

### Activity Groups and Activities for Residents in the South Region of North Carolina

The activities presented below are categorized by activity group for residents of the South region of North Carolina by percent participating, number of participants, total sample size, and includes the upper and lower bounds of the 95% confidence interval.

Table 3.37: South Region Resident Participation in Nature-Based Land Activities

Activity	Sample size	Percent participating	95% confidence interval lower bound (%)	95% confidence interval upper bound (%)	Number of participants (1,000s)	95% confidence interval lower bound (1,000s)	95% confidence interval upper bound (1,000s)
Day hiking	726	30.6	27.2	34.0	669	595	743
Visit a wilderness or primitive area	727	28.3	25.0	31.6	619	547	691
Visit a farm or agricultural setting	306	26.6	21.6	31.6	581	472	691
Drive off-road (any type)	682	20.5	17.5	23.5	448	383	514
Developed camping	726	19.6	16.7	22.5	428	365	492
Mountain biking	705	16.8	14.0	19.6	367	306	428
Primitive camping	685	13.9	11.3	16.5	304	247	361
Hunting (any type)	771	9.3	7.2	11.4	203	157	249
Backpacking	727	8.8	6.7	10.9	192	146	238
Horseback riding on trails	654	7.4	5.4	9.4	162	118	205
Mountain climbing	114	7.4	2.6	12.2	162	57	267
Big game hunting	586	7.1	5.0	9.2	155	109	201
Small Game hunting	407	5.9	3.6	8.2	129	79	179
Rock climbing	114	2.0	0.0	4.6	44	0	101
Migratory bird hunting	497	1.6	0.5	2.7	35	11	59
Orienteering	69	1.5	0.0	4.4	33	0	96

The most popular nature-based land activity for the South region is day hiking with 30.6% of residents participating. Visiting wilderness or primitive areas (28.3%) and visiting a farm or agricultural setting (26.6%) are the next most popular, followed by driving off-road (20.5%). Mountain biking is enjoyed by almost 17% of area residents, and primitive camping, possibly part of a wilderness visit, is also popular (13.9%) although not as popular as developed camping (19.6%). Less than 10% do hunting of any type, with the highest participation in big game hunting (7.1%), then small game hunting (5.9%), and finally migratory bird hunting (1.6%). Roughly 9% enjoy backpacking, and 7.4% of residents enjoy horseback riding on trails or mountain climbing. Exactly 2.0% went rock climbing, and 1.5% went orienteering, making this the least popular activity.

Table 3.38: South Region Resident Participation in Developed-Setting Land Activities

Activity	Sample size	Percent participating	95% confidence interval lower bound (%)	95% confidence interval upper bound (%)	Number of participants (1,000s)	95% confidence interval lower bound (1,000s)	95% confidence interval upper bound (1,000s)
Walk for pleasure	541	81.7	78.4	85.0	1,786	1,714	1,858
Family gathering	504	75.0	71.2	78.8	1,640	1,556	1,723
Gardening or landscaping for pleasure	80	66.2	55.8	76.6	1,447	1,220	1,674
Driving for pleasure	658	54.5	50.7	58.3	1,191	1,108	1,274
Picnicking	727	49.4	45.8	53.0	1,080	1,001	1,159
Yard games, e.g., horseshoes	78	46.0	34.9	57.1	1,006	763	1,248
Attend outdoor concerts, plays, etc.	65	40.0	28.1	51.9	874	614	1,135
Bicycling	548	29.7	25.9	33.5	649	566	732
Horseback riding (any type)	496	8.6	6.1	11.1	188	133	243

Once again, the most popular develop-setting land activity is walking for pleasure (81.7%). Exactly 75.0% of South region enjoy family gatherings, and two-thirds garden or landscape for pleasure. More than half report driving for pleasure, while less than half go for picnics. Yard games like horseshoes are played by 46.0% of residents, and 40.0% attend outdoor concerts, plays, etc. Almost a third of the population bikes and less than 10% go horseback riding, making this the least participated in developed-setting activity.

Table 3.39: South Region Resident Participation in Water-Based Activities

Activity	Sample size	Percent participating	95% confidence interval lower bound (%)	95% confidence interval upper bound (%)	Number of participants (1,000s)	95% confidence interval lower bound (1,000s)	95% confidence interval upper bound (1,000s)
Swimming in an outdoor pool	231	48.0	41.6	54.4	1,049	909	1,189
Visit a beach	567	43.6	39.5	47.7	953	863	1,043
Swimming in lakes, streams, etc.	747	39.3	35.8	42.8	859	783	936
Boating (any type)	568	31.8	28.0	35.6	695	612	778
Freshwater fishing	726	29.5	26.2	32.8	645	573	717
Warmwater fishing	474	25.4	21.5	29.3	555	470	640
Visit other waterside (besides beach)	496	24.7	20.9	28.5	540	457	623
Motorboating	567	24.3	20.8	27.8	531	455	608
Saltwater fishing	495	13.4	10.4	16.4	293	227	359
Coldwater fishing	526	12.2	9.4	15.0	267	205	328
Rafting	747	10.2	8.0	12.4	223	175	271
Use personal watercraft	567	9.7	7.3	12.1	212	160	265
Canoeing	568	7.3	5.2	9.4	160	114	205
Waterskiing	498	7.1	4.8	9.4	155	105	205
Snorkeling	498	4.9	3.0	6.8	107	66	149
Sailing	541	4.1	2.4	5.8	90	52	127
Kayaking	568	2.9	1.5	4.3	63	33	94
Anadromous fishing	492	2.8	1.3	4.3	61	28	94
Surfing	498	2.1	0.8	3.4	46	17	74
Rowing	541	1.9	0.7	3.1	42	15	68

Activity	Sample size	Percent participating	95% confidence interval lower bound (%)	95% confidence interval upper bound (%)	Number of participants (1,000s)	95% confidence interval lower bound (1,000s)	95% confidence interval upper bound (1,000s)
Windsurfing	498	1.1	0.2	2.0	24	4	44
Scuba diving	498	1.1	0.2	2.0	24	4	44

The most popular water-based activity is swimming in an outdoor pool with nearly half of South region residents participating. Nearly 40% swam in lakes, streams, etc. and 43.6% visited a beach. Boating is a popular activity with nearly a third of residents participating in some form including motorboating (24.3%), rafting (10.2%), personal watercraft (9.7%), canoeing (7.3%), sailing (4.1%), kayaking (2.9%), and rowing (1.9%). Another popular activity reliant on water is fishing, which is divided into the two most popular, freshwater (29.5%) and warmwater (25.4%), followed by saltwater (13.4%), coldwater (12.2%), and the least popular form of fishing, anadromous fishing (2.8%). Almost of quarter visited a waterside other than a beach last year, and 7.1% water-skied. Less than 5% snorkeled, and only 1.1% went scuba diving. Few residents surf with only 2.1% participating, and only 1.1% windsurf.

Table 3.40: South Region Resident Participation in Snow and Ice-Based Activities

Activity	Sample size	Percent participating	95% confidence interval lower bound (%)	95% confidence interval upper bound (%)	Number of participants (1,000s)	95% confidence interval lower bound (1,000s)	95% confidence interval upper bound (1,000s)
Snow/ice activities (any type)	524	23.0	19.4	26.6	503	424	581
Downhill skiing	503	9.6	7.0	12.2	210	153	267
Sledding	157	8.8	4.4	13.2	192	96	289
Snowboarding	503	3.6	2.0	5.2	79	44	114
Snowmobiling	503	2.3	1.0	3.6	50	22	79
Cross country skiing	503	1.6	0.5	2.7	35	11	59
Ice skating outdoors	157	1.2	0.0	2.9	26	0	63
Snowshoeing	113	0.0	0.0	0.0	0	0	0
Ice fishing	159	0.0	0.0	0.0	0	0	0

Roughly a quarter of South region residents participate in snow/ice activities, of which downhill skiing is the most popular (9.6%) followed by sledding (8.8%). Less than 4% snowboard and still fewer, 2.3%, snowmobile. Cross country skiing is done by 1.6% or area residents, and ice skating outdoors by 1.2%. No one snowshoes or ice fishes.

Table 3.41: South Region Resident Participation in Viewing/Learning Activities

Activity	Sample size	Percent participating	95% confidence interval lower bound (%)	95% confidence interval upper bound (%)	Number of participants (1,000s)	95% confidence interval lower bound (1,000s)	95% confidence interval upper bound (1,000s)
View/photograph natural scenery	592	56.2	52.2	60.2	1,229	1,141	1,316
Visit nature centers, etc.	542	53.7	49.5	57.9	1,174	1,082	1,266
Sightseeing	451	50.2	45.6	54.8	1,097	997	1,198
View/photograph other wildlife	593	41.1	37.1	45.1	898	811	986
Visit historic Sites	496	40.6	36.3	44.9	888	794	982
View/photograph wildflowers, trees, etc.	593	38.6	34.7	42.5	844	759	929
View/photograph birds	593	31.5	27.8	35.2	689	608	769
View/photograph fish	591	26.5	22.9	30.1	579	501	658
Gather mushrooms, berries, etc.	701	25.5	22.3	28.7	557	487	627
Boat tours or excursions	158	20.1	13.9	26.3	439	304	575
Visit prehistoric/archeological sites	517	17.7	14.4	21.0	387	315	459
Caving	114	6.8	2.2	11.4	149	48	249

Again, the most popular activity in the viewing/learning category is view/photograph natural scenery with 56.2% participating. More than 50% of South region residents went to visit a nature center last year or went sightseeing. Of the other view/photograph activities, viewing /photographing other wildlife was the most popular (41.1%), then wildflowers, trees, etc.



(38.6%), then birds (31.5), and lastly fish (26.5%). More than 40% visited a historic site, and less than 20% visited a prehistoric/archeological site. More than a quarter of residents gathered mushrooms, berries, etc., and a fifth went on a boat tour or excursion. Only 149,000 (6.8%) entered a cave last year, the highest of all four regions.

Table 3.42: South Region Resident Participation in Individual Outdoor Sports

Activity	Sample size	Percent participating	95% confidence interval lower bound (%)	95% confidence interval upper bound (%)	Number of participants (1,000s)	95% confidence interval lower bound (1,000s)	95% confidence interval upper bound (1,000s)
Running or jogging	78	36.3	25.6	47.0	794	560	1,027
Tennis outdoors	78	17.8	9.3	26.3	389	203	575
Golf	77	14.0	6.2	21.8	306	136	477
Inline skating	47	9.5	1.1	17.9	208	24	391
Handball or racquetball outdoors	75	3.9	0.0	8.3	85	0	181

By far the most popular individual sport is running or jogging with 36.3% of the population participating. The next most popular individual sport activity is tennis outdoors (17.8%) followed by golf (14.0%). Inline skating is done by a tenth of the South region population, while less than 4% play handball or racquetball outdoors.

Table 3.43: South Region Resident Participation in Team Outdoor Sports

Activity	Sample size	Percent participating	95% confidence interval lower bound (%)	95% confidence interval upper bound (%)	Number of participants (1,000s)	95% confidence interval lower bound (1,000s)	95% confidence interval upper bound (1,000s)
Attend outdoor sports events	66	43.0	31.1	54.9	940	680	1,200
Basketball outdoors	78	11.9	4.7	19.1	260	103	418
Soccer outdoors	77	11.7	4.5	18.9	256	98	413
Volleyball outdoors	78	10.5	3.7	17.3	230	81	378
Football	70	8.3	1.8	14.8	181	39	324

Activity	Sample size	Percent participating	95% confidence interval lower bound (%)	95% confidence interval upper bound (%)	Number of participants (1,000s)	95% confidence interval lower bound (1,000s)	95% confidence interval upper bound (1,000s)
Softball	76	5.1	0.2	10.0	111	4	219
Baseball	75	3.1	0.0	7.0	68	0	153

Table 3.43 presents the most popular team outdoor sport activity to be attending outdoor sports events (43.0%). Less than 12% of area residents play soccer or basketball outdoors, while more than 10% play volleyball outdoors. Residents who play football constitute 8.3% of the population, followed by softball (5.1%) and baseball (3.1%).

Table 3.44: The 10 Most Popular Outdoor Recreation Activities for the South Region of North Carolina

Activity	Sample size	Percent participating	95% confidence interval lower bound (%)	95% confidence interval upper bound (%)	Number of participants (1,000s)	95% confidence interval lower bound (1,000s)	95% confidence interval upper bound (1,000s)
Walk for pleasure	541	81.7	78.4	85.0	1,786	1,714	1,858
Family gathering	504	75.0	71.2	78.8	1,640	1,556	1,723
Gardening or landscaping for pleasure	80	66.2	55.8	76.6	1,447	1,220	1,674
View/photograph natural scenery	592	56.2	52.2	60.2	1,229	1,141	1,316
Driving for pleasure	658	54.5	50.7	58.3	1,191	1,108	1,274
Visit nature centers, etc.	542	53.7	49.5	57.9	1,174	1,082	1,266
Sightseeing	451	50.2	45.6	54.8	1,097	997	1,198
Picnicking	727	49.4	45.8	53.0	1,080	1,001	1,159
Swimming in an outdoor pool	231	48.0	41.6	54.4	1,049	909	1,189
Yard games, e.g., horseshoes	78	46.0	34.9	57.1	1,006	763	1,248

Once again, the most popular outdoor recreation activity is walking for pleasure with more than four-fifths of residents walking. The next most popular is family gatherings (75.0%) followed by gardening or landscaping for pleasure (66.2%). More than half of area residents view/photograph natural scenery or drive for pleasure, or visit nature centers. Almost half enjoy sightseeing, while just under half go on picnics or swim in outdoor pools. Finally, 46.0% of South region residents play yard games like horseshoes.

Table 3.45: The 10 Least Popular Outdoor Recreation Activities for the South Region of North Carolina

Activity	Sample size	Percent participating	95% confidence interval lower bound (%)	95% confidence interval upper bound (%)	Number of participants (1,000s)	95% confidence interval lower bound (1,000s)	95% confidence interval upper bound (1,000s)
Rock climbing	114	2.0	0.0	4.6	44	0	101
Rowing	541	1.9	0.7	3.1	42	15	68
Migratory bird hunting	497	1.6	0.5	2.7	35	11	59
Cross country skiing	503	1.6	0.5	2.7	35	11	59
Orienteering	69	1.5	0.0	4.4	33	0	96
Ice skating outdoors	157	1.2	0.0	2.9	26	0	63
Windsurfing	498	1.1	0.2	2.0	24	4	44
Scuba diving	498	1.1	0.2	2.0	24	4	44
Snowshoeing	113	0.0	0.0	0.0	0	0	0
Ice fishing	159	0.0	0.0	0.0	0	0	0

All of the least popular outdoor activities have a participation rate of 2.0% or lower. Those with 2% participating include rock climbing and rowing, while those around 1.5% include migratory bird hunting, cross country skiing, and orienteering. Around 1% of South region residents windsurf, ice skate outdoors, or scuba dive. No one in the South region reported snowshoeing or ice fishing.

#### Activity Groups and Activities for Residents in the West Region of North Carolina

The activities presented below are categorized by activity group for residents of the West region of North Carolina by percent participating, number of participants, total sample size, and includes the upper and lower bounds of the 95% confidence interval.

Table 3.46: West Region Participation in Nature-Based Land Activities

Activity	Sample size	Percent participating	95% confidence interval lower bound (%)	95% confidence interval upper bound (%)	Number of participants (1,000s)	95% confidence interval lower bound (1,000s)	95% confidence interval upper bound (1,000s)
Day hiking	674	46.8	43.0	50.6	395	363	427
Visit a wilderness or primitive area	673	44.9	41.1	48.7	379	347	411
Drive off-road (any type)	638	31.4	27.8	35.0	265	235	295
Visit a farm or agricultural setting	216	27.7	21.7	33.7	234	183	284
Developed camping	675	27.2	23.8	30.6	230	201	258
Primitive camping	649	24.9	21.6	28.2	210	182	238
Backpacking	674	13.4	10.8	16.0	113	91	135
Mountain biking	660	12.7	10.2	15.2	107	86	128
Hunting (any type)	700	12.3	9.9	14.7	104	84	124
Horseback riding on trails	628	10.9	8.5	13.3	92	72	112
Big game hunting	573	9.8	7.4	12.2	83	62	103
Small Game hunting	295	6.5	3.7	9.3	55	31	78
Mountain climbing	66	2.6	0.0	6.4	22	0	54
Migratory bird hunting	356	0.7	0.0	1.6	6	0	14
Orienteering	41	0.0	0.0	0.0	0	0	0
Rock climbing	66	0.0	0.0	0.0	0	0	0

Table 3.46 presents the most popular form of nature-based land activity to be day hiking (46.8%). Almost 45% of West region residents visit wilderness or primitive areas. Nearly a third drive off-road, while roughly a quarter of residents visit farms or agricultural settings, camp in a developed area, or camp in a primitive area. Backpacking and mountain biking are done by 13% of area residents, and horseback riding by 11%. Hunting of any type is done by 12.3%, which is

divided into big game hunting (9.8%), small game hunting (6.5%), and migratory bird hunting (0.7%). Less than 3% mountain climb. The two least popular nature-based land activities, with no one reporting to do either last year, are orienteering and rock climbing.

Table 3.47: West Region Resident Participation in Developed-Setting Land Activities

Activity	Sample size	Percent participating	95% confidence interval lower bound (%)	95% confidence interval upper bound (%)	Number of participants (1,000s)	95% confidence interval lower bound (1,000s)	95% confidence interval upper bound (1,000s)
Gardening or landscaping for pleasure	33	88.0	76.9	99.1	743	649	836
Walk for pleasure	382	84.1	80.4	87.8	710	679	741
Family gathering	358	75.1	70.6	79.6	634	596	672
Driving for pleasure	624	73.8	70.3	77.3	623	593	652
Picnicking	674	63.3	59.7	66.9	534	504	565
Yard games, e.g., horseshoes	38	55.6	39.8	71.4	469	336	603
Bicycling	396	24.3	20.1	28.5	205	170	241
Attend outdoor concerts, plays, etc.	31	21.9	7.3	36.5	185	62	308
Horseback riding (any type)	364	9.6	6.6	12.6	81	56	106

The most popular activity in developed settings in the West region is gardening or landscaping for pleasure with 88.0% participation. This is the only region where walking for pleasure was not the most popular. It was second with 84.1% of residents participating. Three-quarters report having family gatherings, and almost that number drive for pleasure. Almost two-thirds enjoy picnics and more than half play yard games. Roughly 25% go bicycling and less than 10% go horseback riding, the least popular activity in this group. Almost 22% of West region residents attend outdoor concerts, plays, etc.

Table 3.48: West Region Participation in Water-Based Activities

Activity	Sample size	Percent participating	95% confidence interval lower bound (%)	95% confidence interval upper bound (%)	Number of participants (1,000s)	95% confidence interval lower bound (1,000s)	95% confidence interval upper bound (1,000s)
Swimming in lakes, streams, etc.	680	42.6	38.9	46.3	360	328	391
Freshwater fishing	674	35.4	31.8	39.0	299	268	329
Visit a beach	397	35.4	30.7	40.1	299	259	338
Boating (any type)	402	34.7	30.0	39.4	293	253	333
Swimming in an outdoor pool	162	34.1	26.8	41.4	288	226	349
Visit other waterside (besides beach)	349	28.0	23.3	32.7	236	197	276
Motorboating	402	25.3	21.1	29.5	214	178	249
Coldwater fishing	381	25.2	20.8	29.6	213	176	250
Warmwater fishing	341	22.3	17.9	26.7	188	151	225
Rafting	679	16.6	13.8	19.4	140	116	164
Waterskiing	355	8.8	5.9	11.7	74	50	99
Saltwater fishing	356	8.4	5.5	11.3	71	46	95
Use personal watercraft	402	8.0	5.3	10.7	68	45	90
Canoeing	402	7.2	4.7	9.7	61	40	82
Rowing	381	3.9	2.0	5.8	33	17	49
Sailing	381	2.6	1.0	4.2	22	8	35
Snorkeling	356	2.4	0.8	4.0	20	7	34
Kayaking	402	2.3	0.8	3.8	19	7	32
Surfing	355	1.0	0.0	2.0	8	0	17
Anadromous fishing	353	0.8	0.0	1.7	7	0	14

Activity	Sample size	Percent participating	95% confidence interval lower bound (%)	95% confidence interval upper bound (%)	Number of participants (1,000s)	95% confidence interval lower bound (1,000s)	95% confidence interval upper bound (1,000s)
Scuba diving	355	0.8	0.0	1.7	7	0	14
Windsurfing	355	0.0	0.0	0.0	0	0	0

According to Table 3.48, the most popular water-based activity in the West region is swimming in lakes, streams, etc with 42.6% of residents participating. This is the only region in which this was the most popular activity. The second most popular activity is shared by freshwater fishing and visiting a beach, both with 35.4%. Other forms of fishing residents participate in are coldwater fishing (25.2%), warmwater fishing (22.3%), saltwater fishing (8.4%), and anadromous fishing (0.8%). Boating (34.7%) is a popular water-based activity, which can be divided into motorboating (25.3%), rafting (16.6%), canoeing (7.2%), rowing (3.9%), sailing (2.6%), and kayaking (2.3%). More than a third of West region residents swam in an outdoor pool, while more than a quarter of residents visited a water side other than a beach. Less than 10% went waterskiing and only 8.0% used a personal watercraft. Snorkeling was done by 2.4% of residents, while less than 1% went scuba diving. Exactly 1.0% went surfing, while no one reported windsurfing.

Table 3.49: West Region Participation in Snow and Ice-Based Activities

Activity	Sample size	Percent participating	95% confidence interval lower bound (%)	95% confidence interval upper bound (%)	Number of participants (1,000s)	95% confidence interval lower bound (1,000s)	95% confidence interval upper bound (1,000s)
Snow/ice activities (any type)	375	22.4	18.2	26.6	189	154	225
Sledding	92	19.0	11.0	27.0	160	93	228
Downhill skiing	361	6.6	4.0	9.2	56	34	78
Snowboarding	361	3.5	1.6	5.4	30	14	46
Snowmobiling	361	2.0	0.6	3.4	17	5	29
Cross country skiing	361	1.4	0.2	2.6	12	2	22
Snowshoeing	66	1.3	0.0	4.0	11	0	34



Activity	Sample size	Percent participating	95% confidence interval lower bound (%)	95% confidence interval upper bound (%)	Number of participants (1,000s)	95% confidence interval lower bound (1,000s)	95% confidence interval upper bound (1,000s)
Ice skating outdoors	92	0.4	0.0	1.7	3	0	14
Ice fishing	91	0.0	0.0	0.0	0	0	0

Nearly 25% of West Region residents participate in snow/ice activities of any kind, the most popular being sledding (19.0%). The next most popular activity is downhill skiing (6.6%) followed by snowboarding (3.5%). Exactly 2.0% snowmobile and more than 1% cross country ski or snowshoe. The two least popular snow and ice-based activities are ice skating outdoors (0.4%) and ice fishing (0.0%).

Table 3.50: West Region Resident Participation in Viewing/Learning Activities

Activity	Sample size	Percent participating	95% confidence interval lower bound (%)	95% confidence interval upper bound (%)	Number of participants (1,000s)	95% confidence interval lower bound (1,000s)	95% confidence interval upper bound (1,000s)
View/photograph natural scenery	420	66.5	62.0	71.0	561	523	599
Sightseeing	325	63.0	57.8	68.2	532	488	576
Visit nature centers, etc.	396	60.9	56.1	65.7	514	473	555
View/photograph other wildlife	420	49.5	44.7	54.3	418	377	458
View/photograph wildflowers, trees, etc.	421	46.8	42.0	51.6	395	354	436
Visit historic Sites	355	45.3	40.1	50.5	382	338	426
View/photograph birds	422	38.6	34.0	43.2	326	287	365
Gather mushrooms, berries, etc.	653	34.1	30.5	37.7	288	257	318
View/photograph fish	422	24.8	20.7	28.9	209	175	244

Activity	Sample size	Percent participating	95% confidence interval lower bound (%)	95% confidence interval upper bound (%)	Number of participants (1,000s)	95% confidence interval lower bound (1,000s)	95% confidence interval upper bound (1,000s)
Visit prehistoric/archeological sites	375	18.9	14.9	22.9	160	126	193
Boat tours or excursions	91	18.3	10.4	26.2	154	88	221
Caving	66	5.3	0.0	10.7	45	0	90

Table 3.50 presents the most popular viewing/learning activity to be view/photograph natural scenery with nearly two-thirds of West region residents participating. The second most popular activity is sightseeing (63.0%), followed by visiting nature centers, etc. (60.9%). Just under 50% of residents view/photograph other wildlife, 46.8% view/photograph wildflowers, tress, etc., 38.6% view/photograph birds, and 24.8% view/photograph fish. More than 45% of the population visits historic sites, while less than 20% visit prehistoric/archeological sites or go on boat tours or excursions. More than a third of residents gather mushroom, berries, etc. The least popular viewing/learning activity is caving (5.3%).

Table 3.51: West Region Resident Participation in Individual Outdoor Sports

Activity	Sample size	Percent participating	95% confidence interval lower bound (%)	95% confidence interval upper bound (%)	Number of participants (1,000s)	95% confidence interval lower bound (1,000s)	95% confidence interval upper bound (1,000s)
Golf	42	29.6	15.8	43.4	250	133	366
Tennis outdoors	42	21.6	9.2	34.0	182	78	287
Running or jogging	38	20.8	7.9	33.7	176	67	284
Inline skating	26	3.5	0.0	10.6	30	0	89
Handball or racquetball outdoors	43	0.0	0.0	0.0	0	0	0

The most popular individual outdoor sport is golf (29.6%). Tennis outdoors (21.6%) is the next most popular, followed by running or jogging (20.8%). Less than 4% inline skates, and no one reports playing handball or racquetball outdoors.

Table 3.52: West Region Resident Participation in Team Outdoor Sports

Activity	Sample size	Percent participating	95% confidence interval lower bound (%)	95% confidence interval upper bound (%)	Number of participants (1,000s)	95% confidence interval lower bound (1,000s)	95% confidence interval upper bound (1,000s)
Attend outdoor sports events	31	74.8	59.5	90.1	631	502	760
Basketball outdoors	38	9.7	0.3	19.1	82	3	161
Softball	45	8.0	0.1	15.9	68	1	134
Baseball	43	5.6	0.0	12.5	47	0	106
Football	41	2.0	0.0	6.3	17	0	53
Soccer outdoors	42	1.8	0.0	5.8	15	0	49
Volleyball outdoors	42	0.0	0.0	0.0	0	0	0

Nearly 75% of West region residents attend outdoor sports events, making it the most popular team outdoor activity. Less than 10% plays basketball outdoors, and exactly 8.0% plays softball. Baseball is enjoyed by 5.6% and football by 2.0%. Less than 2% plays soccer outdoors, while no one reported playing volleyball outdoors.

Table 3.53: The 10 Most Popular Outdoor Recreation Activities for the West Region of North Carolina

Activity	Sample size	Percent participating	95% confidence interval lower bound (%)	95% confidence interval upper bound (%)	Number of participants (1,000s)	95% confidence interval lower bound (1,000s)	95% confidence interval upper bound (1,000s)
Gardening or landscaping for pleasure	33	88.0	76.9	99.1	743	649	836
Walk for pleasure	382	84.1	80.4	87.8	710	679	741
Family gathering	358	75.1	70.6	79.6	634	596	672
Attend outdoor sports events	31	74.8	59.5	90.1	631	502	760
Driving for pleasure	624	73.8	70.3	77.3	623	593	652

Activity	Sample size	Percent participating	95% confidence interval lower bound (%)	95% confidence interval upper bound (%)	Number of participants (1,000s)	95% confidence interval lower bound (1,000s)	95% confidence interval upper bound (1,000s)
View/photograph natural scenery	420	66.5	62.0	71.0	561	523	599
Picnicking	674	63.3	59.7	66.9	534	504	565
Sightseeing	325	63.0	57.8	68.2	532	488	576
Visit nature centers, etc.	396	60.9	56.1	65.7	514	473	555
Yard games, e.g., horseshoes	38	55.6	39.8	71.4	469	336	603

Table 3.53 presents the 10 most popular outdoor recreation activities for the West region with the most popular being gardening or landscaping for pleasure with nearly 90% of the population participating. The second most popular is walking for pleasure (84.1%), followed by family gathering (75.1%). Less than 75% attends outdoor sports events or drives for pleasure. Almost two-thirds views/photographs scenery, and 63% picnics or goes sightseeing. More than 60% of the population visits nature centers, etc., and yard games are enjoyed by 55.6%.

Table 3.54: The 10 Least Popular Outdoor Recreation Activities for the West Region of North Carolina

Activity	Sample size	Percent participating	95% confidence interval lower bound (%)	95% confidence interval upper bound (%)	Number of participants (1,000s)	95% confidence interval lower bound (1,000s)	95% confidence interval upper bound (1,000s)
Anadromous fishing	353	0.8	0	1.7	7	0	14
Scuba diving	355	0.8	0	1.7	7	0	14
Migratory bird hunting	356	0.7	0	1.6	6	0	14
Ice skating outdoors	92	0.4	0	1.7	3	0	14
Orienteering	41	0.0	0	0.0	0	0	0
Rock climbing	66	0.0	0	0.0	0	0	0
Ice fishing	91	0.0	0	0.0	0	0	0
Windsurfing	355	0.0	0	0.0	0	0	0

Activity	Sample size	Percent participating	95% confidence interval lower bound (%)	95% confidence interval upper bound (%)	Number of participants (1,000s)	95% confidence interval lower bound (1,000s)	95% confidence interval upper bound (1,000s)
Handball or racquetball outdoors	43	0.0	0	0.0	0	0	0
Volleyball outdoors	42	0.0	0	0.0	0	0	0

Table 3.54 shows the least popular outdoor activities, all with less than 1% of the population participating. Just less than 1% goes anadromous fishing (0.8%), scuba dives (0.8%), or hunts migratory birds (0.7%). Only 0.4% ice skates outdoors. Exactly 0.0% of West region residents orienteer, rock climb, ice fish, windsurf, play handball or racquetball outdoors, or play volleyball outdoors.

### Summary

North Carolina and regional residential outdoor recreation participation is examined in-depth this chapter. North Carolina is broken into four interstate regions (East, West, North, South), and is grouped into the market region, which includes North Carolina, South Carolina, Tennessee and Virginia. Market region information can be used to support state data, as an increase (or decrease) in participation for an activity in the region may suggest movement into (or away from) North Carolina.

Overall, North Carolina and market region recreation activities are similar, as are the interstate regions. The most popular nature-based activity for both the state and market region is visiting a wilderness or primitive area (29.8%, 31.3% respectively), followed closely by day hiking (29.7%). The interstate regions vary as to the most popular activities. Other popular activities, including the aforementioned, are driving off-road, and visit a farm or agricultural setting. Hunting of any type is more popular in the region (12.1%) than in the state (9.9%).

Developed-setting land activities are very similar for all regions. The three most popular activities for the interstate regions, market region, and state are walking for pleasure, family gatherings, and gardening/landscaping for pleasure. More than 80% of residents in every region walk for pleasure, except the East region (77.9%). Between 65.4% and 84.1% garden or landscape for pleasure, and between 74.1% and 75.1% have family gatherings. The least popular developed-setting land activity is horseback riding of any type.

Water-based activities are popular for each region, although there are some major differences. For instance, the West region is the only region that the most popular water-based activity is swimming in lakes, streams, etc., followed by freshwater fishing. For the other regions, state as a whole, and the market region, the most popular activities are visiting beaches (41.1%-47.0%),

swimming in an outdoor pool (36.4%-40.7%), and swimming in lakes, streams, etc. (38.5%-48.0%). The least popular activities are windsurfing (0.0%-1.1%) and scuba diving (0.5%-1.3%).

Snow and ice activities are the least popular overall outdoor recreation activities.

Participation ranges from 8.7% in the East region to 23.0% in the South region. The three most popular activities are sledding (2.5%-19.0%), downhill skiing (4.0%-9.6%), and snowboarding (2.4%-3.6%). There were no reports of ice fishing in the state of North Carolina, although in the market region has 0.1% of residents participating.

The three most popular viewing/learning activities are view/photograph natural scenery (52.3%-66.5%), visit nature centers, etc. (44.0%-60.9%), and sightseeing (50.2%-63.0%). For all regions, the whole state, and the market region, the least popular activity is caving (1.8%-6.8%).

The most popular outdoor individual sports activity is running or jogging (22.1%-36.3%), except in the West region, where the most popular activity is golf (29.6%). The most popular team sports activity for all regions, the state, and market region is overwhelmingly attending outdoor sports events (36.4%-74.8%). The least popular team sports activities are baseball (1.2%-5.3%) and football (1.2%-8.3%). Once again, the West region is different from the other regions as the least popular activities are soccer (1.8%) and volleyball outdoors (0.0%).

The overall most popular activities are walking for pleasure, family gatherings, and gardening or landscaping for pleasure. The overall least popular activities are ice fishing and snowshoeing.

### **Implications**

- Walking for pleasure is the most popular outdoor recreational activity in the state and region. Over half of state and regional residents participate in viewing or photographing natural scenery, visiting a nature center, driving for pleasure or sightseeing. Therefore, it is important that residents receive information about pedestrian friendly areas as well as information regarding access to these areas.
- Many of the state's most popular activities involve few specialized skills or equipment. These include walking for pleasure (82%), attending family gatherings (74.6%), gardening or landscaping (65.4%), driving for pleasure (58.2%), and viewing and photographing natural scenery (57.0%).
- As gas prices continue to rise, more residents may choose to recreate at areas that are closer to home. This could decrease out-of-state visitors, but could increase park use by North Carolina residents. Information on the location and access of local recreation opportunities could increase user rates.
- Emphasis on a variety of opportunities such as interpretation, biking, dining, walking, swimming, and lodging at a specific location may encourage visitation.

## APPENDIX C

### 2008 SURVEY OF RECREATIONAL RESOURCE NEEDS – ADDITIONAL ANALYSIS–



## **ADDITIONAL ANALYSIS OF THE 2008 SURVEY OF RECREATIONAL RESOURCE NEEDS**

### **INTRODUCTION**

This appendix contains additional analysis of the DPR Survey of Recreational Resource Needs conducted in 2008. The study and the primary results are contained in Chapter 4 of this document. The survey analysis cross-references, where appropriate, the 2007 National Survey on Recreation and Environment (NSRE) performed periodically by the U.S. Forest Service. The primary results of the NSRE are also presented in Chapter 4 and Appendix B.

### **FACILITY THEMES**

#### **Camping Preferences**

Camping in state parks is a very popular pastime for many North Carolinians. According to the survey, tent/trailer camping *without* electrical hook-ups was the most popular camping option. Almost half (47.9%) of the survey respondents indicated they would use such a campsite. The next most popular camping option was back-country primitive campsites, with 38.9% indicating they would use such a facility and 32.3% of survey respondents noting that they *might* use a back-country primitive campsite. Some of the comments received in the survey for this facility type desired more natural campsites, more space between campsites, and separation from those who RV camp or use generators – citing the noise and modern conveniences as the very things they wanted to escape from by camping in a state park.

However, not all state park campers want to rough-it. Tent and trailer sites *with* electrical hook-ups was also a popular option, with 35.2% of those surveyed indicating they would use this facility type. Although many survey comments were received from RV enthusiasts requesting a greater number of improved facilities, RV camping was the least popular camping activity with only 22.7% of those surveyed stating they would use a RV/trailer facility with hook ups. Survey comments from the RV enthusiasts noted that campsites in state parks did not compare well with neighboring states that often had larger and hardened camp sites, more electrical hook-ups with either a waste tank dumping station or direct sewer hook-ups.

Group camping was the camping option where the highest percentage (44.7%) of respondents stated they *might* use a group camp facility, although nearly one-third (30.3%) stated they would group camp.

Cabins, either rustic (merely an enclosed living space) or improved (with a kitchen, heat, and restroom), were camping options that survey participants showed interest in having in state parks. More respondents indicated that they would use an improved cabin (45%)

versus a rustic cabin (37.2%). With relatively few cabins currently in the state park system, the division should consider the pros and cons of adding new cabins to its parks.

The 2007 NSRE found that one fifth of North Carolinians (20.5%) participated in developed camping while 14.5% enjoyed primitive camping in the previous year.

Many survey respondents gave written comments regarding camping. The most prevalent camping complaint was that the state lacked a campground reservation system. Many explained their frustration with our current reservation system, particularly the uncertainty one faces in trying to plan a trip without knowing if a campsite will be available for use by the time they arrive at the park. The division's unveiling of its new on-line reservation system in 2009 appears to be a service that is timely and much appreciated.

The second most common complaint with camping regarded the park system's gate locking procedure at campgrounds. Several people commented that locking the gates restricts their freedom to enter and leave when they wish – be it for shopping, eating at restaurants, purchasing supplies, or their desire to arrive at the campsite later at night. Park staff lock campground gates as a means of deterring property theft, excluding non-campers from the campground at night, and retaining the ability to properly manage the campground during the night when fewer park rangers are available. In the past, the division experimented with various campground access policies in the past and has found that maintaining the ability to manage the campground's use and safety supersedes off-hour convenient access.

### **Picnicking**

The survey found that enjoying a meal in the great outdoors is the third most popular activity in state parks. 68.4% of those surveyed stated a desire to use a picnic table with a grill, while 53.9% would use a picnic shelter. The division's survey findings match well with the 2007 NSRE which states that 74.6% of North Carolinians attend outdoor family gatherings and 50.0% enjoy picnicking.

### **Play Areas**

Although playgrounds are not typically a component of state parks, 29.8% of respondents indicated a demand for this facility type. However, a greater majority of survey participants (41.8%) did not feel that playgrounds are an appropriate amenity in a state park.

Open play areas, which can be utilized for a variety of uses, received mixed reviews in the survey. The greatest percentage of those surveyed said they might use an open play area (35.8%), while a significant percentage of people noted they would use (32.4%) and would not use (31.8%) an open play area.

## **Hiking and Nature Trails**

By far, the most preferable activity to do in a North Carolina state park is to walk for pleasure, be it on a hiking trail or a nature trail. Four out five people surveyed (79.5%) would use a hiking trail and nearly three out of four people (74.1%) surveyed would use a nature trail. This data matches well with the 2007 NRSE, which finds walking for pleasure to be an outdoor recreation activity performed by 82% of North Carolina residents and 83% of all US residents.

Survey respondents truly desired more hiking opportunities, as hiking trails were selected as the second, third, and fourth highest priority for new park facilities. Hiking would have been the highest priority facility (14.4% of those surveyed chose hiking trails as their highest priority), had it not been for the unusually high survey response rate from the mountain biking community (19.9% chose mountain biking as highest facility priority).

Most of the hiking related comments in the survey related to the need for more hiking trails. Others noted that more wilderness hiking (longer trails in pristine areas) opportunities were desired. The popularity of back-country camping (38.9% would back-country camp) ties in well with the desire for long, wilderness hiking opportunities. Connectivity to the larger network of trails and greenways in coordination with other local, state, and federal agencies was a common request in the survey. Several people expressed their support for the Mountains-To-Sea Trail.

## **Equestrian Trails and Facilities**

Although many people from the equestrian community participated in the survey, equestrian trails were rated in the survey as the very least popular facility type in North Carolina state parks, with 65.1% of survey participants stating that they would not use equestrian-only trails. However, 20.9% of survey respondents stated they would use equestrian trails. According to the 2007 NSRE, only 7.8% of North Carolinians engaged in horseback riding during the previous 12 months.

Equestrians expressed concern for the limited number of opportunities to recreate in state parks and the lack of appropriate facilities. They noted that often the facilities they desire such as: appropriately-sized horse trailer parking; campsites with or without electrical hook-ups; and stables/barns/hitching posts are needed or need improvement. Equestrians noted the large revenue and economic impact that the state is missing out on by not having adequate horse riding facilities; many equestrians detailed how neighboring states are much more accommodating and that North Carolina residents are forced to spend their money out-of-state to have enjoyable horseback riding experiences in state parks. Some equestrians noted that existing horse trails are in need of maintenance; while others noted that some equestrian clubs (such as the Blue Ridge Horsemen's Association) are willing to help improve and maintain trails.

The majority of park-specific comments regarding equestrian facilities were directed to South Mountain State Park where several respondents noted that the equestrian facilities at this park need improvement.

### **Mountain Biking Trails**

The largest number of responses on the survey from a recreation-specific user group was from mountain bikers. The survey found that while although only 39.3% people surveyed would ride mountain bikes in state parks, mountain bike trails were by far the most requested facility-type – with 19.9% of people surveyed choosing this facility as their highest priority to develop in state parks. The 2007 NSRE found that within the previous year, 15.7% of North Carolinians participated in mountain biking.

The comments on the survey from the mountain biking community were numerous. The major themes emerging from the comments were: more mountain biking trails are needed – particularly in areas near centers of population; the mountain biking community is sizeable and organized; mountain biking can be low impact use on properly designed trails; single-track trails on natural surfaces with a wide variety of trail types, difficulties, and length are preferred; and there are many groups such as: the Tarheel Trailblazers, Brushy Mountain Cyclists, Greensboro Fat Tire Society, Triangle Off-Road Cyclists, International Mountain Biking Association, and the Southern Off-Road Bicycle Association are available and willing to contribute financially and also through volunteer work to help design, build, and maintain mountain bike trails.

The vast majority of park-specific comments received from this user group were directed to William B. Umstead State Park where mountain bikers were unhappy with the wide gravel road experience and noted that new single-track trails (or conversion of existing trails) at the park were desired. Several mountain bikers applauded the division's collaboration with the mountain biking community on the design and construction of the single-track trail network at Lake Norman State Park.

### **Multi-use Trails**

According to the survey, multi-use trails were a popular facility-type, with 61.2% of those surveyed indicating that they would use a multi-use trail. 30.9% said they might use a multi-use trail, while only 7.9% noted they would not. Multi-use trails are popular with most park users because this facility type allows the greatest number and widest range of user groups to recreate.

Although the survey comments noted that there is a demand for multi-use trails in North Carolina state parks, many people expressed concern. Some hikers did not appreciate mountain bikes whizzing by them on trail, as well as other users did not enjoy encountering horse manure in their hiking or biking experience. Several equestrians noted they did not enjoy sharing the trail with mountain bikers. Many multi-use trail users noted that better education and signage informing multi-use trail etiquette were necessary.

### **Rock Climbing**

Although many members of the rock climbing community participated in the survey, more people noted they would not use a rock climbing facility (36.3%) than those who would (30.7%). According to the 2007 NSRE, only 2.3% of NC residents participated in rock climbing in the previous 12-month period.

Many rock climbers provided comments on the survey. The majority of rock climbers who offered comments expressed a need for more rock climbing opportunities to utilize the outstanding climbing features in the state. Many described the low impact use of the sport and conservation ethics of many climbers, as well as the local climbing groups such as: the Carolina Climbers Coalition and Access Fund who are willing to partner with the state and volunteer to increase climbing opportunities in state parks.

Of particular note, many of the climbers expressed a desire to allow climbing at both Grandfather Mountain and Chimney Rock State Park. Some climbers hoped that state parks would not require the use of commercial guides to be able to climb in state parks.

### **Paddle Trails**

Over half of the people surveyed (55.5%) indicated they would use a paddle trail and river access facility. Of the comments received from the survey, most people noted that they desired more paddling opportunities with long multi-day trails and camping close to or on the river (platform camping). The need for more river access areas with improved facilities and signage was also noted.

According to the 2007 NSRE, during the previous year, 6.7% of NC residents went canoeing, while 3.1% went kayaking.

### **Swimming and Beach Areas**

Approximately half of the survey respondents indicated that they would use a beach (53.4%) and swimming area (48.4%). According to the 2007 NSRE, 39.7% of NC residents swam in lakes, streams and other large water bodies during the previous year. The 2007 NSRE also found that visiting a beach was one of the top ten favorite activities of North Carolinians, with 44.2% visiting beach during the last 12-months.

Survey respondents expressed the need for more swimming opportunities, including larger swim areas. Nearly all users groups including primitive campers, RV campers, and equestrians desired more beach camping opportunities. Several respondents desired upgrades of campsites at the beach to include electrical hook-ups.

### **Boating and Marina Use**

The survey found that a marina was the third least desired facility in state parks with only 17.6% of respondents expressing an interest in marinas. 52.2% of survey respondents would not use a marina in a state park. A boat ramp/dock facility was more popular than a marina, with 30.2% of those surveyed indicated they would use such a facility.

Boating of any type and motor boating are both relatively popular in North Carolina, the 2007 NSRE found the percentage of North Carolina residents participating during the previous year to be 31% and 22.5%, respectively.

### **Fishing Pier/Shoreline Fishing**

30.8% of those surveyed said they would use a fishing pier, while 35.8% indicated they might use a fishing pier. A few survey respondents indicated their desire for fishing opportunities in state parks, including more shoreline fishing and improve fishing opportunities for the disabled.

The survey data matches well with the 2007 NSRE survey which found that 30.9% of NC residents went freshwater fishing in the last year. The NSRE also found that 26.5% of NC residents enjoyed viewing or photographing fish. Saltwater fishing is somewhat less popular with only 17% of NC residents participating, according to the 2007 NSRE.

### **Museum and Education Exhibits**

Interpretation and education at state parks is very popular. Half of those surveyed (50.7%) said they would use a museum and educational exhibit during their visit to a state park. A museum or educational exhibit was ranked by those surveyed to be their fifth highest priority in our state parks. The need for interpretation and education of the state's natural resources was an overarching theme in the comments received from the survey. Many people felt that all park visitors need more educational opportunities to appreciate and understand the parks they visit, particularly the need to educate children to instill a sense of wonder and awe for the natural environment was also seen as a high priority.

### **Observation decks**

The survey found that observation decks were the fifth most popular facility in state parks, with 61% of participants indicating they would use these platforms to observe nature. According to the 2007 NSRE, viewing and photographing natural scenery was found to be the fifth most popular outdoor activity in North Carolina. 57% of North Carolinians participated in this activity during the previous year.



## **OPERATIONS AND OVERALL PARK THEMES**

### **Land Acquisition for Both Recreational Use and Conservation**

Interest in land acquisition was a primary focus of most survey respondents. 95.2% of all respondents either strongly agreed or agreed with the statement that *“NC Parks should add new parks to provide additional recreational opportunities.”* Hundreds of written survey comments were received to elaborate on this sentiment.

Many respondents of the survey commented that it is imperative that the division of Parks and Recreation acquire significant lands now while they are still available – before they are lost forever to development. Many people supported new land acquisition as a means of controlling the state’s sprawling urban development. An overwhelming concern from those seeking a greater increase in the amount of land acquired by the division is that that state should buy the land now – and worry about developing the appropriate facilities later.

However, a significant group of respondents didn’t agree. Some mentioned that it would be unwise to buy more park land and assume that financial responsibility while other existing parks are understaffed, in need of maintenance, and/or where current capital improvement projects remain unfunded. 57.5% of survey respondents either strongly agreed or agreed with the statement: *“Completing land acquisition and construction plans at existing parks should take priority over adding new parks, recreation areas, or natural areas.”*

### **Where to Locate New Parks**

As expected, there was a high level of disagreement regarding where new parks should be located. Although 89.9% either strongly agreed or agreed with the following statement: *“It is important to locate new parks based on the need to protect natural and recreational resources regardless of their proximity to centers of population”*; however, many did not. 61.4% either strongly agreed or agreed with the statement that: *“It is important to locate new parks equitably across the state based on geography and population.”*

### **Natural Resource Protection**

Ensuring that parks remain natural and protecting the state’s natural resources was also major theme to emerge from the survey. 93.7% of all respondents either strongly agreed or agreed with the statement that: *“It is important to protect natural and scenic resources by acquiring land even if these areas may not be accessible to the public until planning, design and funding are in place to be developed as park units.”* Although outdoor recreation is extremely important to all park users, the desire to use the Division of Parks and Recreation to act as a means of conserving land first and then planning for recreation



later was evident. 89.8% of those surveyed either strongly agree or agree with the following statement: *“It is important to protect North Carolina’s unique natural resources, even if it means limiting public access to certain areas.”*

Comments received from the survey covered a wide spectrum of the balancing act the division performs in protecting natural resources while providing outdoor recreation opportunities. Some commented that the protection of natural resources is too important to risk in the name of recreation, while others argued that on public lands, responsible recreation can and should dovetail with the preservation of natural resources. Both perspectives have valid arguments regarding the management of parks and the division’s balancing of those needs remains a primary focus of its mission.

### **Interpretation and Education**

The majority of survey participants supported the enhancement of environmental education both for park visitors and environmental education programs for children. 82.6% of survey respondents either strongly agreed or agreed that that NC Parks should focus on providing more environmental education to visitors at parks. 80.5% supported improving environmental education for children in the public schools curriculum and 78.6% of those surveyed wished to have more programs in parks for children and families.

Comments from survey respondents repeatedly drove home the importance of educating visitors at parks to understand and respect the natural resources. Several participants wanted to see more hands-on program and demonstration projects in parks such as recycling and storm-water management best management practices. Others noted the importance of adding new education and interpretation staff to provide this increased level of park visitor education.

### **Quality of Information for the Public**

A majority of those surveyed were satisfied with NC Park’s website content. 77.1% either strongly agreed or agreed that the website was sufficient for their needs. An even greater percentage of respondents were pleased with the maps and brochures available to them at parks, with 82.7% either strongly agreeing or agreeing that these documents met their needs.

However, a significant percentage of people were not happy with the website and maps. One in five respondents (20.4%) were not pleased with the website format and content. 16.0% desired better maps and brochures. Several people gave written comments to express their concerns with the information NC Parks makes available to the public. A primary complaint was that park maps don’t provide enough information about the park and what it has to offer. Many people complained that maps of trails were not detailed enough. Others requested that maps be revised to include the scale and topography.

Some respondents desired better signage: on trails; for paddling access points; and to direct motorists to a park from the highway. Many respondents felt that NC Parks doesn't do enough to market its parks and make information available about outdoor recreation and education opportunities.

### **Improving Maintenance and Cleanliness**

Many survey participants felt that improving maintenance in parks was important. 77.8% of those surveyed either strongly agreed or agreed that improving park maintenance is necessary. One in five surveyed (21.4%) felt that improving park maintenance wasn't an important issue.

### **Improving Accessibility for the Disabled**

Survey respondents had mixed opinions regarding the level of accessibility for the disabled in state parks. 55.7% either strongly agreed or agreed that accessibility in park needs improvement, while 44.3% either strongly disagreed or disagreed. Some of the survey comments received regarding improved accessibility included more accessible trails and fishing opportunities for persons with disabilities.

### **Access to and within State Parks**

Many survey participants gave written comments to complain about limitation on use in state parks. The chief complain was the operating hours of the park – while many desired longer hours of operation (for early morning exercise, watching a sunset, or fishing at night), others disagreed with the concept of closing a park for the night.

### **Amount of Development in Parks**

Although the vast majority of participants expressed a desire for more parks and recreational opportunities within parks, many respondents wanted to ensure that parks were not over-developed and remained in a mostly natural condition. Finding the appropriate balance of recreational use and natural resource protection again emerged as an important theme in the survey.

### **Fees**

Survey respondents' reaction to park fees was mixed. Exactly the same percentage of respondents either strongly agreed or agreed (78.5%) that they would be willing to pay higher fees for improved and expanded park services and programs as the percentage of people who felt that fees need to be kept at a minimum to serve the greatest number of people possible. This can be interpreted as: while parks provide a very valuable recreational resource to its users, a tax-payer funded amenity should strive to keep any additional users fees as low as possible to not discriminate against those who cannot pay. Written comments from the survey mirrored this sentiment.

## **COMPARISON OF RESPONSES: GENERAL PUBLIC VS. PAC MEMBERS**

The survey was designed to record results of the members of the North Carolina State Park Advisory Committees (PACs) to compare their responses to those of the general public. Of the 251 PAC members in the state parks system at the time the survey was conducted, 67 PAC members (27%) completed the survey. Of the 3,927 completed surveys received, only 2% were from PAC members.

In terms of facility preferences, PAC members had very similar responses as the general public for such as facilities as: back-country primitive campsite; tent/trailer campsite without hook ups; group campsites; simple cabin (enclosed living space); playground; open play area; equestrian trail; multi-use trail; swimming area; and beaches.

However, PAC members were less likely to: use a tent/trailer site with hook ups (23.9% PAC members vs. 34.9% public); use a RV/trailer site with hook up (14.9% PAC members vs. 22.5% public); use a mountain bike trail (23.9% PAC members vs. 40.4% public); and use a rock climb area (26.9% PAC members vs. 31.1% public).

Although, PAC members were more likely to: use an improved cabin with kitchen, heat, and restroom (52.2% PAC members vs. 44.5% public); and use a fishing pier (37.3% PAC members vs. 29.8% public).

In some instances, PAC member preferences varied greatly from that of the general public. PAC members are much more likely to: use hiking trail (92.5% PAC members vs. 80.3% public); use a picnic shelter (73.1% PAC members vs. 53.4% public); use a paddle trail (70.1% PAC members vs. 56.0% public); use a boat ramp/dock (46.3% PAC members vs. 29.8% public); use a marina (31.3% PAC members vs. 16.9% public); use a museum/educational exhibit (79.1% PAC members vs. 50.6% public); and to use an observation deck (85.1% PAC members vs. 60.5% public).

Despite the variations in facility use between PAC members and the general public, there was a high level of agreement regarding the priority of new facilities in state parks. Both cohorts felt strongly about the need for new hiking trails and museum and educational exhibits. 31.3% of the PAC members surveyed chose hiking trails as their first priority. Hiking trails were the second, third, and fourth highest priorities for the general public. Both PAC members and the general public chose museum and educational exhibits as their fifth highest facility priority.

The outlier in the facility priorities for the two groups is the desire for mountain biking trails. Given the deviation of the survey from the 2007 NSRE, it is evident that the survey had a much higher representation of mountain bikers than that of the general population. This discrepancy is evident when comparing the priority choices for facilities among PAC members and the general public. The general public's priority for mountain biking facilities is far out of line with that of PAC members, despite nearly one in four PAC members (23.9%) expressing interest in mountain biking.

It is interesting to note that PAC members and the general public had high level of agreement to the 17 policy statements in question three of the survey. Positions on the need for new parks, land acquisitions, protection of natural resources, park development priorities, new park locations, fees, public information, and park maintenance were all in close agreement.

However, PAC members had a higher level of support for environmental education compared to the general public. 91.1% of PAC members surveyed strongly agreed or agreed for the increased need for environmental education for park visitors. Whereas the majority of the general public did support this idea, only 73.1% strongly agreed or agreed. A similar distribution between PAC members and the general public was observed on the topic of the importance of environmental education for children and families.

Compared to the general public, PAC members also saw the need for improvement in state parks for persons with disabilities to be a higher priority. 67.2% of surveyed PAC members either strongly agreed or agreed with the statement that access for the disabled in state parks needs improvement, whereas only 54.9% of the general public strongly agreed or agreed.

In terms of priorities for the 17 policy statements, the PAC members and general public were in nearly unanimous agreement. The first second and third priority statements for the two cohorts were the same. Protecting natural resources through land acquisition was of the utmost importance.

The only disagreement on the priority statements between PAC members and the general public was the importance of increasing environmental education for children, which was the PAC members' fourth priority. All five of the general public's priorities related to natural resource protection.

## APPENDIX D

### RESOURCE THEME DEFINITIONS

# RESOURCE THEME DEFINITIONS

## ARCHEOLOGICAL RESOURCES

The resource themes used in this study are general statements of the various kinds of past human activity that are represented by sites or features within the State Parks System. These sites and features can be organized into three thematic categories—prehistoric archeological resources, historic archeological resources, and standing structures and other aboveground features.

### Prehistoric Archeological Themes

For purposes of this planning document, the term prehistory refers to the period of time beginning with the initial entry of the Native Americans into what is now North Carolina (sometime prior to ca. 10,000 years ago) until ca. 1670 A.D., by which time European settlement of the North Carolina coast was well underway. A prehistoric archeological site is therefore defined as any location of prehistoric human activity. As such, a site may be identified by one or more artifacts or features made, modified, or used by prehistoric people. These sites can be divided into a series of generalized site types that reflect differing forms of human activity which can be identified by specific artifact patterns and features. These site types or themes (for consistency with the State Parks planning process) are defined as follows:

#### Village

Sites that possess the remains of domestic, ceremonial, subsistence and economic activities, and shelters indicative of year round habitation.

#### Campsite/Activity Area

Sites that consist of the remains of domestic, subsistence and economic activities, and shelters indicative of short-term habitation, or of behavior associated with specific domestic, subsistence, or economic activities. Examples include, but are not limited to, temporary habitation sites, hunting sites, butchery sites, and wild plant gathering sites such as those associated with harvesting nut resources.

#### Shell Midden

Sites that consist of the remains of shellfish gathering mixed with the remains of other domestic, subsistence and economic activities, with the mussel shell being the primary component of the remains.

#### Burial/Cemetery

Sites that consist of one or more human burials, and the material remains placed with the individual interments. Usually, but not always, prehistoric burials/cemeteries exist as part of some other archeological site, especially villages and campsites.

#### Quarry/Soapstone

A specialized economic site that shows evidence of activity directed toward the extraction of soapstone from the ground for trade or for later fashioning into artifacts such as bowls and ornaments. This site could show evidence of the actual sources of the soapstone mined, and/or the artifacts used to extract the soapstone. The habitation area used by the soapstone miners would be classified as a Campsite/Activity Area, or possibly a Village.

#### Quarry/Other

A specialized economic site that shows evidence of activity directed toward the extraction of some stone (excluding soapstone), such as quartz, rhyolite, or slate, from the ground for trade or for later fashioning into artifacts such as projectile points, scrapers, and blades. This site could consist of the actual source of the stone mined, the artifacts used to extract the stone, and examples of the stone actually mined. The habitation area used by the stone miners would be classified as a Campsite/Activity Area or possibly a Village.

#### Shelter/Cave

A site that consists of a natural rock shelter, rock overhang or cave showing evidence of having been used as a temporary or permanent habitation area. The remains of domestic, economic and subsistence activities would be present.

#### Rock Art

A site that consists of drawings, sketches, or engravings executed by prehistoric peoples on stone (such as rock outcrops and the walls of rock shelters and caves).

#### Trail/Path

A site used by prehistoric peoples as a route of land travel. A good example is the Occaneechi Trail that can be tentatively identified with certain existing roads in the Eno River State Park. The Occaneechi Trail connected the prehistoric and historic Indian groups of the North Carolina Piedmont with the Indians of the Chesapeake, the North Carolina Coast, and the South Carolina Piedmont. It was also a trail used by European traders during early historic times, approximately A.D. 1670 to 1750, to conduct trade with the Indians of the interior of the Southeastern United States.

#### Underwater

A preserved underwater site that shows evidence of any prehistoric human behavior associated with habitation, subsistence and/or economic activities. Examples include, but are not limited to, the submerged prehistoric canoes and other artifacts including pottery recovered from Lake Phelps.

#### Other

Any site that shows evidence of human activity that can not be associated with any of the other prehistoric themes.

### **Historic Archeological and Standing Structure Themes**

For purposes of this planning document the term “historic” refers to the period of time beginning with the European settlement of what is now North Carolina (about the mid-seventeenth century). A historic archeological site is defined as any location of past human activity associated with historic Indians, Afro-Americans, and Euro-Americans and are generally identified by the material remains (artifacts and features) associated with them. These sites can be divided into a series of generalized site types that reflect differing forms of human activity that can be identified by specific artifact patterns and features. The theme definitions used for Standing Structures (which are the result of a specific type of human activity) are the same as those used for historic archeological resources. The themes in this case reflect different building types. These site types and building types or themes (for consistency with the State Parks planning process) are defined below:



### Recreation

Structures and/or sites related to the early development of the State parks System or to earlier private or local parks that preceded the state system, including but not limited to camp structures, sleeping cabins, picnic shelters, lodge halls, bathhouses, and related facilities. Also included would be early Euro-American and Afro-American structures or sites used for leisure or amusement activities such as race tracks, baseball fields, mineral springs, fishing cabins, and any landscaping associated with these features.

### Public Works

Facilities or the archeological remains of facilities constructed by local, state, and federal governments as part of public works projects, particularly the CCC, including but not limited to dams and other engineering facilities and including support facilities such as barracks, mess halls, bath houses, etc. not subsequently used for public recreation, and any associated landscape features.

### Public/Civic/Religious

Standing structures and/or sites built for community purposes, including but not limited to churches, lodge/fraternal halls, schools, post offices, and other government facilities, and any associated landscape features.

### Commercial

Structures and/or sites related to the exchange of goods including but not limited to store buildings, wharfs, and any associated landscape features.

### Urban/Domestic

Dwelling houses and/or the archeological remains of dwelling houses in a town or village setting, including all support structures such as sheds, garages, garden or animal facilities and any associated landscape features such as fences, plantings, walls, arbors, etc.

### Rural/Domestic

Dwelling structures and sites associated primarily with the agricultural economy, including farm and plantation houses and all their support facilities, including but not limited to barns, granaries, privies, smokehouses, cribs, sheds, spring houses, and similar structures. Also included would be irrigation canals and ditches, trappers cabins and their support structures and any associated landscape features such as fences, plantings, walls, etc.

### Cemetery

Burial sites with associated above-ground features, including stones and markers, fences and walls, and associated landscaping.

### Industrial

Structures or sites associated with the extraction of resources or the manufacture of materials or goods, including but not limited to mines, furnaces, distilleries, and factories. (Excepting mill sites—see below.)

### Mills

Structures and/or sites associated with the grinding of corn and grains or the cutting of lumber including but not limited to mill buildings, dams, sluices, storage buildings, related support structures and any associated landscape features.

### Transportation

Roadbeds, bridges, landing docks, canals, lighthouses, and other features or sites related to transportation.

### Military

Forts and fortifications, earthworks, battlefields, barracks, magazines, commissaries, and other features and sites related to defense of territory.

### Underwater

Lost or abandoned vessels or structural part of these vessels and structures built in the water such as docks, wharfs, dams, bridges, mill sites, lighthouses, and fish traps. Also included are inundated land sites and cultural material that is intentionally or accidentally deposited in the water particularly in areas such as river crossings, landing sites and city or town water fronts.

### Other

Any structure or site that shows evidence of human activity that cannot be associated with any of the other historic themes.

## **BIOLOGICAL RESOURCES**

Over 116 natural community types have been identified and described in North Carolina (Schafale and Weakley, 1990). These have been grouped into 32 biological themes based on similarities in environment and vegetation. Each of the themes is described more fully in the Natural Heritage Program Biennial Protection Plan (Division of Parks and Recreation, 1993).

### Spruce-Fir Forests

Forests dominated by red spruce and Fraser fir occur on the high mountain tops in western North Carolina, generally over 5500 feet in elevation. They provide habitat for large numbers of both endemic Southern Appalachian and disjunct northern species of plants and animals. This theme is represented in the parks system at Mount Mitchell. The park contains good examples of the Fraser Fir Forest natural community, but contains little of the Red Spruce-Fraser Fir Forest found at slightly lower elevations. Like spruce-fir forests elsewhere, the forests in the park have been drastically changed by the balsam woolly adelgid, an introduced insect pest.

### Grass and Heath Balds

Balds are treeless shrub or herb-dominated communities of the high mountains. Grassy balds are open meadows with a diverse mixture of species. Heath balds are dense thickets of tall shrubs, mostly rhododendron, mountain laurel, and other members of the heath family. The state parks system includes only small amounts of heath bald at Mount Mitchell, and no examples of grassy bald in any of the parks.

### Northern Hardwood Forests

Northern hardwood forests are found on high mountain slopes with a cool climate and high levels of rainfall. They are dominated by combinations of moist-site hardwoods, such as yellow birch, beech, buckeye, and sugar maple. A good example of northern hardwood forest is found at Mount Jefferson, but the parks system does not include representation of the range of diversity in this broad theme.

### Mountain Cove Forests

Cove forests are relatively stable, uneven-aged climax forests, with trees up to several centuries old, occurring on sheltered, moist, low to moderate elevation sites. They have a dense canopy of moisture loving trees and a high diversity in all vegetation layers. The state parks system includes small examples

of cove forests at South Mountains and Stone Mountain, but includes no examples of the more typical mountain version and no examples of Canada Hemlock Forest.

#### Piedmont and Coastal Plain Mesic Forests

Mesic forests occur on sites that are moist but not wet. These sites are among the most favorable environments in these regions for plant growth. They tend to support dense forests of beech, tulip poplar, red oak, and other moisture-loving trees. In the Piedmont and Coastal Plain, mesic sites often contain species that are more common in the mountainous parts of the state or farther north. Good examples of acidic Mesic forests are found at Merchants Millpond, Eno River, William B. Umstead, Cliffs of the Neuse, and other parks. A good, though small, example of basic Mesic forest occurs at Raven Rock.

#### Piedmont and Mountain Dry Coniferous Woodlands

The vast majority of relatively undisturbed land in the Piedmont and Mountain regions is dominated by hardwood forests. While successional pine forests are very common, naturally occurring pine and Carolina hemlock forests are uncommon. They occur at mid to low elevations in specialized sites that are drier than average. They are found primarily in the mountains and in a few mountain-like sites in the Piedmont. South Mountains and Stone Mountain contain good examples of dry coniferous woodlands, but higher elevation examples are not represented in the parks system.

#### Montane Oak Forests

Montane oak forests, which once had chestnut as a codominant, occupy much of the landscape of the Mountain region, covering the dry to intermediate slopes and ridgetops over a broad elevational range. Some montane oak forests are found at Mount Jefferson, and good examples of the foothills version occur at South Mountains and Stone Mountain, but there is inadequate representation of several montane oak community types in the parks system. This theme is scarce in the Piedmont, but excellent examples occur at Hanging Rock and Pilot Mountain.

#### Piedmont and Coastal Plain Oak Forests

Oak forests were once the most common natural community type in the Piedmont, occurring over most of the uplands. In the Coastal Plain they were much more limited, occurring primarily in dissected areas near streams. Although still widespread, Piedmont and Coastal Plain oak forests have been substantially reduced from presettlement times. The parks system contains excellent representation of acidic types of this theme at several parks, but has little representation of basic types.

#### High Elevation Rock Outcrops

These communities occur on ridgetops, peaks, and upper slopes where soils are thin and discontinuous, vegetation is very patchy, and rock dominates the surface. Even in the most rugged high mountains they represent only a small fraction of the landscape. Mount Mitchell and Mount Jefferson contain good examples of this theme; however, the parks system does not include any examples of the High Elevation Granitic Dome community type.

#### Low Elevation Cliffs and Rock Outcrops

This broad theme contains a wide variety of community types that are too steep or rocky to support a closed tree canopy. Vegetation is generally very patchy, reflecting wide variability in soil depth, rock chemistry, and available moisture. The parks system contains excellent representation of several rock outcrop community types, although representation is not as good for the calcareous and mafic types.

#### Coastal Plain Marl Outcrop

This theme is very rare in North Carolina. Coastal Plain marl outcrops generally occur along stream

bluffs or in ravines. Some are true marl while others are coquina or other kinds of limestone. Trees include calcium-loving species such as black walnut, southern sugar maple, and pawpaw, as well as more widespread moisture-loving species such as beech and tulip poplar. This theme is not represented in the parks system. An example of this theme occurs along the north shore of Lake Waccamaw, but this area is not included within the park boundaries.

#### Granitic Flatrocks

Granitic flatrock communities occur on flat to gently sloping exfoliated outcrops of granitic rocks in the Piedmont. The rock outcrop is generally flush with the surrounding soil and has only minor irregularities. Vegetation is sparse and patchy, and includes several species found in no other communities. Mitchells Mill contains an excellent example of this theme. Several small examples occur at Raven Rock.

#### Mafic Glades and Barrens

The communities in this theme are non-forested communities that occur on relatively flat outcrops of unusual, high pH rock types. All have vegetation kept open by the physical structure and chemistry of the rock. These communities have high concentrations of rare plant species. Only a handful of examples of this theme are known in North Carolina, and none of these are currently included within the state parks system.

#### Maritime Grasslands

This theme includes the dunes, sandy flats, and dune swales along the coast. These communities are unable to support trees because of heavy salt spray or overwash by salt water during storms. Excellent examples of this theme occur at Baldhead Island and Hammocks Beach.

#### Maritime Upland Forests

This theme includes well-developed forests with canopies of live oak, sand laurel oak, and loblolly pine. It also includes the distinctive scrubby woody growth of stabilized sand dunes and sand flats. Most maritime forests are found on the barrier islands, but a few areas on the mainland share the characteristic species. The state parks system includes several small, but good examples of maritime forest. Extensive examples are lacking, as are several of the rarer community types.

#### Dry Longleaf Pine Communities

Longleaf pine communities are scattered in most of the Coastal Plain and extend into the Piedmont in the south. They were once the most abundant vegetation type in the Coastal Plain, occupying vast acreages and exhibiting considerable diversity based on moisture, soil, and location. Good examples of this theme exist at Carolina Beach, Jones Lake, Singletary Lake, Baytree Lake, and Weymouth Woods. Several important variants are not represented, particularly in the Sandhills.

#### Blackwater Coastal Plain Floodplains

This theme includes the vegetated communities that occur on the floodplains of blackwater rivers. Blackwater rivers originate in the Coastal Plain, rather than in the Piedmont or Mountains. They carry little mineral sediment, and the water is generally very acidic and low in nutrients. The forests contain flood-tolerant trees and shrubs, are typically low in diversity, and can cover large areas. The state parks system contains good examples of this theme at Merchants Millpond, Lake Waccamaw, and a few other small areas. Acquisitions at Lumber River will add examples of this theme to the system.

#### Brownwater Coastal Plain Floodplains

Brownwater rivers originate in the Piedmont or Mountains and flow into the Coastal Plain. In contrast to blackwater rivers, they carry heavy loads of mineral sediment, particularly clay and silt. The water is

generally near neutral in pH and high in nutrients. Sediment deposition in the floodplain often results in topographic relief such as levees, bars, and sloughs. Representation of this theme in the parks system is minimal, with a small example at Cliffs of the Neuse.

#### Piedmont and Mountain Floodplains

Floodplains in the Piedmont and mountains tend to be narrow, infrequently inundated, and generally lacking in depositional landforms. The forests contain mixtures of bottomland and moisture-loving species. Small depressions in the floodplain sometimes form pools that provide important amphibian breeding habitat. The state parks system contains good examples of some of the community types in this theme, but the Montane Alluvial Forest community type has little representation and the Piedmont/Mountain Swamp Forest is essentially unrepresented.

#### Riverine Aquatic Communities

This theme includes all perennial, flowing water ecosystems—all rivers, creeks and streams. These aquatic systems are of great ecological importance. Riverine communities are highly diverse, ranging from mountain torrents to placid and meandering Coastal Plain rivers. Animals, rather than plants, tend to be the most conspicuous members of the communities. Many state parks are located adjacent to rivers, and many contain streams and creeks. However, few of the aquatic communities themselves are well-protected. The parks system includes only four State Rivers, and entire watersheds are included in only a few parks.

#### Mountain Bogs and Fens

Montane bogs are among the rarest natural communities in the Southern Appalachians and in North Carolina. Bogs form in poorly drained depressions or on gentle slopes. They vary from being permanently wet to intermittently dry and are generally fed by seepage. Vegetation is generally a mosaic of shrub thickets and herb dominated areas. The state parks system contains no examples of mountain bogs.

#### Upland Seepages and Spray Cliffs

The communities in this theme are small wetlands that occur on sloping uplands in the Piedmont and Mountain regions. The soils are generally saturated permanently or for long periods. Spray cliffs are kept wet by waterfalls; the other community types in this theme are fed by seepage. Spray cliffs are represented in the parks system at Hanging Rock, South Mountains, and Stone Mountain. There are few examples of seeps in the state parks system.

#### Piedmont Upland Pools and Depressions

These are shallow depressions which hold water in the wetter parts of the year. They generally dry up by the end of summer, but are flooded long enough to contain wetland vegetation which contrasts with the surrounding uplands. Most occur in the Piedmont. Morrow Mountain contains one small example of this theme, but representation in the parks system is otherwise absent.

#### Coastal Plain Nonalluvial Mineral Wetlands

Nonalluvial mineral wetlands occur on flat, poorly drained areas of the outer Coastal Plain and occasionally in shallow depressions such as Carolina bays. The soils in these sites are saturated in the wetter seasons and may have shallow standing water. Vegetation is dominated by cypress, black gum, or other wetland hardwoods. In the state parks system, this theme is represented only at Dismal Swamp.

#### Peatland Pocosins

Peatlands occur on nearly flat, poorly drained areas of the outer Coastal Plain and in large shallow

depressions such as Carolina bays. Peat deposits develop where the soil is saturated for long enough periods that organic matter cannot completely decompose. The peat acts as a sponge, raising water levels in the soil, which is extremely infertile and acidic. Vegetation includes stunted pond pines and low shrubs, often with areas of sphagnum and pitcher plants. Pocosins are represented in the parks system at Dismal Swamp, Pettigrew, and several of the Carolina bay parks.

#### Streamhead Pocosins

These communities have vegetation similar to peatland pocosins, but the physical setting is very different. They occur in ravines in dissected, sandy Coastal Plain terrain. The soils are mucky, very acidic and infertile. The streamhead pocosin theme is represented at Weymouth Woods. Better representation is needed in the Sandhills, where most examples of this theme exist.

#### Wet Pine Savannas

The communities in this theme are Coastal Plain mineral soils wetlands that in presettlement times were frequently burned. With frequent fire, they have an open canopy of longleaf or pond pine over a grassy herb layer. They often contain a high diversity of herbaceous plants, including showy wildflowers and insectivorous plants. Shrubs are short and sparse with frequent fire, but become dense if fire is suppressed more than a couple of years. Examples of this theme occur at Carolina Beach and Jones Lake, but the diversity of wet pine savanna communities is not well represented.

#### Coastal Plain Depression Communities

These occur in various kinds of small basins in Coastal Plain uplands. The basins, which may be limesink depressions, Carolina bays, or swales between recent or older sand dunes, hold standing water for substantial parts of the year. Vegetation is often strongly zoned and varies widely. Carolina Beach contains excellent examples of several limesink types. Theodore Roosevelt and Bushy Lake also contain small examples.

#### Natural Lake Communities

Natural lakes occur only in the Tidewater and Coastal Plain part of North Carolina. Some lake basins are Carolina bays, while others are depressions in peatlands that may have been created by deep peat burns or other causes. Most of the lakes in North Carolina are very acidic. Lake Phelps, Lake Waccamaw, Jones Lake, Singletary Lake, and the other state lakes represent the diversity of this theme.

#### Maritime Wetland Forests

Maritime wetland forests occur in wet sites on barrier islands and near the sounds on the mainland. They are generally sheltered from the most extreme salt spray and from seawater overwash. The soils are saturated for much of the year. This rare theme includes forests and shrub communities. Examples exist at Fort Macon and Theodore Roosevelt, but the acreages are small.

#### Freshwater Tidal Wetlands

Freshwater tidal wetlands occur in sites where flooding occurs in response to lunar or wind tides, but the water has less than 0.5 parts per thousand salt content. They are found on rivers near the coast and along the large sounds. Good to excellent examples of this theme are found at Goose Creek and Chowan Swamp.

#### Estuarine Communities

Estuarine communities are affected by tidal waters in and along the sounds and drowned river mouths. Salt marshes, brackish marshes, salt flats, and salt shrubs may occur. This theme is well represented in the parks system at Fort Macon, Hammocks Beach, Fort Fisher and Baldhead Island.

## **GEOLOGICAL RESOURCES**

### **Barrier Islands and Shoreline**

Geomorphic features created by wind and waves at the coast during Holocene times, both on barrier islands and on sections of the mainland coast where barriers are absent. They include beach, foredunes, active and stabilized rear dunes, overwash deposits, interdune ponds and swamps, inlets, sand spits, capes, relict inlets, active flood and ebb tidal deltas.

### **Estuaries**

Geomorphic features associated with tidally influenced areas in lagoons behind barrier islands and in drowned river mouths. They include regularly and irregularly flooded tidal marshes, estuarine swamps, tidal channels, open water with sand and mud bottom, shell beds, relict flood tidal deltas, and estuarine beaches.

### **Continental Shelf**

Geomorphic features of offshore areas. They include soft bottom areas and erosional marl outcrops characterized by low scarps.

### **Relict Coastal Features**

Geomorphic features created by coastal processes before the Holocene, at higher stands of sea level than at present. They include Coastal Plain scarps and terraces, relict beach ridges, and dune systems.

### **Carolina Bays**

Oriented elliptical depressions. They include water-filled, peat-filled, sandy, and clay-based bay interiors, sand rims, and associated aeolian sand deposits.

### **Fluvial Depositional Features**

Geomorphic features produced by alluvial processes of streams and rivers on floodplains and in river channels, primarily in areas of relatively non-resistant rock. They include mud, sand, and gravel bars, natural levees, point bars, sloughs, ridge and swale systems, oxbows, relict terraces with ridge and swale systems, sloughs, etc., terrace slopes, and coastal plain blackwater stream swamps.

### **Peatlands and Interstream Wetlands**

Areas saturated by non-flowing water for large parts of the year, because of blocked drainage or flat topography without drainage. They include peat domes, other peatlands, upland swamps, and peat deposits in Carolina bays.

### **Natural Lakes and Ponds**

Natural bodies of fresh water in depressions of various origin. They include lakes in peatlands and Carolina bays and ponds in naturally blocked drainage systems and sinkholes or dolines, with associated shallow nearshore areas, beaches, and erosional shorelines.

### **Caves, Sinks, and Springs**

Features produced by solution of rock and other effects of ground water. They include solution caves, speleothems, sinkholes, dolines, natural bridges, and other karst features, and flowing and seeping springs produced by ground water flow in solution cavities, fractured bedrock, saprolite, and sand.



### Dissected Uplands

Upland areas with well-developed drainage, showing the effects of the common surface geomorphic processes operating on most of the state's landscape. They include upland ridges, ravines, and slopes along streams, underlain by bedrock, saprolite, or colluvium.

### Inselbergs (Monadnocks)

Isolated erosional remnants. They include isolated hills and mountains of unusually resistant rocks and outliers of the Blue Ridge escarpment.

### Cliffs

Steep to vertical or overhanging slopes of exposed rock. They include cliffs of resistant rock on high peaks and ridges, and cliffs produced by streams and rivers.

### Exfoliation Features

Geomorphic features produced by exfoliation or spalling in hard, generally granite-like rocks. They include flatrocks, dome-shaped mountains and rock faces, and weathering pits which are most commonly formed on exfoliation surfaces.

### Gorges, Rapids, and Waterfalls

Features produced by stream erosion in high to moderate relief terrain or resistant rock. They include steep-walled gorges, waterfalls, waterfall pools, rapids over bedrock, rapids over boulder deposits, and potholes.

### Mass Wasting Features

Landforms illustrating features produced by mass wasting phenomena. They include debris avalanches, tracks, and deposits, earth flows, slumps, talus slopes, and relict periglacial features such as boulder fields and nivation cirques.

### Faults, Joints, and Related Features

Areas illustrating results of faulting and jointing, either directly or indirectly. They include visible high angle and thrust faults, sheared and cataclastic rocks, large fault-produced features such as windows, fault zones, horsts, and grabens, fissure caves, joint or fault-controlled drainage, and other landforms showing effects of faults or joints.

### Folds and Related Features

Areas illustrating results of folding, either directly or indirectly. They include folds visible in outcrops and series of outcrops, and landforms produced by differential erosion in folded rocks.

### Intrusions

Areas illustrating intrusive igneous bodies. They include batholiths, dikes, sills, ring dikes, and other kinds of plutons, of granitic rocks, syenite, diorite, diabase, gabbro, and ultramafic rocks.

### Volcanic Features

Areas illustrating features produced by extrusive igneous activity. They include lava flows, breccias, tuffs, lahars, pillow lavas, and other features visible in outcrops or expressed in landforms.

### Metamorphic Features

Areas illustrating characteristic minerals, textures, and structures produced by metamorphic processes. They include rocks of different initial composition, metamorphosed to different degrees.

### Sedimentary Features

Areas illustrating sedimentary stratigraphy, rock types, sedimentary structures, and depositional environments. They include sandstone, dolomite, mudstone, graywacke, fanglomerate, arkose, lake shale, coastal plain sand and shale, marl, coquina, representative strata of different ages or formations of the Coastal Plain, Triassic Basins, Carolina Slate Belt, and windows in the Blue Ridge.

### Fossils

They include representatives of the range of fossil types, animal and plant, marine and terrestrial, different types of preservation, and different ages.

### Unusual Rock Types

Outcrops of rock types rare in North Carolina or in the region. They include ultramafic rocks, dolomite, marble, limestone, and orbicular diorite and notable occurrences of unusual minerals.

## **GLOSSARY OF GEOLOGIC TERMS**

**Aeolian:** Deposited or reworked by wind.

**Batholith:** A large body of intrusive rock frequently covering many square miles of area and extending to great depth.

**Breccia (volcanic):** A rock consisting of broken rock fragments produced by volcanic eruptions, with rock fragments greater than 32 millimeters in size.

**Dike:** A narrow vertical body of intrusive rock, appearing in outcrop as a narrow line.

**Doline:** A depression on the land surface caused by collapse of surficial sediments into a void created by solution of limestone underground.

**Drowned river mouth:** Lower reach of a river valley, now occupied by tidal estuarine waters. These valleys were formed when sea level was lower and were inundated when sea level rose.

**Graben:** A block of rock lowered relative to adjacent areas by vertical fault movement.

**Holocene:** The most recent period of geologic time, extending from the end of the last ice age (10,000 years ago) to the present.

**Horst:** A block of rock uplifted relative to adjacent areas by vertical fault movement.

**Lahar:** A deposit produced by landslides of volcanic ash on the flank of a volcano.

**Marl:** A sedimentary rock consisting of clay with abundant calcium carbonate material in the form of shells or shell fragments. The term is also frequently used in North Carolina to refer to rocks made up largely of shells.

**Mass wasting:** A series of geomorphic processes involving movement of large masses of earth material by gravity, either slowly or quickly.

**Nivation cirque:** A rounded basin-like landform produced by periglacial processes around permanent snowfields.

**Periglacial:** A series of geomorphic processes resulting from repeated freezing and thawing under cold climate, as occurred during the ice age.

**Pluton:** General term for bodies of intrusive igneous rock.

**Ring dike:** A narrow, ring-shaped body of intrusive rock, as in the syenite ring dike in Cabarrus County.

**Sand spit:** A small point of land or narrow shoal projecting from the shore.

**Saprolite:** A soft, earthy, clay-rich, thoroughly decomposed rock formed in place by weathering.

**Scarp (Coastal Plain):** A relatively steeply sloping area on the Coastal Plain or Continental Shelf, believed to have been formed by coastal processes in the past.

**Sill:** A thin, horizontal body of intrusive rock. Unlike a dike, it may cover a large area in outcrop.

**Slough:** An elongate depression in a floodplain that occurs at a former location of a river channel.

**Spalling:** Breaking in layers parallel to the surface, as sometimes occurs in granite and related rocks.

**Speleothem:** A cave formation, such as a stalactite or stalagmite.

**Tuff:** A volcanic rock consisting of broken rock fragments produced by volcanic eruptions, with fragments generally less than four millimeters in size.

## **GLOSSARY OF SCENIC RESOURCE TERMS**

**Scenic Vistas:** The view from a natural or man-made resource.

**Reservoirs/Lakes:** The view of a body of flat water.

**Waterfalls:** The view of a steep descent of water from a height.

**Rivers:** The view of a large natural stream of water emptying into an ocean, lake, or other body of water, and usually fed along its course by converging tributaries.

**Whitewater Streams:** The view of a cascading body of running water.

**Bays And Estuaries:** The view of either a coastal flat body of water enclosed by land but having an outlet to the ocean or the lower portion of a river where its current is met and influenced by the tides.

**Seashores:** The view of a tract of land adjacent to the ocean.

**Forests:** The view of a dense growth of trees, together with other plants, covering a large area.

**Meadows And Grasslands:** The view of a tract of grass covered land.

**Swamps:** The view of a lowland region saturated with water and primarily vegetated with trees.

**Pocosins:** The view of a shallow swampy depression vegetated chiefly with shrubs.

**Marshes:** The view of a low lying wetland vegetated primarily with grasses.

**Gorges:** The view of a deep, narrow passage with precipitous rocky sides often enclosed between mountains.

**Rock Outcroppings:** The view of an expansive natural stone formation occurring either vertically or horizontally.

**Islands:** The view of a body of land surrounded on all sides by salt or fresh water.

**Caves and Cliffs:** The view of geologic formations of either a hollow beneath the earth's surface or of a vertical rock wall.

**Scenic Highways:** The view from a highway or road of visually diverse and natural or man-made phenomena.