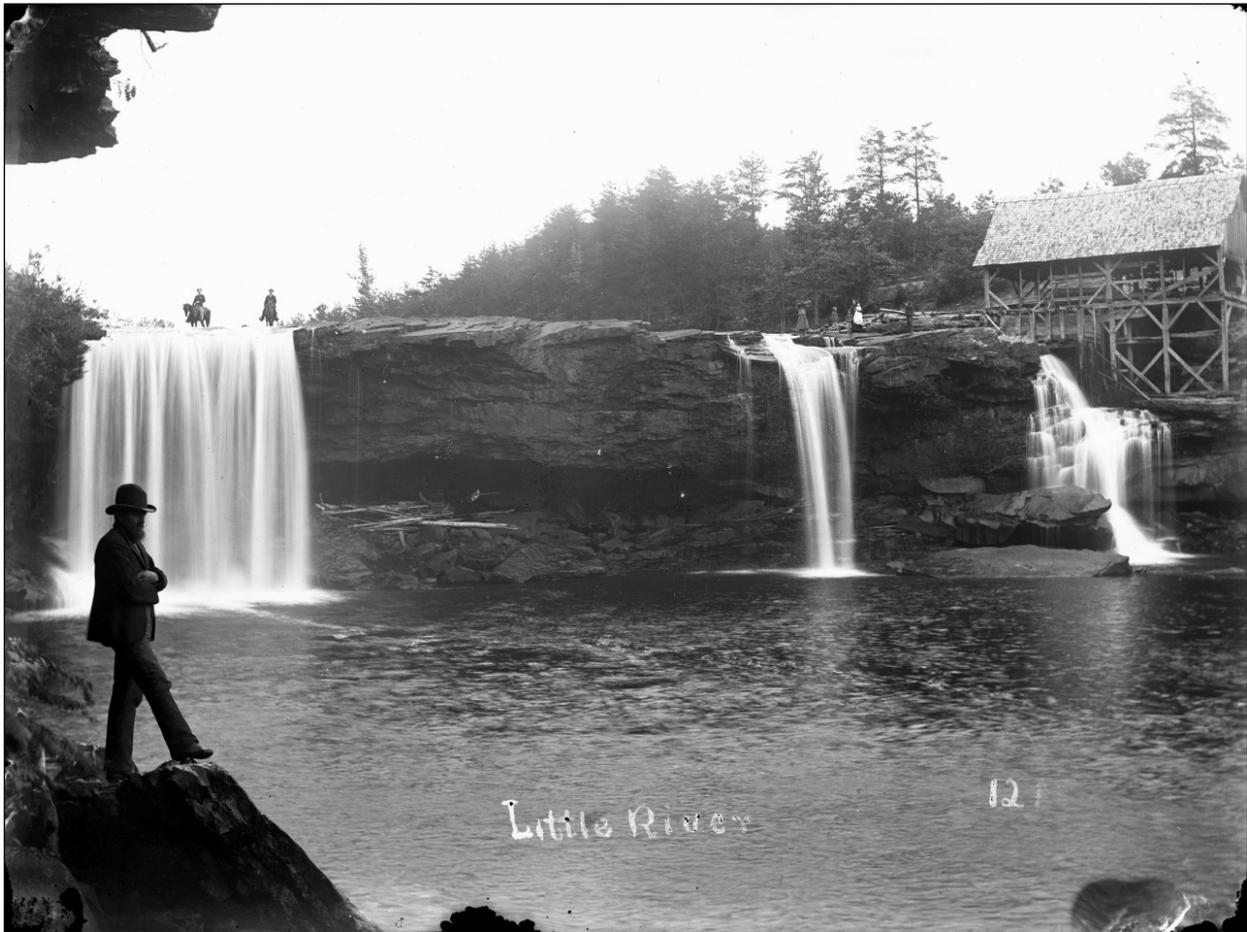




State of the Park Report

Little River Canyon National Preserve Alabama



2016

On the cover: Early 20th-century photo of Little River Falls

Disclaimer. This State of the Park report summarizes the current condition of park resources, visitor experience, and park infrastructure as assessed by a combination of available factual information and the expert opinion and professional judgment of park staff and subject matter experts. The [internet version](#) of this report provides the associated workshop summary report and additional details and sources of information about the findings summarized in the report, including references, accounts on the origin and quality of the data, and the methods and analytic approaches used in data collection and assessments of condition. This report provides evaluations of status and trends based on interpretation by NPS scientists and managers of both quantitative and non-quantitative assessments and observations. Future condition ratings may differ from findings in this report as new data and knowledge become available. The park superintendent approved the publication of this report.

Executive Summary

The mission of the National Park Service is to preserve unimpaired the natural and cultural resources and values of national parks for the enjoyment, education, and inspiration of this and future generations. [NPS Management Policies \(2006\)](#) state that “The Service will also strive to ensure that park resources and values are passed on to future generations in a condition that is as good as, or better than, the conditions that exist today.” As part of the stewardship of national parks for the American people, the NPS has begun to develop State of the Park reports to assess the overall status and trends of each park’s resources. The NPS will use this information to improve park priority setting and to synthesize and communicate complex park condition information to the public in a clear and simple way.

The purpose of this State of the Park report is to:

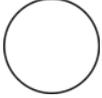
- Provide to visitors and the American public a snapshot of the status and trend in the condition of a park’s priority resources and values;
- Summarize and communicate complex scientific, scholarly, and park operations factual information and expert opinion using non-technical language and a visual format;
- Highlight park stewardship activities and accomplishments to maintain or improve the State of the Park;
- Identify key issues and challenges facing the park to help inform park management planning.

Located in the Southern Appalachian Mountains, Little River Canyon National Preserve (LIRI) is home to a unique landscape of forested uplands, waterfalls, canyon rims and bluffs, pools, boulders, and sandstone cliffs. The landscape contains diverse natural resources, provides a variety of settings for recreational activities, and has a rich cultural heritage. LIRI is located on top of Lookout Mountain near Fort Payne, Alabama and DeSoto State Park.

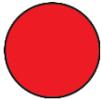
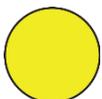
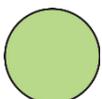
LIRI was established on October 21, 1992 to protect and preserve the significant biological diversity and habitat for unique assemblages of vegetation and wildlife, and some of the most rugged scenery in the southeast, including forested uplands, canyon rims and bluffs, pools, boulders, and sandstone cliffs. The spectacular scenic resources include Little River Falls, a 14 m (45 ft) waterfall at the beginning of the canyon. Park resources also include threatened, endangered, and rare plants and animals; historical and archeological resources; and formal designation of the river as “Outstanding National Resource Waters.” Recreational activities include hunting, hiking, overlooks, water activities, fishing, and picnicking with some of the Southeast’s most challenging whitewater and climbing areas.

The summary table, below, and the supporting information that follows, provide an overall assessment of the condition of priority resources and values at LIRI based on scientific and scholarly studies and expert opinion. The internet version of this report, available at <http://www.nps.gov/stateoftheparks/liri/>, provides additional detail and sources of information about the resources summarized in this report, including references, accounts on the origin and quality of the data, and the methods and analytical approaches used in the assessments. Reference conditions that represent “healthy” ecosystem parameters, and regulatory standards (such as those related to air or water quality) provide the rationale to describe current resource status. In coming years, rapidly evolving information regarding climate change and associated effects will inform our goals for managing park resources, and may alter how we measure the trend in condition of park resources. Thus, reference conditions, regulatory standards, and/or our judgment about resource status or trend may evolve as the rate of climate change accelerates and we respond to novel conditions. In this context, the status and trends documented here provide a useful point-in-time baseline to inform our understanding of emerging change, as well as a synthesis to share as we build broader climate change response strategies with partners.

The Status and Trend symbols used in the summary table below and throughout this report are summarized in the following key. The background color represents the current condition status, the direction of the arrow summarizes the trend in condition, and the thickness of the outside line represents the degree of confidence in the assessment. In some cases, the arrow is omitted because data are not sufficient for calculating a trend (e.g., data from a one-time inventory or insufficient sample size).

Condition Status		Trend in Condition		Confidence in Assessment	
	Warrants Significant Concern		Condition is Improving		High
	Warrants Moderate Concern		Condition is Unchanging		Medium
	Resource is in Good Condition		Condition is Deteriorating		Low

State of the Park Summary Table

Priority Resource or Value	Condition Status/Trend	Rationale
Natural Resources web ▶		
Air Quality		Scenic views are often obscured by air pollution-caused haze. Ozone sometimes reaches levels that can make breathing difficult for sensitive groups and cause injury to ozone-sensitive plants. Some vegetation communities and surface water in the preserve may be susceptible to acidification and nutrient enrichment effects of excess sulfur and nitrogen deposition. Airborne toxics, including mercury, can deposit with rain or snow and accumulate in birds, mammals, amphibians, and fish, resulting in reduced foraging efficiency, survival, and reproductive success.
Geologic Features and Processes		Little River Canyon and its tributary waterways are the primary resource at the preserve. Incised by the Little River into sandstone and limestone, the canyon is more than 600 feet deep. Little recent documentation of geologic hazards, fossils, caves, and erosive processes has been completed.
Water Quantity and Quality		Water quality of the Little River is generally good. Storm events may generate levels of sediment and pollutants that exceed state health guidelines. E.coli levels in the river show occasional exceedances of safe levels.
Plant Communities		Over 900 plant species have been documented at LIRI, with diverse communities in the varying environments. Forest monitoring by the NPS began here in 2011, and the forests are considered to be in “good” condition. Exotic and invasive species are a challenge for the Preserve, as these species outcompete and displace the native plants. LIRI is home to several rare, threatened, and endangered species. Mapping and special habitat protection for these unique species is inadequate.
Wildlife Communities		A diverse array of wildlife are present in LIRI, including black bear, spotted skunk, deer, opossum, armadillo, birds, fish, amphibians and reptiles and many more. Federally Endangered gray bats and threatened northern bats have been observed in the park.

Priority Resource or Value	Condition Status/Trend	Rationale
Dark Night Sky		Night sky quality at Little River Canyon National Preserve is moderate. Typically, the Milky Way is visible but has lost some of its detail and is not visible as a complete band. Zodiacal light (or “false dawn” which is faint glow at the horizon just before dawn or just after dusk) is rarely seen. Anthropogenic light likely dominates light from natural celestial features and shadows from distant lights may be seen.
Acoustic Environment		All sound resources, whether audible or not, are referred to as the acoustic environment of a park. The quality of the acoustic environment affects park resources including wildlife, cultural resources, the visitor experience, and landscapes. The condition of the acoustic environment is assessed by determining how much man-made noise sources contribute to the acoustic environment through the use of a national noise pollution model. This measure is referred to as the mean acoustic impact level. Impact is measured in A-weighted decibels (dBA). The mean acoustic impact level at the park is 0.5 dBA, meaning that the acoustic environment is in good condition. Overall, long-term projected increases in ground-based and aircraft traffic indicate a deteriorating trend in the quality of acoustic resources at this location.
Cultural Resources web ▶		
Archeological Resources		Archeological resources are a fundamental resource of the park with sites documented including prehistoric rock shelters to Late Paleoindian ceramics. The scope of archeological resources is not well understood because most of the park is unsurveyed. Inventory and documentation of sites at the park needs improvement, including GIS of sites, National Register documentation, and other formal record completion.
Cultural Anthropology		LIRI is missing their essential baseline NPS document, an Ethnographic Overview and Assessment. This is needed to define the scope of resources and themes in the park, including, but not limited to the heritage of the Cherokee and other American Indians; the Trail of Tears, African-Americans, and southern Appalachian families.
Cultural Landscapes		LIRI is missing their baseline NPS document, a Cultural Landscape Inventory. This document would formally define the landscape. A cultural landscape is a geographic area, including both cultural and natural resources and the wildlife or domestic animals therein, associated with a historic event, activity, or person or exhibiting other cultural or aesthetic values. This documentation is important for management consideration of things that produce landscape-scale changes, including development in scenic viewsheds and on the fringes of the park.
Historic Structures		Undocumented historic structures exist in the park. Documentation and preservation of these structures should be started.
History		A historic Resources study was completed by Jacksonville State University in 1996. This report contains some information on historic and pre-historic contexts for the park, but lacks information on historic structures. An updated and more comprehensive study is needed.

Priority Resource or Value	Condition Status/Trend	Rationale
Museum Collections		The NPS baseline documentation (Scope of Collections Report) was completed for the park in 2006. Many other baseline documents required for museum collections either have not been completed or need review and updating. Museum artifacts and documentation for LIRI are primarily housed in the Little River Canyon Center facility shared with Jackson State University.
Visitor Experience		web ▶
Number of Visitors		The total of 185,477 visitors to the park in 2013 is lower than that of 2011 (225,549) and 2012 (201,109) and also lower than the 10-year average of 204,119 visitors for 2003–2012.
Visitor Satisfaction		Based on the standard visitor satisfaction survey conducted each year, the percentage of visitors satisfied in FY 2014 was 100%
Interpretive and Education Programs – Talks, Tours, and Special Events		Park programs include on-site, ranger-led educational programs, and Junior Ranger activities. Special events held annually highlight cultural resources in the park. Little River offers a wide range of recreational opportunities on the river and bluffs, including world class kayaking, rock climbing, hiking, bird watching, and animal observation. 10,200 acres are available for hunting.
Interpretive Media – Brochures, Exhibits, Signs, and Website		Interpretive media includes roadside signs, the park map, and the park website. Wayside signs and overlook signs are in good condition. The park map is scheduled for updating in 2016. The park’s website is basic and could be enriched with additional material. LIRI does not have a park film, although Jacksonville State University produced a film that is shown at the Visitor Center.
Accessibility		Physical accessibility to the park’s visitor center and the Little River Falls boardwalk is good. Audio accommodations and braille materials do not exist.
Safety		The safety of visitors is a park priority. The park works to quickly identify and mitigate potential hazards, and the number of accidents is very low. Nevertheless, LIRI averages two fatalities annually, with zero in FY14, and one in FY15 out of over 200,000 visitors. Safety of park visitors is a paramount concern and an increasing challenge as visitation grows.
Recreational Use		LIRI sees heavy recreational use, with full parking lots on summer weekends. Resource impacts from trail erosion and litter continue to be a challenge for the park.
Partnerships		Volunteers do almost all the station and roving interpretation in the park. DeSoto State Park is located within LIRI legislative boundaries. Programs are presented in conjunction with this park and its staff. Jacksonville State University hosts the Canyon Center Facility where Park Headquarters is located.
Scenic Resources		Scenic views are included in the park’s enabling legislation, and many visitors come specifically to view the landscape and falls along the river. LIRI is actively engaged in management of viewsheds with national partners (Nature Conservancy, Conservation Fund). Development along the park boundaries is ongoing and mostly residential.

Priority Resource or Value	Condition Status/Trend	Rationale
Park Infrastructure web ▶		
Overall Facility Condition Index		Infrastructure at LIRI is generally in good condition.

Summary of Stewardship Activities and Key Accomplishments to Maintain or Improve Priority Resource Condition

The list below provides examples of stewardship activities and accomplishments by park staff and partners to maintain or improve the condition of priority park resources and values for this and future generations:

Natural Resources

- The park initiated a black bear research project in 2014 to determine the current status of bears using the park.
- LIRI recently received a grant to support bat house building workshops where visitors can “make-and-take” a bat house.
- A citizen science project for bat acoustics is in the planning stages, to be implemented in FY 2016.

Cultural Resources

- Curatorial storage for LIRI and Russel Cave National Monument was established in a new partner facility.
- The park identified part of the Trail of Tears near park headquarters.
- The park conducted two History Day events during which local people permit the park to copy personal, historic photos, documents, and ephemera for the park archives, and to document the history of the park and adjacent settlements.

Visitor Experience

- New bilingual park waysides were installed, giving clearer direction.
- Kayaking programs have been initiated, providing a unique visitor experience, connecting with nature, experiencing the river from beyond the waysides.
- The Ticket to Ride (2 years) program assists with bringing local students into the park for learning activities.
- The Knap-In Event is held (annually), providing instruction and demonstration of creation of stone tools by prehistoric processes.

Park Infrastructure

- Removed the primitive restrooms and campgrounds for the health and safety of visitors.
- Provide improvement to main visitor facilities throughout the park by reroofing, painting, and other repairs.
- Provided upgrades such as new handrails, paving, and signs to popular overlooks.
- Purchased and installed new directional road signs.
- Constructed a new Backcountry trail in 2013 (DeSoto BC Trail).

Key Issues and Challenges for Consideration in Management Planning

The preserve, like all other units of the National Park Service, faces many challenges. Shortage of staff is a major concern. The number full time permanent staff of Little River has dropped since the last budget increase the preserve received due to increased personnel cost. Archeological sites are known to have been disturbed due to a smaller law enforcement presence. Similarly, problems with litter, graffiti, and vandalism persist in the canyon without a law enforcement presence.

Increased visitation (200,000+ annually) is causing resource damage. Litter removal is an ongoing challenge for the park. Litter impacts both water quality and visitor safety. Steep trails providing access to the river are being eroded from heavy use.

Little River Canyon is steep and beautiful. The canyon walls and river often become a safety hazard, with LIRI averaging several drownings and 15+ canyon rescues annually. The numbers of incidents has been decreased recently with an increased law enforcement presence and safety signage, but there is room for improvement.

Chapter 1. Introduction

The purpose of this State of the Park report for Little River Canyon National Preserve (LIRI) is to assess the overall condition of the park's priority resources and values, to communicate complex park condition information to visitors and the American public in a clear and simple way, and to inform visitors and other stakeholders about stewardship actions being taken by park staff to maintain or improve the condition of priority park resources for future generations. The State of the Park report uses a standardized approach to focus attention on the priority resources and values of the park based on the park's purpose and significance, as described in the park's Foundation Document or General Management Plan. The report:

- Provides to visitors and the American public a snapshot of the status and trend in the condition of a park's priority resources and values.
- Summarizes and communicates complex scientific, scholarly, and park operations factual information and expert opinion using non-technical language and a visual format.
- Highlights park stewardship activities and accomplishments to maintain or improve the state of the park.
- Identifies key issues and challenges facing the park to inform park management planning.

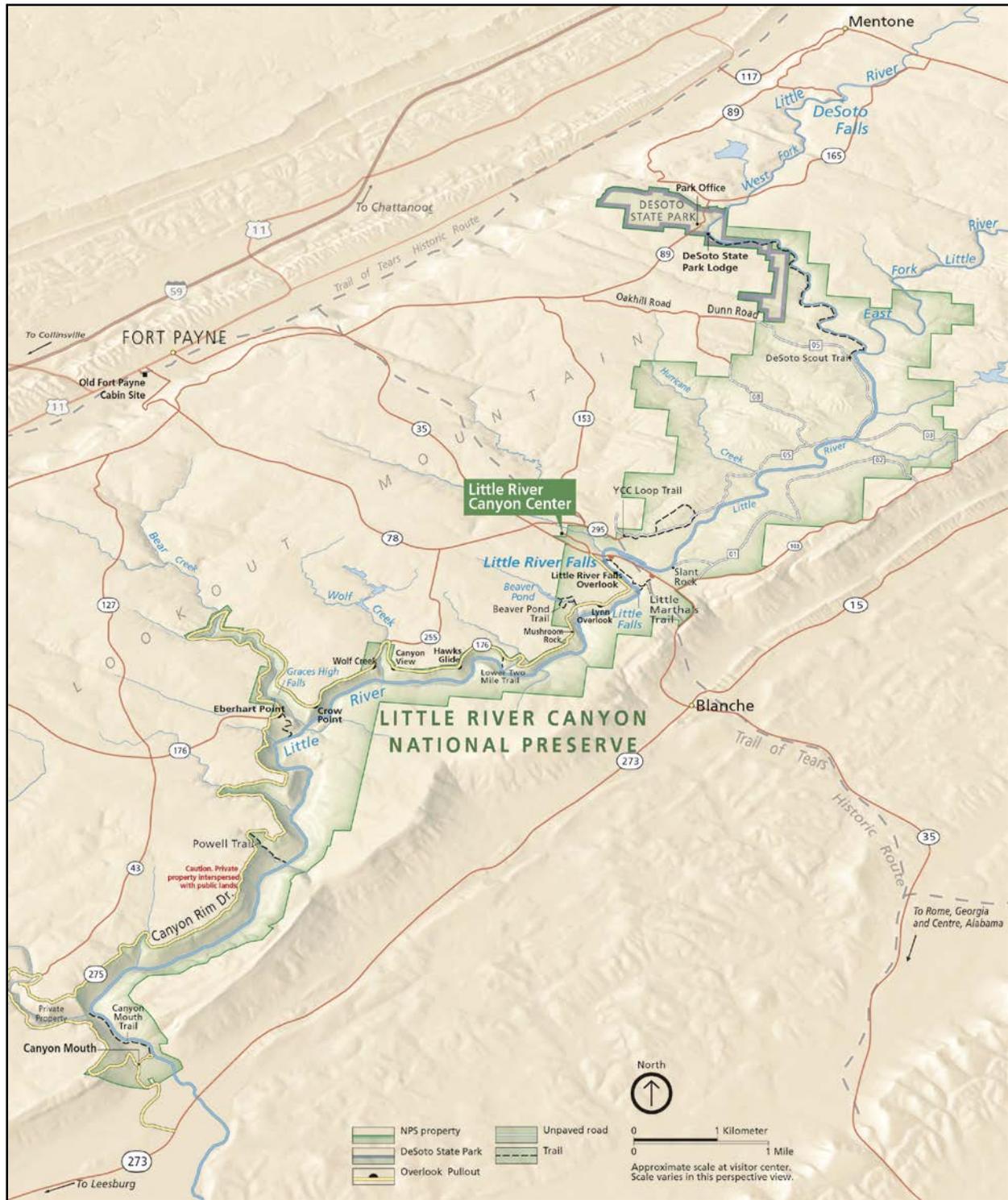
The process of identifying priority park resources by park staff and partners, tracking their condition, organizing and synthesizing data and information, and communicating the results will be closely coordinated with the park planning process, including natural and cultural resource condition assessments and Resource Stewardship Strategy development. The term "priority resources" is used to identify the fundamental and other important resources and values for the park, based on a park's purpose and significance within the National Park System, as documented in the park's foundation document and other planning documents. This report summarizes and communicates the overall condition of priority park resources and values based on the available scientific and scholarly information and expert opinion, irrespective of the ability of the park superintendent or the National Park Service to influence it.

Located in the Southern Appalachian Mountains, Little River Canyon National Preserve (LIRI) is home to a unique landscape of forested uplands, waterfalls, canyon rims and bluffs, pools, boulders, and sandstone cliffs. The landscape contains diverse natural resources, provides a variety of settings for recreational activities, and has a rich cultural heritage. LIRI is located on top of Lookout Mountain near Fort Payne, Alabama and DeSoto State Park.

LIRI was established on October 21, 1992 to protect and preserve the significant biological diversity and habitat for unique assemblages of vegetation and wildlife, and some of the most rugged scenery in the southeast, including forested uplands, canyon rims and bluffs, pools, boulders, and sandstone cliffs. The spectacular scenic resources include Little River Falls, a 14 m (45 ft) waterfall at the beginning of the canyon. Park resources also include threatened, endangered and rare plants and animals; historical and archeological resources; and formal designation of the river as "Outstanding National Resource Waters." Recreational activities include hunting, hiking, overlooks, water activities, fishing, and picnicking with some of the Southeast's most challenging whitewater and climbing areas.

Significance statements express why the park unit's resources and values are important enough to warrant national park unit designation. LIRI is significant because:

- Little River Canyon is the deepest canyon in Alabama, and it is one of the deepest in the southeast United States. It contains the highest waterfall in the state, and is resplendent with sheer rock walls, cascading waters, and ever-changing seasonal views.
- With exceptional recreational opportunities, Little River Canyon provides world-class whitewater paddling, internationally renowned climbing, and more than 10,000 acres of public lands open to hunting, fishing, and trapping.
- The Little River is the only river in the United States that forms on—and flows almost its entire length along—a mountain top. Little River's high water quality supports biological diversity, exceptional aquatic riparian communities, and rare and endemic species. This mountain-top river is designated as an Alabama Outstanding National Resource Water.
- The location of the preserve along the southern limits of the Cumberland Plateau contributes to a rare assemblage of plants and animals, including the endangered green pitcher plant.



Map of the Park



Location of the Park in Alabama

Chapter 2. State of the Park

The State of the Park is summarized below for four categories—Natural Resources, Cultural Resources, Visitor Experience, and Park Infrastructure—based on a synthesis of the park’s monitoring, evaluation, management, and information programs, and expert opinion. Brief resource summaries are provided below for a selection of the priority resources and values of the park. Clicking on the [web ▶](#) symbol found in the tables and resource briefs below will take you to the internet site that contains content associated with specific topics in the report.

The scientific and scholarly reports, publications, datasets, methodologies, and other information that were used as the basis for the assessments of resource condition are referenced and linked throughout the report and through the [internet version of this report](#) that is linked to the NPS [IRMA data system](#) (Integrated Resource Management Applications). The internet version of each report, and the associated workshop summary report available from the internet site, provide additional detail and sources of information about the findings summarized in the report, including references, accounts on the origin and quality of the data, and the methods and analytical approaches used in data collection and the assessments of condition. Resource condition assessments reported in this State of the Park report involve expert opinion and the professional judgment of park staff and subject matter experts involved in developing the report. This expert opinion and professional judgment derive from the in-depth knowledge and expertise of park and regional staff gained from their being involved in the day-to-day practice of all aspects of park stewardship and from the professional experience of the participating subject matter experts. This expert opinion and professional judgment utilized available factual information for the analyses and conclusions presented in this report. This State of the Park report was developed in a park-convened workshop.

The status and trends documented in Chapter 2 provide a useful point-in-time baseline measured against reference conditions that represent “healthy” ecosystem parameters, or regulatory standards (such as those related to air or water quality). We also note that climate change adaptation requires us to continue to learn from the past, but attempting to manage for conditions based on our understanding of the historical “natural” range of variation will be increasingly futile in many locations. Thus, these reference conditions, and/or our judgment about resource condition or trend may evolve as the rate of climate change accelerates and we respond to novel conditions. Our management must be even more “forward looking,” to anticipate plausible but unprecedented conditions, also recognizing there will be surprises. In this context, we will incorporate climate considerations in our decision processes and management planning as we consider adaptation options that may deviate from traditional practices.

2.1. Natural Resources

Air Quality  web ▶			
Indicators of Condition	Specific Measures	Condition Status/Trend	Rationale
Visibility	Haze Index		Visibility warrants significant concern. This status is based on NPS Air Resource Division benchmarks and the 2009–2013 estimated visibility on mid-range days of 10.3 deciviews (dv) above estimated natural conditions of 7.5 dv. The degree of confidence is medium because estimates are based on interpolated data from more distant visibility monitors (NPS-ARD 2015).

Air Quality (continued)

[web](#) ▶

Indicators of Condition	Specific Measures	Condition Status/Trend	Rationale
Ozone	Human Health: Annual 4th-highest 8-hour concentration		<p>Human health risk from ground-level ozone warrants moderate concern. This status is based on NPS Air Resource Division benchmarks and the 2009–2013 estimated ozone concentration (4th highest 8-hour average) of 67.1 parts per billion (ppb). Ozone is a respiratory irritant, causing coughing, sinus inflammation, chest pains, scratchy throat, lung damage, and reduced immune system functions.</p> <p>Children, the elderly, people with existing health problems, and active adults are most vulnerable. The degree of confidence in the status of human health risk from ground-level ozone is medium because estimates are based on interpolated data from more distant ozone monitors (NPS-ARD 2015).</p>
	Vegetation Health: 3-month maximum 12-hour W126 (<i>The W126 metric relates plant response to ozone exposure during daylight hours over the growing season.</i>)		<p>Vegetation health risk from ground-level ozone warrants moderate concern. This status is based on NPS Air Resource Division benchmarks and the 2009–2013 estimated W126 metric of 7.3 parts per million-hours (ppm-hrs). A risk assessment concluded that plants in LIRI are at high risk for ozone damage (Kohut 2004, Kohut 2007). There are many ozone-sensitive plants in the preserve including: green ash (<i>Fraxinus pennsylvanica</i>), sweet gum (<i>Liquidambar styraciflua</i>), tulip poplar (<i>Liriodendron tulipifera</i>), American sycamore (<i>Platanus occidentalis</i>), Virginia pine (<i>Pinus virginiana</i>) and cutleaf coneflower (<i>Rudbeckia laciniata</i>) (NPSpecies 2015). Foliar injury to blackberry (<i>Rubus</i> spp.), and winged sumac (<i>Rhus copallinum</i>) has been documented in the preserve (Jernigan et al. 2013). The degree of confidence in the status of vegetation health risk from ground-level ozone is medium because estimates are based on interpolated data from more distant ozone monitors (NPS-ARD 2015).</p>

Air Quality (continued)

[web](#) ▶

Indicators of Condition	Specific Measures	Condition Status/Trend	Rationale
<p>Deposition</p>	<p>Sulfur Wet Deposition</p>		<p>Wet sulfur deposition warrants significant concern. This status is based on NPS Air Resources Division benchmarks and the 2009–2013 estimated 3.1 to 3.3 kilograms per hectare per year (kg/ha/yr) range of wet sulfur deposition. To maintain the highest level of protection in the preserve, the maximum of this range (3.3 kg/ha/yr) is used to determine the significant concern (NPS-ARD 2015). The degree of confidence in the wet sulfur deposition status is medium because estimates are based on interpolated data from more distant deposition monitors (NPS-ARD 2015).</p> <p>Ecosystems at LIRI were rated as having very high sensitivity to acidification effects relative to all Inventory & Monitoring parks. Acidification effects can include changes in water and soil chemistry that impact ecosystem health. Some lichens are especially sensitive to acidification effects, with documented effects occurring in the deposition range of only a few kilograms of sulfur per hectare per year. Among the vascular plants, sugar maple trees (<i>Acer saccharum</i>) are known to be particularly sensitive, and are found in the preserve. Acidification can also affect the reproduction and survival of fish, invertebrates, and phytoplankton (Sullivan et al. 2011a, Sullivan et al. 2011b).</p>

Air Quality (continued)

[web](#) ▶

Indicators of Condition	Specific Measures	Condition Status/Trend	Rationale
<p>Deposition (continued)</p>	<p>Nitrogen Wet Deposition</p>		<p>Wet nitrogen deposition warrants significant concern. This status is based on NPS Air Resources Division benchmarks and the 2009–2013 estimated 4.4 to 4.6 kilograms per hectare per year (kg/ha/yr) range of wet nitrogen deposition. To maintain the highest level of protection in the preserve, the maximum of this range (4.6 kg/ha/yr) is used to determine the significant concern. The degree of confidence in the wet nitrogen deposition status is medium because estimates are based on interpolated data from more distant deposition monitors (NPS-ARD 2015). <u>While agricultural run-off contributes substantial amounts of nitrogen to waterways in the preserve, atmospheric nitrogen deposition from nearby power plants and vehicle exhaust can also contribute to nitrogen deposition.</u></p> <p>Although LIRI receives high levels of nitrogen deposition, ecosystems in the park are not typical of nitrogen-sensitive systems and were rated as having low sensitivity to nutrient-enrichment effects relative to all Inventory & Monitoring parks. However, the park’s wetland communities may be vulnerable to excess nitrogen deposition, which can alter plant communities and reduce biodiversity (Sullivan et al. 2011c, Sullivan et al. 2011d). Excess nitrogen can also cause invasive exotic plant species to grow faster and out-compete native vegetation adapted to low nitrogen levels (Blett & Eckert 2013, Bobbink et al. 2010). Furthermore, the estimated total nitrogen deposition (wet plus dry) is above the minimum ecosystem critical loads for lichen and forest vegetation, suggesting these resources are at risk for harmful effects (NADP-TDEP 2014, Pardo et al. 2011).</p>

Air Quality (continued)

[web](#) ▶

Indicators of Condition	Specific Measures	Condition Status/Trend	Rationale
<p>Deposition (continued)</p>	<p>Mercury/Toxics Deposition</p>		<p>Mercury/toxics deposition warrants significant concern. Given landscape factors influence the uptake of mercury in the ecosystem, the status is based on estimated wet mercury deposition and predicted levels of methylmercury in surface waters. The 2011–2013 estimated wet mercury deposition is very high at the park, ranging from 14.6 to 15.0 micrograms per square meter (NPS-ARD 2015) and predicted methylmercury concentrations in surface waters is moderate, estimated to be 0.066 nanogram per liter (USGS 2015). To maintain the greatest level of protection, the highest values for both factors were compared to NPS Air Resource Division benchmarks to determine the significant concern status. The degree of confidence in the mercury/toxics deposition status is low because there are no park-specific studies examining contaminant levels in taxa from park ecosystems.</p> <p>A study of mercury bioaccumulation in Southern Appalachian birds found that mercury concentrations in feathers were highest at lower elevation sites near water (Keller et al. 2014). While no birds were sampled directly from LIRI, the habitat is comparable. Elevated levels of mercury in biota, including insects and song birds, have been detected at the nearby Great Smoky Mountains NP (Simons and Keller 2009, Buchwalter et al. 2009, Keller et al. 2014, Nelson and Flanagan Pritz 2014). High mercury concentrations in birds, mammals, amphibians, and fish can result in reduced foraging efficiency, survival, and reproductive success. Elevated levels of mercury in humans can affect the brain, kidneys, and reproductive function. Wet and dry deposition can lead to mercury loadings in water bodies, where mercury may be converted to a bioavailable toxic form of mercury, methylmercury, and bioaccumulate through the food chain. Wetlands, especially those rich in organic matter, are important sites for methylmercury production.</p>

Resource Brief: Ozone and Foliar Injury Monitoring



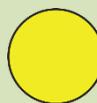
Ozone Injury on Tulip Poplar

Exposure to ozone above the National Ambient Air Quality Standard may affect human health, causing acute respiratory problems, aggravation of asthma, temporary decreases in lung capacity in some adults, inflammation of lung tissue, and impairment of the body's immune system.

Ozone also affects vegetation in national parks. Research shows that some plants are more sensitive to ozone than humans, and effects to plants occur well below the National Ambient Air Quality Standard. Ozone causes considerable damage to vegetation throughout the world, including agricultural crops and native plants in natural ecosystems.

The Cumberland Piedmont Network monitors ozone and conducts foliar injury surveys on a rotating schedule throughout 14 park units. In 2011, ozone injury was confirmed at Little River Canyon on 1 blackberry plant and 2 winged sumacs, all from the same site. Ozone concentrations at LIRI were moderate and only limited injury was observed. Given that LIRI was under no drought at the time of the survey, this limited injury is expected.

Geologic Features and Processes



[web](#) ▶

Indicators of Condition	Specific Measures	Condition Status/Trend	Rationale
Little River Canyon	Canyon Stability		Little River Canyon and its tributary waterways are the primary resource at the preserve. The canyon is more than 183 m (600 ft) deep and approximately 19 km (12 mi) long. At the top of Lookout Mountain, Little River begins at 580 m (1,900 ft) above sea level and plunges along its course to 198 m (650 ft) above sea level at Weiss Lake. Resistant layers of sandstone form ledges that create waterfalls such as Little River Falls, which is 14 m (45 ft) high. The discharge in Little River and its tributaries can range from nearly dry to a raging torrent after rainfall events.
Geologic Inventory	Mapping and Inventory		Before the condition of geologic resources in the park can be assessed, comprehensive knowledge of what geologic features are present is required. While general geologic maps exist for the surrounding vicinity, a detailed geologic park map and report has not been completed. Funding for this process was included as part of the Geologic Resources Inventory Project in 2009 , NPS backlog has held up progress on this effort. Work is underway, but completion date goal has not been defined.

Geologic Features and Processes (continued)

[web](#) ▶

Indicators of Condition	Specific Measures	Condition Status/Trend	Rationale
Geologic Hazards	Rock falls		<p>Rock fall is a natural process contributing to the formation of Little River Canyon. Zones of weakness in the rock allow failures to occur and rock to break off in a large column.</p> <p>Rock falls pose a safety hazard to visitors within the canyon. Stability of canyon rim roadways and overlook areas may also be at risk for failure due to rock fall. Even where visitors are absent, debris falling into the canyon causes damage to park resources.</p>
	Flooding Hazards		<p>Flooding hazards exist along Little River and its tributaries including Bear Creek, Wolf Creek, Johnnies Creek, Straight Creek, Hurricane Creek, and Yellow Creek. These streams are slowly cutting down into the resistant sandstones of the Lookout Mountain. Structures have been constructed to stabilize the stream banks. Gabions have been installed in backwater areas to absorb energy from seasonal floods such as at the picnic area at Canyon Mouth. Unfortunately, artificial stabilization in one area tends to increase erosion in adjacent areas. Large-scale stabilization solutions have not been considered.</p>
Fossils and Paleontology	Percentage of areas with known fossil bearing units that have been surveyed/explored		<p>According to the NPS Paleontological Inventory for Little River Canyon National Preserve (Hunt-Foster et al. 2009), the Pottsville Formation contains fossil resources within the park boundaries (in the canyon walls), presenting opportunities for resource management including field surveys, inventory, and monitoring, education, and interpretation. Exposure and visibility of fossils present concerns of theft or vandalism.</p>
Fort Payne Chert	Mapping of Fort Payne Chert Natural Occurrence		<p>Rock shelters and archeological material have been documented within prominent sandstone ledges and along Little River Canyon. Fort Payne chert is naturally occurring in the area and was used for making stone implements and arrowheads.</p>
Caves and Karst	Existence of Caves in Limestone		<p>USGS National Karst Map indicates that 0.73% of LIRI is considered or has the potential to be karst. Detailed mapping of these features has not been completed</p>
Erosion	Sediment Transfer to Streams during Erosion		<p>Most of the canyon streams exist on a scoured bedrock channel, and this resistant rock produces relatively little fine-grained sediment. Sediment flushing into streams during high flows can be detrimental to aquatic life. Impacts of sediment transport into local water during flood events have not been assessed.</p>

Water Quantity and Quality



[web](#) ▶

Indicators of Condition	Specific Measures	Condition Status/Trend	Rationale
Water Quality	Temperature		<p>Temperature is an important factor for water quality because it interacts with other parameters. As temperature increases, breakdown of organic material generally accelerates, which can lead to elevated oxygen demand through microbial activity. This, combined with lower solubility of oxygen at warmer temperatures, can quickly lead to oxygen depleted water and reduced survival of sensitive organisms. Higher temperatures also correspond to greater toxicity rates of certain substances (EPA 1986).</p> <p>No temperature measurements during recent monitoring (Meiman 2014) were above the AL standard (ADEM Admin Code 335-6-10-.09) for Outstanding Resource Waters (32.2 °C).</p>
	Specific Conductance		<p>Specific conductance (SpC) gives an estimate of the amount of dissolved inorganic solids that conduct electricity in water. Parent material is one of the main influences on conductance, and LIRI waters reflect the geology of individual watersheds.</p> <p>Anthropogenic factors such as sewage discharge can also affect conductivity, which may raise or lower conductance from natural levels. Data for LIRI waters during storm events has not been collected.</p>
	pH		<p>Measurement of pH is an important water quality attribute, because it affects almost all biological processes within aquatic systems. Low levels of pH (acidic) can increase the mobility of toxic elements and in turn, their uptake by aquatic plants and animals (EPA 2011).</p> <p>28% of pH measurements during recent monitoring fell below the water quality standard (ADEM Admin Code 335-6-10-.09) for Alabama; however low pH is a natural condition at LIRI due to natural chemical reactions with rock.</p>
	Dissolved Oxygen		<p>5% of measurements for dissolved oxygen during recent monitoring (Meiman 2014) fell below the Alabama standard (ADEM Admin Code 335-6-10-.09) of 5.5 mg/l. Dissolved oxygen can naturally drop below state standards during the warm summer months. It is likely that these low values are within the streams natural range. The warmer the water the less oxygen that can be dissolved is compounded by slow moving streams.</p>
	Acid Neutralizing Capacity		<p>Acid-neutralizing capacity (ANC) is measured to assess the relative ability of the water to buffer acidic loading resulting from precipitation or other sources. LIRI waters naturally have very low ANC and thus are susceptible to acidification from air pollution.</p>

Water Quantity and Quality (continued)

[web](#) ▶

Indicators of Condition	Specific Measures	Condition Status/Trend	Rationale
Water Quality (continued)	Bacterial Contamination		<i>Escherichia coli</i> is used as an indicator of bacterial contamination. 6% of measurements during recent monitoring (Meiman 2014) exceeded the Alabama standard (ADEM Admin Code 335-6-10-.09). Heavy recreational use of the river may affect this.
	Nitrate as NO ₃		Nitrate, although essential to aquatic life, at high levels can cause algal blooms reducing oxygen for aquatic life. Nitrates are used as screening criteria for nutrient levels. 0% of measurements during recent monitoring (Meiman 2014) exceeded the USEPA recommendation for freshwater life (90 mg/l) or the USEPA drinking water standard of (45 mg/l).
	Turbidity		Turbidity is a measurement of water clarity. With the exception of high flows following rainfall events, waters in LIRI fall within state water quality standards. This measure has medium confidence due to the ambiguity of state standards.

Resource Brief: *E. Coli*

Escherichia coli (*E. coli*) is a naturally-occurring bacteria found in intestines and feces of warm-blooded animals. While not generally a human pathogen (a substance that causes harm to people), some strains of *E. coli*, have been linked to illness in contaminated foods. As *E. coli* are associated with pathogens, they are considered an indicator species, and thus used for a measure of water quality.

A watershed is a portion of land that drains to a common point. The watershed of Little River Canyon National Preserve is all land that contributes water to the most downstream point of the preserve, Canyon Mouth Park. This 127,160 acre watershed contains various land uses that may contribute to the overall bacterial load. These uses include wastewater from a population (U.S. Census 2000) of 7,571 individuals (both rural and small towns alike) and one wastewater treatment facility (Desoto State Park). Additional contributions to the total bacterial load come from 21,000 acres of livestock pasture and hay land, and the wildlife that are found throughout the watershed, including the 13,798 acres of state and federal park lands.

E. coli and turbidity at Canyon Mouth Park spike during high flow conditions. These high flow conditions are caused by rainfall events. These rainfall events produce surface run-off. Run-off entrains various contaminants, including *E. coli* and soil particles. The pattern we see is indicative of non-point sources. At times of high flow (storm events) the USEPA recommended *E. coli* maximum threshold for full body contact is regularly exceeded.

It is the intention of this National Park Service water quality monitoring program to construct a database over the next decades in which long-term trends can be detected. Our understanding of this issue is better than it was ten years ago, and it will be far better ten years from now.

For more information regarding natural resources monitoring, please visit the [Cumberland Piedmont Network \(CUPN\) website](#).

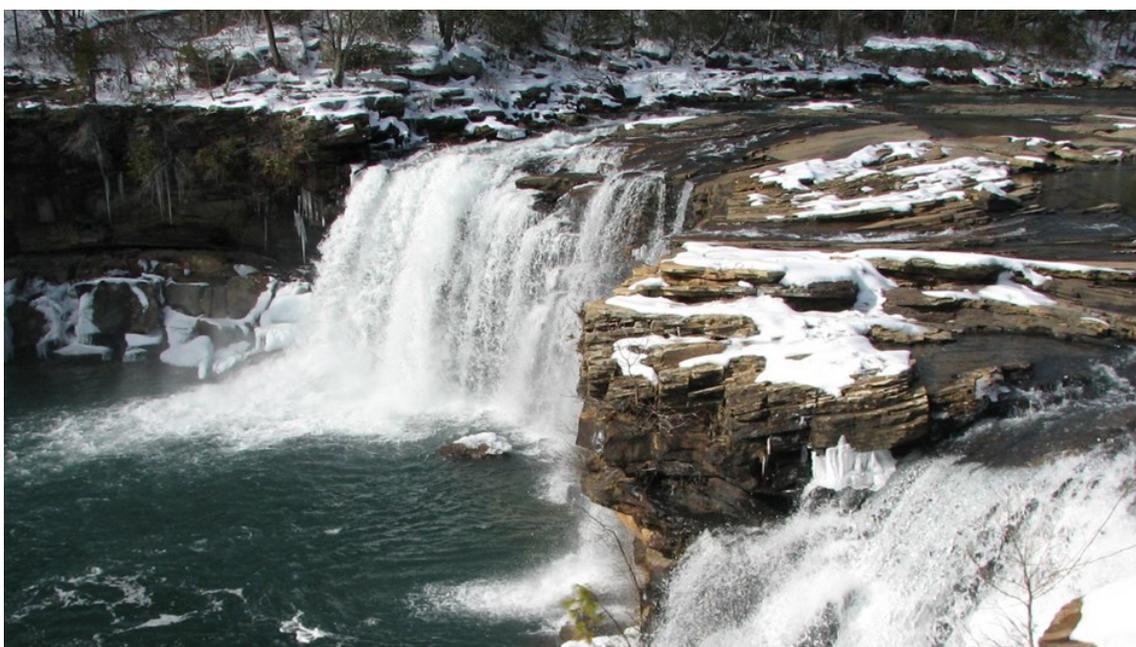


Visitors enjoying a summer day at Canyon Mouth Park, Little River Canyon National Preserve.

Resource Brief: Water Quality

At the very core of this park, is the Little River. It is the driving force that has shaped the landscape and created the canyon. The watershed through which it flows is 200 square miles of mostly upland plateau until it spills out of Lookout Mountain at the Canyon Mouth Picnic Area in the Shinbone Valley. With respect to water resources, the park is considered by our Cumberland-Piedmont Network as a “tier one” park. This is due to water resources being a key element in the enabling legislation, contains federal and state listed species, and is relied upon heavily for recreation.

The area within the watershed is mostly rural and agricultural. However, residential development is growing within the watershed. Park staff monitors eleven sites throughout the watershed to gage changes in the quality of the river. Six of those sites are within the boundaries of the preserve while the others are located further upstream, even into Georgia. However, events of high turbidity and microbes seem to correlate with high flow events due to heavy rains. This can vary based on rainfall duration and intensity. Temperature, pH, dissolved oxygen, and dissolved solids are tested and sites fall within range to support aquatic life in this naturally acidic watershed. Testing of nitrates, phosphate and sulfates show that there appears to be no consistent problem with nutrient inputs. Overall, quality is good throughout the system. Park staff will continue to monitor the river, with the NPS Science Network’s assistance, in order to build and maintain this long-term database for water quality history.



Plant Communities



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Indicators of Condition	Specific Measures	Condition Status/Trend	Rationale
Forest Communities	Diversity and Structure		<p>Schotz et al. (2008) were able to document over 900 species within LIRI and described the park as containing a “striking diversity of vegetation assemblages, ranging from sandstone glades and dry pine hardwood forests in the uplands to floodplain forests and rocky shoals in the bottomlands.”</p> <p>Forest monitoring was initiated by NPS in 2011. While baseline data indicate some potential concerns related to oak regeneration and limited number of snags (which are important for many wildlife species), the forests are diverse and can generally be considered in good condition.</p> <p>More than 80% of plots (27 of 32) were classified as natural community types as opposed to disturbed or successional/human modified, meaning signs of past heavy human use or modification are diminishing. As plots are re-sampled (beginning in 2016) additional data will be available and general trends can begin to be assigned.</p>
Wetland Communities	Presence		<p>Morgan et al. (2009) identified 127 wetlands comprising an estimated 71.1 acres on LIRI. The majority (113) were forested wetlands dominated by deciduous trees. Though vegetation had likely been altered in most, the wetlands were generally in good hydrologic condition. Several of the wetlands were of high quality, and could potentially serve as reference sites for scientific studies.</p>
Exotic and Invasive Plants	Presence and prevalence of invasive exotic plants		<p>Species that have been introduced or moved by human activities to a location where they do not naturally occur are termed exotic. A subset of these is considered invasive because they have the ability to outcompete and replace native species. Schotz et al. (2008) noted Chinese privet (<i>Ligustrum sinense</i>), Japanese honeysuckle (<i>Lonicera japonica</i>), mimosa (<i>Albizia julibrissin</i>), and Japanese stiltgrass (<i>Microstegium vimineum</i>) have become well established in several locations in LIRI. This is borne out in recent monitoring by CUPN where each of these species has been detected on forest monitoring plots. While the overall incidence of these (and other) exotic species is relatively low when compared to other parks within the Cumberland Piedmont Network, each of the above mentioned species have received the highest (i.e., worst) rating by the Alabama Invasive Plant Council (2012).</p>

Plant Communities (continued)

[web](#) ▶

Indicators of Condition	Specific Measures	Condition Status/Trend	Rationale
<p>Threatened and Endangered Plants</p>	<p>Presence of T&E Plants in the Park</p>		<p>Mapping of plant locations in the park is inadequate. Measures to protect sensitive plant habitats should be considered. In recent years, Rangers report that some T&E species have been harder to find, or are missing from locations where they were known to occur.</p> <p>Endangered plants (federally protected by the Endangered Species Act of 1973 [(ESA: 16 U.S.C. § 1531 et seq.)] present in LIRI include (but is not limited to): green pitcherplant (<i>Sarracenia oreophila</i>), piedmont mock bishopweed/harperella (<i>Ptilimnium nodosum</i>), and smooth purple coneflower (<i>Echinacea laevigata</i>). Threatened plants (federally listed by the Endangered Species Act) present in LIRI include, but is not limited to: Kral's water plantain (<i>Sagittaria secundifolia</i>) and Mohr's Barbara's buttons (<i>Echinacea laevigata</i>).</p>
<p>Unique Plants</p>	<p>Presence of Green pitcher-plant (<i>Sarracenia oreophila</i>)</p>		<p>The green pitcher plant is a rare, carnivorous plant species. LIRI has half the known green pitcher-plant patches in the world. See Resource Brief below.</p>

Plant Communities (continued)

[web](#) ▶

Indicators of Condition	Specific Measures	Condition Status/Trend	Rationale
<p>Fire Management</p>	<p>Use of Prescribed Fire</p>		<p>The park has an active fire program and tries to burn a portion of the park every year before greenup. The park relies on the Natchez Trace Parkway Fire Program for management of our prescribed fire program. The park burns on average 600 acres each spring for natural resource benefits. These fires remove unwanted plant species, open the understory for new growth, clear out bogs for the green pitcher plant, and provide nutrients for the soil.</p> <p>LIRI has an active prescribed fire program and burns an average of approximately 600 acres each year. Prescribed fire is used to reduce hazardous fuel loading, provide defensible space around park structures and improvements, restore and maintain wildlife habitat including T&E species, and combat exotic vegetation. Prescribed fires are typically implemented in the late winter and early spring, with the goal of shifting toward growing season burning in the late summer and early fall for units that have received several treatments and are nearing the maintenance phase. LIRI relies on fire management staff from various NPS units and other agencies in the Southeast Region to help implement prescribed fires. With the shift to Fire Management Zones in 2015, management and coordination of the LIRI prescribed fire program transferred to the MS River Fire Management Zone.</p> <p>LIRI works in cooperation with local volunteer and municipal fire departments to suppress any wildfires that occur on park lands. In addition to utilizing direct suppression tactics such as constructing fire line, wildfire suppression at LIRI also includes the option of using natural barriers and existing roads to aid in suppression efforts. LIRI has several red-carded park staff and maintains a fire cache and one Type 6 Wildland Fire Engine. The MS River Fire Management Zone staff provides assistance to LIRI with wildfire documentation, fire training and qualifications, and equipment management.</p>



Resource Brief: Green Pitcher Plant

The green pitcher plant (*Sarracenia oreophila*) is a rare carnivorous perennial herb with yellowish-green, hollow, pitcher-shaped leaves. Carnivorous plants are plants that get some or most of their nutrients from trapping and digesting insects. The pitchers contain liquid and enzymes that help the plant digest insects that climb or fall into the plant. Short, stiff hairs inside the pitcher pointing downwards allow insects into the plant but prevent them from crawling out.

Placed on the endangered species list on September 21, 1979, suitable habitat includes hardwood or pine flatwoods, seepage bogs, and stream banks. The plants reproduce two ways (seeds & cloning). Insects pollinate the flower of the plant and if conditions are right, the seed produces a new Green Pitcher plant. However, the most common way the plant reproduces is by cloning (the process of producing a genetically identical copy). The roots of the plant are close to ground surface, so it simply generates another plant from the roots.

The lid or hood at the top of the plant prevents too much rainwater from diluting the enzymes in the pitcher. The main body is the pitcher shaped tube. The plant produces nectar that entices insects inside the pitcher. The insects are trapped and are digested by enzymes. The pitcher ranges from 8–30 inches tall and has purple veins. Basal leaves are shorter flat sickle shaped leaves at the bottom of the plant. The color of the flowers varies (green, yellow or yellow-green). The blooms appear in mid spring and continue into late spring.

The park has an active prescribed burn program that is designed, in part, to improve habitat for the green pitcher plant. While a variety of factors prevent burns from occurring annually, the burns that have occurred appear to be allowing the green pitcher plant to maintain a stable population.

Resource Brief: Climate Change and Forest Ecosystems at Little River Canyon National Preserve

Climate change is ongoing and past greenhouse gas emissions, long residence times of these gases in the atmosphere, and our current emissions trajectory suggest that future climate change will be substantial (Wigley 2005, Peters et al. 2012). Although the precise magnitude of these changes cannot be predicted, many trends are already detectable and a range of plausible future conditions can be incorporated into planning efforts.

The forests in and around Little River Canyon National Preserve are likely to change due to a warming climate in conjunction with other stressors such as tree pests (Fischelli et al. 2014). Habitat suitability for various tree species in the region may increase, decrease, or remain unchanged under future conditions. The table below provides tree habitat suitability projections for select species at Little River Canyon. Projections are for the year 2100 under two climate scenarios (“least change” and “major change”) that bracket a range of plausible future conditions based on greenhouse gas emissions and global climate model projections. Habitat suitability projections for 62 tree species at Little River Canyon and for trees at 120 other eastern U.S. parks are available at <http://science.nature.nps.gov/climatechange/>.

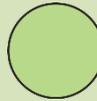
Potential changes in habitat suitability (2100 compared with 1990) for select tree species in the region including Little River Canyon National Preserve (Fischelli et al. 2014). Habitat change class designations are based on two future climate scenarios (the “least change” scenario represents strong cuts in greenhouse gas emissions and modest climatic changes and the “major change” scenario represents continued increasing greenhouse gas emissions and rapid warming). Change class designations are based on the ratio of future (2100) to baseline (1990) habitat suitability (output from the U.S. Forest Service Climate Change Tree Atlas).

Scientific Name	Common Name	Least Change Scenario	Major Change Scenario
<i>Acer rubrum</i>	red maple	Small decrease	Small decrease
<i>Carya glabra</i>	pignut hickory	Small decrease	Small decrease
<i>Carya tomentosa</i>	mockernut hickory	No change	No change
<i>Liquidambar styraciflua</i>	sweetgum	No change	No change
<i>Liriodendron tulipifera</i>	yellow-poplar	Large decrease	Small decrease
<i>Nyssa sylvatica</i>	blackgum	No change	Small increase
<i>Oxydendrum arboreum</i>	sourwood	Large decrease	Large decrease
<i>Pinus echinata</i>	shortleaf pine	Small increase	Small increase
<i>Pinus taeda</i>	loblolly pine	Small increase	Small increase
<i>Pinus virginiana</i>	Virginia pine	Small decrease	Small decrease
<i>Prunus serotina</i>	black cherry	Small decrease	No change
<i>Quercus alba</i>	white oak	No change	Small decrease
<i>Quercus prinus</i>	chestnut oak	Small decrease	Small decrease
<i>Quercus stellata</i>	post oak	Large increase	Large increase

Longer growing seasons will increase the risk of insect outbreaks and expand ranges of some species such as scale insects and cankerworm ([Ingram 2013](#)). Near-term (2013–2027) disease and pest risks for the park include emerald ash borer, oak decline, beech bark disease, and southern pine beetle ([Krist et al. 2014](#)). Warming temperatures are predicted to increase evapotranspiration, drying forest vegetation and increasing wildfire risk ([Ingram 2013](#)). Climate change may increase risk from invasive plant species. Longer growing seasons and shorter cold snaps may allow nonnative invaders to expand into new ranges ([Bradley et al. 2010](#), [Ingram 2013](#)).

Effective climate change adaptation requires collaboration among land managers across large landscapes. The Appalachian Landscape Conservation Cooperative (applcc.org) is one of a network of Cooperatives facilitating partnerships to adapt natural and cultural resources to climate change.

Wildlife Communities



[web](#) ▶

Indicators of Condition	Specific Measures	Condition Status/Trend	Rationale
Amphibians and Reptiles	Species Composition and Diversity		Accipiter Biological Consultants (2006) reported a diverse array of amphibians and reptiles within LIRI. However, several additional species that have been reported within the region were not detected during this survey. Thus follow-up surveys are recommended to better assess park diversity.
Fish	Species Composition and Diversity		Dobson (1994) reported 46 species of fish from the Little River drainage. Twenty-eight of these species were only found below Little River Falls, including the Blue shiner (<i>Cyprinella caerulea</i>) a federally threatened species. At the time of this study (i.e., 1992) blue shiner was considered to be a viable population as evidenced by the presence of young of the year. Confidence in this resource condition is determined to be low due to a lack of recent survey data. A fish survey is critical to park management because the amount of information is old and lacking.
Birds	Species Composition and Diversity		Stedman and Stedman (2006) recorded 145 species during two years of survey efforts. This total was very much in line with what has been reported from the region. A recent bird survey is critical to park management as sensitive habitats change over time or are changed by development.
Mammals	Bats: Species Composition and Diversity		Kennedy et al. (2010) were successful in observing more than 90% of species likely to occur on the park. In total, 33 species were observed including the federally Endangered gray bat (<i>Myotis grisescens</i>) and Threatened northern bats (<i>Myotis septentrionalis</i>). Given the large tract of forest and abundant surface water found at LIRI, it is an important park in the sustainability of bats in northeastern Alabama.
	Bears: Species Composition and Diversity		The park is currently hosting a research project documenting the local bear population. Bears are repopulating LIRI slowly, with a dened bear and cubs identified in 2004. Bears are protected by the State of Alabama.
	Other Mammals: Species Composition and Diversity		The federally endangered spotted skunk is present at LIRI. Other animals in the park include white-tailed deer, feral pig, coyote, gray fox, bobcat, river otter, American mink, raccoon, black bear, bats, eastern cottontail, beaver, woodland vole, eastern woodrat, white-footed mouse, hispid cotton rat, woodchuck, eastern gray squirrel, eastern chipmunk, shrew, mole, opossum, armadillo and others.

Resource Brief: Green Salamander

The green salamander (*Aneides aeneus*) is one of 10 salamanders documented on Little River ([Accipiter Biological Consultants 2006](#)). Northern Alabama represents the southern extent of this species range, and Little River Canyon contains a substantial amount of habitat for this cliff-dwelling species.

The green salamanders flattened head and body and long square-tipped toes are unique adaptations for its life along forested rock outcrops and cliffs. Its green lichen like markings is unique among salamanders in that it is the only green salamander in North America.

Typically the green salamander can be observed by shining a flashlight deep within rock crevices where it spends the majority of its time. It will emerge from these crevices on humid or rainy nights to hunt for invertebrates such as snails and spiders along cliff faces.



The green salamander receives state protection under Alabama Nongame Species Regulation ([Section 220-2-.92](#)), which are administered by the Alabama Department of Conservation and Natural Resources. It is thought to have declined throughout its range in Alabama (Alabama Department of Conservation and Natural Resources). Some known historic sites still support healthy populations while surveys at other historic sites fail to turn up any individuals.

Resource Brief: Bears

Historically, black bear (*Ursus americana*) roamed this area for many years, but loss of habitat and unregulated hunting have caused this species to decline over much of its range and become exterminated from the area of the Preserve. Black bear in Alabama have normally been confined to a population of a subspecies (*U. a. floridanus*) in south Alabama. However, over the past fifteen years, reports of sightings in north Alabama, as well as the preserve, have grown.

This reappearance is believed to be the eastern black bear (*U. a. americanus*) expanding its territory along the Appalachian region. Park staff is working with state personnel and Auburn University to study the bears in this area to determine the abundance, distribution, ecology, and viability of these populations. Data from 2013 revealed at least 15 individual bears in the area, but given



since last year at least two litters of triplets and one of quadruplets have been reared, that number will be higher. Bears are and will be collared and tracked in order to learn more about their distributions and denning choices.

The reestablishment of black bear to this area is exciting to staff and much of the public. Staff will work with the public about living harmoniously with this awesome creature while working with other agencies to manage habitat and protect the black bear in the preserve. This creature can now once again call this area home.



Indicators of Condition	Specific Measures	Condition Status/Trend	Rationale
<p>Anthropogenic Light</p>	<p>Anthropogenic Light Ratio (ALR) — Average Anthropogenic Sky Glow: Average Natural Sky Luminance</p>		<p>A photic environment is described as the physical amount and character of light at a particular location, irrespective of human perception. The NPS Night Sky Program characterizes a park’s photic environment by measuring both anthropogenic and natural light. All-sky Light Pollution Ratio (ALR) is a measure of light pollution calculated as the ratio of median Anthropogenic Sky Glow to average Natural Sky Luminance.</p> <p>ALR for Little River Canyon National Preserve is 2.00, which is considered a moderate condition. Overall trend is neutral based on moderate population growth of the Atlanta, GA metropolitan area (6.7%) and Madison, AL (8.2%) from 2010 to 2014, and slow to negative growth of Rome, GA (-0.9%) and Gadsden, AL (-1.6%) during that same time period (U.S. Census Bureau 2014). No lighting ordinances or light pollution mitigation efforts are currently in place in these urban centers.</p>

Resource Brief: Night Sky Resources at Little River Canyon National Preserve

The night sky has been a source of wonder, inspiration, and knowledge for thousands of years. Unfettered night skies with naturally occurring cycles of light and dark are integral to ecosystem function as evidenced by the fact that nearly half the species on earth are nocturnal. The quality of the nighttime environment is relevant to nearly every unit of the NPS system as the nighttime photic environment and its perception of it by humans (the lightscape) are both a natural and a cultural resource and are critical aspects of scenery, visitor enjoyment, and wilderness character.

Condition and Functional Consequences

Night sky quality at Little River Canyon National Preserve is moderate with a median ALR of 2.00. This is considered a moderate condition for non-urban parks. At these light levels, the Milky Way is visible but has typically lost some of its detail and is not visible as a complete band. Zodiacal light (or “false dawn” which is faint glow at the horizon just before dawn or just after dusk) is rarely seen. Anthropogenic light likely dominates light from natural celestial features and shadows from distant lights may be seen.

Assessment

One way the Natural Sounds & Night Sky Division (NSNSD) scientists measure the quality of the photic environment is by measuring the median sky brightness levels across a park and comparing that value to average natural night sky luminance. This measure, called the All-sky Light Pollution Ratio (ALR), can be directly measured with ground based measurements, or when these data are unavailable are modeled. The GIS model, calibrated to ground based measurements in parks, is derived from the 2001 World Atlas of Night Sky Brightness, which depicts zenith sky brightness (the brightness directly above the observer). Anthropogenic light up to 200 kilometers from parks may degrade a park’s night sky quality, and is considered in the neighborhood analysis. This impact is illustrated in the corresponding ALR map with a 200km ring around the park center.

The ALR thresholds are applied spatially to the park. For both urban and non-urban parks, the designated condition (green, amber, red) corresponds to the ALR level that exists in *at least half of* (median condition) the park’s landscape (see table below). Thus it is probable that a visitor will be able to experience the specified night sky quality. It is also probable that the majority of wildlife and habitats found within the park will exist under the specified night sky quality. For parks with lands managed as wilderness, the designated condition is based on the ALR level that exists in more than 90% of the wilderness area.

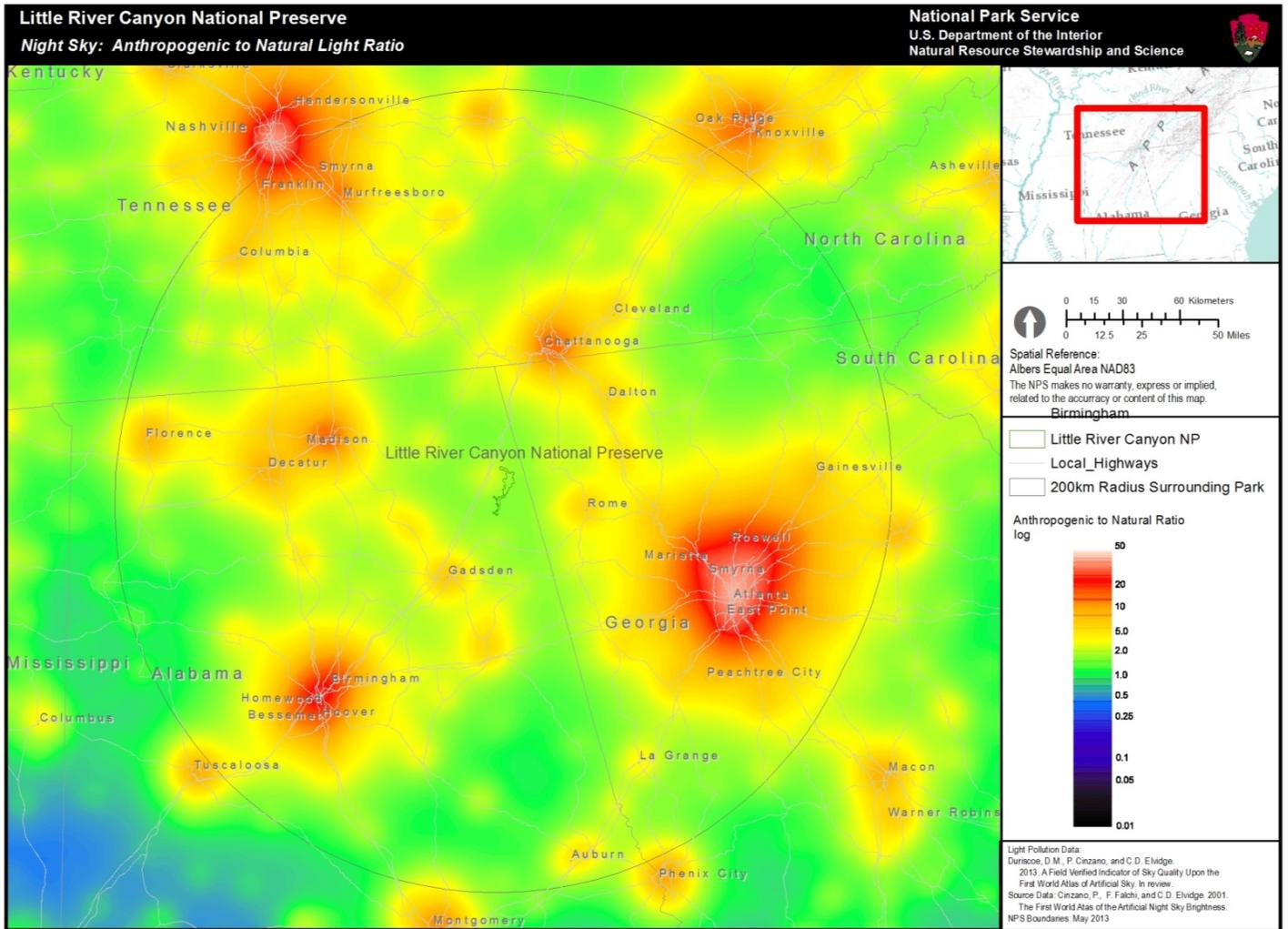
Criteria for Impact

Two impact criteria were established to address the issue of urban and non-urban park night sky resources. Parks within urban areas, as designated by the U.S. Census Bureau, are considered less sensitive to the impact of anthropogenic light and are assessed using higher thresholds of impact. Parks outside of designated urban areas are considered more sensitive to the impact of anthropogenic light

and are assessed using lower thresholds of impact. According to the U.S. Census Bureau, Little River Canyon National Preserve is categorized as non-urban, or more sensitive ([U.S. Census Bureau 2010](#)). Learn more in the document [Recommended Indicators of Night Sky Quality](#), and the NPS Natural Sounds & Night Skies Division [website](#).

Thresholds for Level 1 and 2 Parks

Indicator	Threshold for Level 1 Parks – Non-Urban	Additional Threshold for Areas Managed as Wilderness	Threshold for Level 2 Parks – Urban
Anthropogenic Light Ratio (ALR)— Average Anthropogenic All-Sky Luminance : Average Natural All-Sky Luminance	ALR < 0.33 (<26 nL average anthropogenic light in sky) <i>At least half of park area should meet this criteria</i>	ALR < 0.33 (<26 nL average anthropogenic light in sky) <i>At least 90% of wilderness area should meet this criteria</i>	ALR < 2.00 (<156 nL average anthropogenic light in sky) <i>At least half of park area should meet this criteria</i>
Light flux is totaled above the horizon (the terrain is omitted) and the anthropogenic and natural components are expressed as a unitless ratio	ALR 0.33–2.00 (26–156 nL average anthropogenic light in sky) <i>At least half of park area should meet this criteria</i>	ALR 0.33–2.00 (26–156 nL average anthropogenic light in sky) <i>At least 90% of wilderness area should meet this criteria</i>	ALR 2.00–18.00 (156–1404 nL average anthropogenic light in sky) <i>At least half of park area should meet this criteria</i>
The average natural sky luminance is 78 nL	ALR > 2.00 (>156 nL average anthropogenic light in sky) <i>At least half of park area should meet this criteria</i>	ALR > 2.00 (>156 nL average anthropogenic light in sky) <i>At least 90% of wilderness area should meet this criteria</i>	ALR > 18.00 (>1404 nL average anthropogenic light in sky) <i>At least half of park area should meet this criteria</i>



Created by NPS Natural Sounds & Night Skies Division and NPS Inventory and Monitoring Program MAS Group on 20150904

Regional view of anthropogenic light near Little River Canyon National Preserve. White and red represents more environmental influence from artificial lights while blues and black represent less artificial light. This scale shows regional context and how far reaching the impacts of artificial lighting can be. While Little River Canyon National Preserve may be influenced by artificial light it still maintains more naturalness than surrounding areas and serves as a harbor of dark skies.

Acoustic Environment



[web](#) ▶

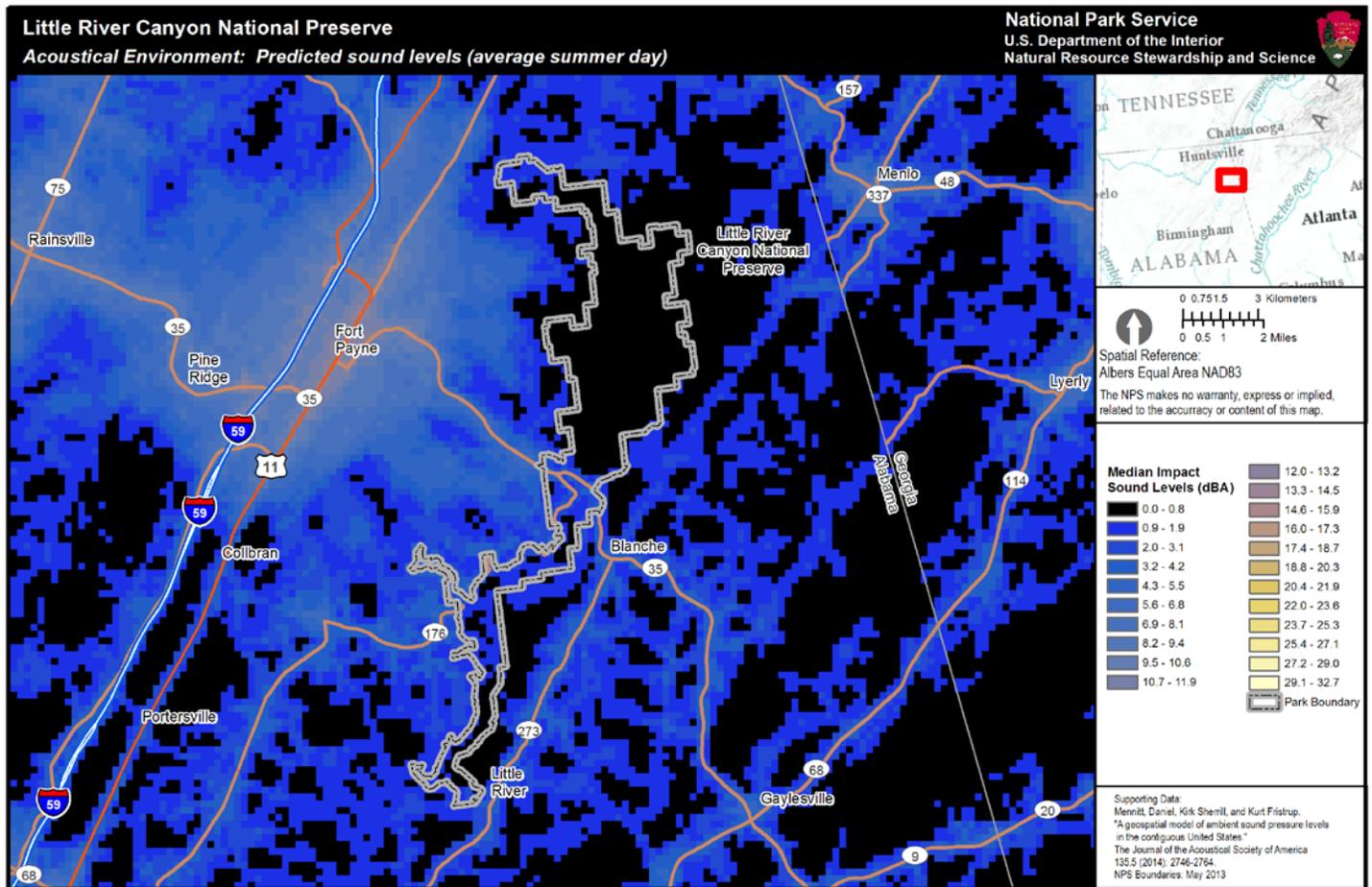
Indicators of Condition	Specific Measures	Condition Status/Trend	Rationale
Acoustic Impact Level	A modeled measure of the noise (in dBA) contributed to the acoustic environment by man-made sources.		<p>The condition of the acoustic environment is assessed by determining how much noise man-made sources contribute to the environment through the use of a national noise pollution model.</p> <p>The mean acoustic impact level at the park is 0.5 dBA, meaning that the acoustic environment is in good condition. Overall, long-term projected increases in ground-based (Federal Highway Administration 2013) and aircraft traffic (Federal Aviation Administration 2010) indicate a deteriorating trend in the quality of acoustic resources at this location.</p>

Resource Brief: Acoustic Environment

To characterize the acoustic environment, the National Park Service has developed a national model of noise pollution (Mennitt et al. 2014). This model predicts the increase in sound level due to human activity on an average summer day. The model is based on measured sound levels from hundreds of national park sites and approximately 100 additional variables such as location, climate, vegetation, hydrology, wind speed, and proximity to noise sources such as roads, railroads, and airports. The model reveals how much quieter parks would be in the absence of human activities. The quality of the acoustic environment affects visitor experience and ecological health. Acoustic resource condition, both natural and cultural, should be evaluated in relation to visitor enjoyment, wilderness character, ecosystem health, and wildlife interactions. Learn more in the document [Recommended indicators and thresholds of acoustic resources quality for NPS State of the Park Reports](#), the figure below, and the NPS Natural Sounds and Night Skies Division [website](#).

Criteria for Condition Status/Trend

For State of the Park Reports, NPS has established acoustic standards (green, amber, red) and two sets of impact criteria for urban parks and non-urban parks. A park's status (urban or non-urban) is based on data from the U.S. Census Bureau ([U.S. Census 2010](#)). Parks outside designated urban areas typically possess lower sound levels, and exhibit less divergence between existing sound levels and predicted natural sound levels. These quiet areas are highly susceptible to subtle noise intrusions. Park units inside designated urban areas typically experience more interference from noise sources. The majority of the park is located in non-urban areas, so condition thresholds for non-urban parks are listed in the table below. Just as smog limits one's ability to survey a landscape, noise reduces the area in which important sound cues can be heard. Therefore, thresholds in the table below are also explained in terms of listening area.



NPS Natural Sounds & Night Skies Division and NPS Inventory and Monitoring Program MAS Group 20150819

Map of predicted acoustic impact levels in the park for an average summer day. The color scale indicates how much man-made noise increases the sound level (in A-weighted decibels, or dBA), with 270 meter resolution. Black or dark blue colors indicate low impacts while yellow or white colors indicate greater impacts. Note that this graphic may not reflect recent localized changes such as new access roads or development.

Condition thresholds for the acoustic environment in non-urban parks

Indicator	Threshold (dBA)
Acoustic Impact Level A modeled measure of the noise (in dBA) contributed to the acoustic environment by man-made sources	Threshold ≤ 1.5 <i>Listening area reduced by $\leq 30\%$</i>
	$1.5 < \text{Threshold} \leq 3.0$ <i>Listening area reduced by $30\text{--}50\%$</i>
	$3.0 < \text{Threshold}$ <i>Listening area reduced by $> 50\%$</i>

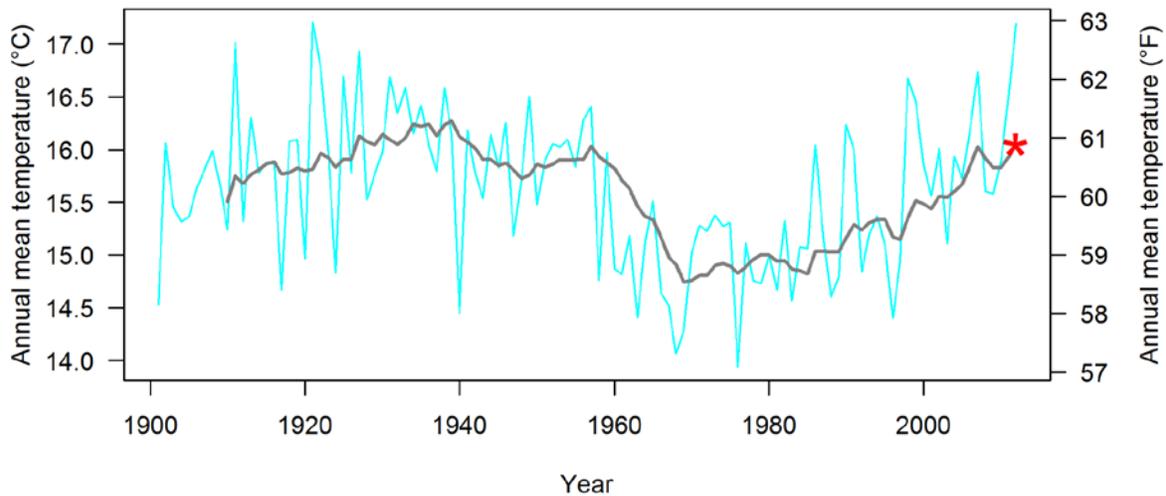
Resource Brief: Recent Climate Change Exposure of Little River Canyon National Preserve

To understand Little River Canyon National Preserve recent “climate change exposure”—that is, the magnitude and direction of ongoing changes in climate, we investigated how recent climate compares to historical conditions (see [Monahan & Fisichelli 2014](#) for updates to the basic climate inventories for 289 national park units). We evaluated climate change exposure by asking which of 14 biologically relevant climate variables recently (past 10–30 years) experienced “extreme” average values relative to the 1901–2012 historical range of variability. We define “extreme” conditions (e.g., extreme warm, extreme wet) as, on average, exceeding 95% of the historical range of conditions.

To evaluate recent climate within the context of historical conditions at Little River Canyon, we used the following methods (also illustrated in the figure below):

- For each temperature and precipitation variable, we analyzed data within three progressive time intervals, or “moving windows,” of 10, 20, and 30 years to calculate a series of averages over the entire period of analysis (1901–2012).
- We compared the average temperature and precipitation values for each of the most recent 10, 20, and 30-year intervals (2003–2012; 1993–2012; and 1983–2012) to those of all corresponding intervals across the entire period of 1901–2012. These results (expressed as percentiles) describe “recent” conditions relative to historical conditions. As an example, a temperature percentile of 80% means that recent conditions were warmer than 80% of the historical range of conditions.
- We then averaged the percentiles of the most recent 10, 20, and 30-year time periods and classified variables <5th percentile or >95th percentile as “extreme.”

See [Monahan & Fisichelli \(2014\)](#) for a detailed explanation of methods, and the figure below for an example analysis applied to annual mean temperature at the park.

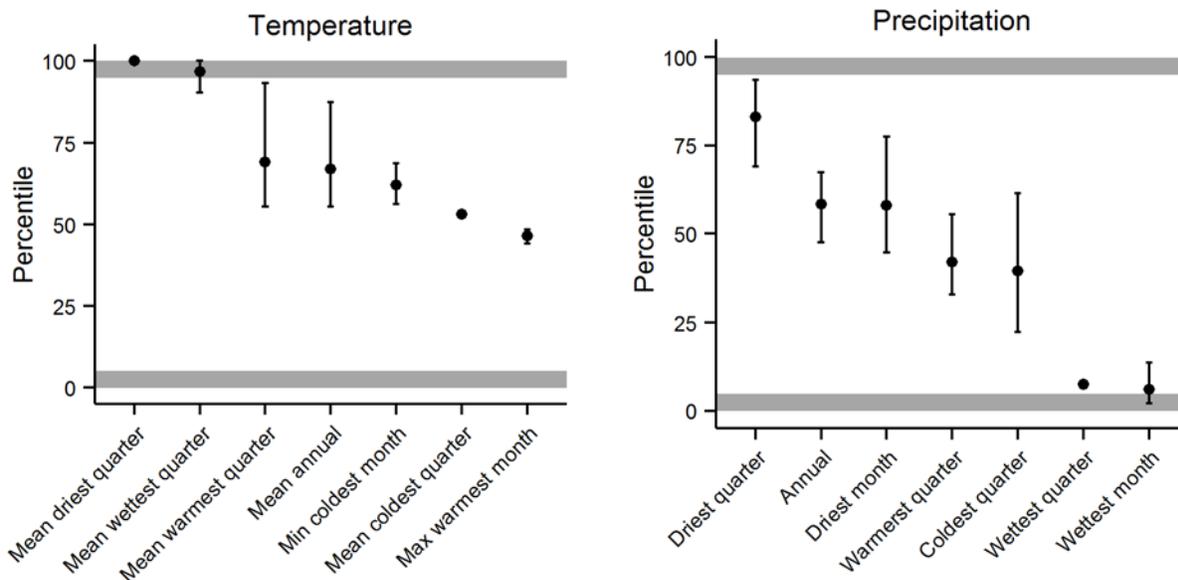


Recent annual mean temperature at Little River Canyon National Preserve (including areas within 30-km [18.6-mi] of the park’s boundary). The blue line shows temperature for each year, the gray line shows temperature averaged over progressive 10-year intervals (10-year moving windows), and the red asterisk shows the average temperature of the most recent 10-year window (2003–2012). Here, the most recent 10 years was warmer than 87% of the historical range of conditions (see recent percentiles for all temperature and precipitation variables in the figure below).

Results

Recent percentiles for 14 temperature and precipitation variables at Little River Canyon appear in the figure below. Results for “extreme” variables at the park were as follows:

- Two temperature variables were “extreme warm” (mean temperature of the driest quarter, mean temperature of the wettest quarter).
- No temperature variables were “extreme cold.”
- No precipitation variables were “extreme dry.”
- No precipitation variables were “extreme wet.”



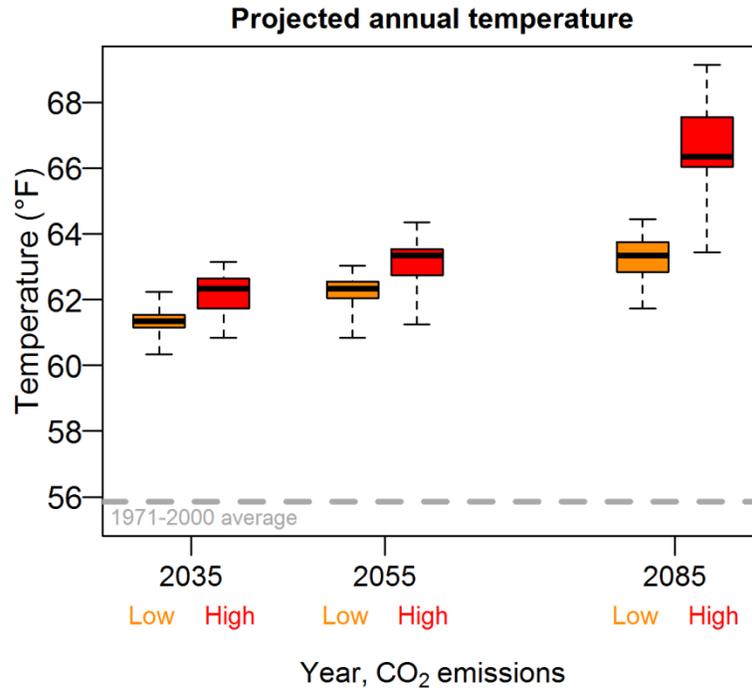
Recent temperature and precipitation percentiles at Little River Canyon National Preserve (including areas within 30-km [18.6-mi] of the park’s boundary). Black dots indicate average recent percentiles across the 10, 20, and 30-year intervals (moving windows). Variables are considered “extreme” if the average percentiles are <5th percentile or >95th percentile (i.e., the gray zones, where recent climate is pushing the limits of all observed climates since the year 1901). Black bars indicate the range of recent percentiles across 10, 20, and 30-year moving windows.

Key points for interpreting these results:

- Recent climatic conditions are already shifting beyond the historical range of variability.
- Ongoing and future climate change will likely affect all aspects of park management, including natural and cultural resource protection, park operations, and visitor experience.

Resource Brief: Future Climate Projections for LIRI

Effective planning and management must be grounded in our comprehension of past dynamics as well as the realization that future conditions may shift beyond the historical range of variability. At Little River Canyon National Preserve average annual temperature (30-year mean) is projected to be higher than the 1971–2000 average under all future time periods and greenhouse gas emissions projections (see the figure below). Climate change will manifest not only as shifts in mean conditions but also as changes in climate variability (e.g., more intense storms and drought). Within Little River Canyon, these changes may alter the future status, trend, and condition of many resources.



Historical and projected mean annual temperature for Little River Canyon National Preserve. Historical data (1971–2000 average) are from Monahan and Fisichelli (2014). Projected climate change (30 year means) for the region including the park are for three future time periods centered on 2035 (2021–2050), 2055 (2041–2070), and 2085 (2070–2099) (Kunkel et al. 2013 NOAA Technical Report NESDIS 142-2). Two greenhouse gas emissions scenarios are presented, the **low** (B1) and **high** (A2) scenarios (IPCC 2007). Projected climate boxplots indicate the variability in future projections among 15 CMIP3 climate models. Values for the area including the park are based on the mean model output for that location and the range of climate model projections for the region: the bold horizontal black line represents the mean among all models, the upper and lower bounds of the boxes indicate the 25th and 75th percentile model output values and the whiskers show the minimum and maximum values.

2.2. Cultural Resources

Archeological Resources  web 			
Indicators of Condition	Specific Measures	Condition Status/Trend	Rationale
Knowledge	Sufficient research is conducted to understand the relationship of the park's archeological resources to the historic contexts for the park.		<p>Most of the park is unsurveyed. The park lacks an updated and comprehensive Archeological Overview and Assessment to document/identify all sites.</p> <p>Of the 159 sites currently recorded, the great majority (89) are prehistoric rock shelters that have been documented to contain datable lithic and ceramic artifacts that range from the Late Paleoindian time period (ca. 10,000–9,200 BCE) until the protohistoric (1540–1670). Most (25) of the remaining known sites are late 19th to early 20th-century house sites. A number of these have been repurposed by the Alabama Department of Conservation and Natural Resources for use as wild game food plots. This use predated the creation of the Preserve and was a condition of the Preserve's creation, but the food plots greatly reduce the research potential of the house sites. Some house sites remain relatively intact and worthy of future investigations.</p> <p>One of the historic road paths used during the Trail of Tears also passes through the park. Short sections of this unpaved 1830s road trace are still visible. Over most of its length within the park, the route saw continued use until modern Alabama State Route 35 was constructed along an approximately parallel route.</p>
	Scope of archeological resources in the park is understood and a determination has been made whether or not they are a fundamental or other important resource.		<p>No, the scope of archeological resources is not understood because most of the park is unsurveyed. However, archeological resources are a fundamental resource of the park. Cultural Resources are identified in LIRI's enabling legislation as one of the reasons Congress created this park.</p> <p>The park has a Trail of Tears roundup route corridor as well as prehistoric and historic sites. Some areas have high potential for deep stratified sites with many layers containing artifacts left over time. Sites go back to around 10,000 years.</p> <p>An Archeological Overview and Assessment was prepared for the park in 1991 (Cornelison 1991), which summarized the nature of all archeological resources as of that date. Additional resources survey was conducted by the NPS Southeast Archeological Center (in 1999–2002) and an updated report is in progress.</p>

Archeological Resources (continued)

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Indicators of Condition	Specific Measures	Condition Status/Trend	Rationale
Inventory	Percentage of park intensively surveyed.		<p>14% of the park has been intensively surveyed (15,000 acres total). The park has had an addition to their lands (700 acres) that has not been surveyed.</p> <p>An intensive bluff line survey was completed; however it was either at the top, middle or bottom of bluffs, and missed sites that have since been located. Sites have also been located during pre-construction surveys, even in highly disturbed areas where they were not expected such as Canyon Mouth.</p>
	Percentage of archeological resources with complete, accurate, and reliable State site forms.		State site forms have been prepared for 79.2% (126 of 159) of the known sites within the park. The 40 remaining known sites for which state site forms have not been prepared consist mainly of early 20th-century resources including the 3 Civilian Conservation Corps-era (1933–1942) bridges/roads, 18 house sites, 1 dump, 1 moonshine still, etc.
Documentation	Percentage of known sites with adequate National Register documentation.		Currently, none (0%) of the known sites in the park are listed on the National Register. None of the park’s sites have been formally evaluated; with only 1 site in the park having been identified as recommended eligible for nomination.
	Research results are disseminated to park managers, planners, interpreters, and other NPS specialists and incorporated into appropriate park planning documents.		<p>The park does not have a formal process for sharing research results, although through park management meetings, information is disseminated and used for planning, interpretation, maintenance, etc.</p> <p>Park management can utilize access to the internet GIS services provided by NPS Southeast Archeological Center, where it is possible to identify the locations of all primary sites and subsites, identify areas surveyed, and obtain electronic copies of all extant archeological reports.</p>
Certified Condition	Percentage of archeological resources certified as complete, accurate, and reliable in the Archeological Sites Management Information System (ASMIS) in good condition.		84.1% are in stable condition. Excluding the sites located on non-NPS owned lands and isolated finds, 139 archeological sites currently identified within the park have received site condition assessments and are recorded in ASMIS. 117 are recorded as being in good (stable) condition (84.1%). This number does not account for sites that have been previously damaged or looted but are now stable.

Resource Brief: Archeological Resources



Early Archaic projectile point found in the preserve by park staff

While most of the park remains unsurveyed for cultural resources, over 147 historical and archeological sites have been located here. Archeology of Little River Canyon National Preserve consists mostly of open air and rock shelter sites scattered throughout the park. Archeologists have also located a stone wall and stone mound locations in the park.

Artifacts are occasionally present over a meter deep in deeply stratified places, where layer over layer has been deposited over time. Excavation and testing at some sites has revealed that many layers of evidence of human use may be present, suggesting that people used the same locations during different time periods.

Archeological sites in this area represent late PaleoIndian to late historic period homesteads, and represent most cultures within this span of time. While some rock shelters have been impacted by looting or development, most are in good condition. National Register significance has not been determined for most sites.



Plate fragments from early settlers to the area that became Little River Canyon National Preserve



Indicators of Condition	Specific Measures	Condition Status/Trend	Rationale
Knowledge	Sufficient research is conducted to understand the relationship of the park's ethnographic resources to the historic context(s) for the park.		No. Completion of an Ethnographic Overview and Assessment would greatly contribute to knowledge of the park from the perspective of living people and communities (Cherokee and other American Indians; the Trail of Tears; the enslaved people, formerly enslaved people, African-Americans, southern Appalachian families, etc.). The park's History Day brings a few family stories and photos to the park archives each year.
Documentation	Resources eligible for the National Register of Historic Places as traditional cultural properties are identified.		No. LIRI lacks an Ethnographic Overview and Assessment baseline document to identify eligible resources.
	Research results are disseminated to park managers, planners, interpreters, and other NPS specialists and incorporated into appropriate park planning documents.		There is no research. There are a limited number of documents and academic and professional resources available focused on the park, surrounding areas, and associated communities.

Resource Brief: The Trail of Tears and Fort Payne

In 1830, President Andrew Jackson signed the Indian Removal Act, which gave the federal government the power to exchange Native-held land in the cotton kingdom east of the Mississippi for land to the west, in the “Indian colonization zone” that the United States had acquired as part of the Louisiana Purchase. (This “Indian territory” was located in present-day Oklahoma.) The law required the government to negotiate removal treaties fairly, voluntarily and peacefully; it did not permit the president or anyone else to coerce Native nations into giving up their land. However, President Jackson and his government frequently ignored the letter of the law and forced Native Americans to vacate lands they had lived on for generations.

The Cherokee people were divided: What was the best way to handle the government’s determination to get its hands on their territory? Some wanted to stay and fight. Others thought it was more pragmatic to agree to leave in exchange for money and other concessions. In 1835, a few self-appointed representatives of the Cherokee nation negotiated the Treaty of New Echota, which traded all Cherokee land east of the Mississippi for \$5 million, relocation assistance, and compensation for lost property. Despite protest from the Cherokee nation, in 1835 the Treaty of New Echota was ratified by Congress and signed by President Andrew Jackson to remove native peoples from east of the Mississippi River.

By 1838, only about 2,000 Cherokees had left their Georgia homeland for Indian Territory. President Martin Van Buren sent General Winfield Scott and 7,000 soldiers to expedite the removal process. Scott and his troops forced the Cherokee into stockades at bayonet point and then looted their homes and belongings. Then, they marched the Indians more than 1,200 miles to Indian Territory. Whooping cough, typhus, dysentery, cholera, and starvation were epidemic along the way, and historians estimate that more than 5,000 Cherokee died during of the journey. It was, one Choctaw leader told an Alabama newspaper, a “trail of tears and death.”

Fort Payne was built as a temporary fort in 1838 to support military removal of the Cherokee Nation people and other tribes to the Indian Territory. This internment camp housed over 900 Cherokees and 200 Creeks during the removal process. The round up routes from Forts Lovell, Fort Likens, and Fort Turkeytown pass through Little River National Preserve and over Lookout Mountain on the way to Fort Payne. The path of the route exists today in several parts of the Preserve.

Many of the Cherokees had to stay the entire summer in the internment camps. The living conditions were terrible and death was prevalent. The Cherokees stayed in Fort Payne until General Winfield Scott sent orders for groups to leave and the first people left in September 1838.

Fort Payne is located about 7 miles from the park. Park staff sometimes assists the City of Fort Payne and Landmarks DeKalb with interpretive programs at the site of Fort Payne.



The Trail of Tears path visible in the dense forest.

Cultural Landscapes



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Indicators of Condition	Specific Measures	Condition Status/Trend	Rationale
Knowledge	Sufficient research exists to understand the relationship of the park's cultural landscapes to the historic context(s) for the park.		A cultural landscape is defined as “a geographic area, including both cultural and natural resources and the wildlife or domestic animals therein, associated with a historic event, activity, or person or exhibiting other cultural or aesthetic values.” No research has been done to understand the relationship of the park's cultural landscapes to the historic contexts of the park. The park lacks a Cultural Landscape Inventory baseline document.
	Scope of cultural landscapes in the park is understood and a determination has been made whether or not they are a fundamental or other important resource.		The scope of cultural landscapes in the park is not understood and a determination has not been made whether or not they are a fundamental or other important resource. Scenery was listed as a major reason for creating the park. Impacts have continued. Much of the landscape has been altered over the last century.
	Adequate research exists to document and preserve the cultural landscape's physical attributes, biotic systems, and uses when those uses contribute to historical significance.		No research has been done to date on the park's cultural landscape. There is no documentation on the cultural landscape's relationship to the park's historical significance. NPS Resources management has made several vegetation maps for scientific study, but those have not been correlated to cultural landscapes.
Inventory	Percentage of landscapes eligible for the National Register in the Cultural Landscapes Inventory (CLI) with certified complete, accurate, and reliable data.		CLIs have not been completed for LIRI. This is important, as the historic scenic views available here are fundamental to the founding of the park.
Status	Condition of cultural landscape.		Damage to cultural landscapes is already occurring. Houses and development of the Canyon Rim are impacting the viewshed of the canyon. Many areas in the park have been heavily disturbed by logging. Portions of the Trail of Tears route have been lost to modern use.

Historic Structures



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Indicators of Condition	Specific Measures	Condition Status/Trend	Rationale
<p>Knowledge</p>	<p>Historic Structures are identified and evaluated using historical contexts.</p>		<p>Currently, there are no documented historic structures in the Park. The Civilian Conservation Corps-Era (1933–1942) culverts are described in the Park’s founding legislation.</p> <p>Undocumented historic structures exist, including a chimney and the old highway 35-bridge abutments. No research on these structures exists. Information about these structures is lost as they degrade over time.</p>
<p>Inventory</p>	<p>Percentage of historic structures eligible for the National Register in the List of Classified Structures (LCS) with accurate, complete, and reliable data.</p>		<p>No data exists although there are undocumented structures.</p>

History



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Indicators of Condition	Specific Measures	Condition Status/Trend	Rationale
<p>Knowledge</p>	<p>Sufficient research is conducted to understand the national significance and historical contexts for the park.</p>		<p>Prior to the creation of the park, a Historic Resource Study (HRS) conducted by Jacksonville State University concluded that “The study area contained no historic buildings or fully intact structures.” Although written in 1996, the HRS provides useable historic contexts to understand the pre-park history of the area. However, the park needs a new, updated HRS to reflect more recent findings.</p> <p>An administrative history is needed to document the history of the park’s creation and its subsequent management.</p>
	<p>Research at the appropriate level of investigation (exhaustive, thorough, or limited) precedes planning decisions involving cultural resources.</p>		<p>Any research and planning that is completed in LIRI is driven by processes defined by Section 106 of the National Historic Preservation Act (NHPA).</p> <p><i>Section 106 of the NHPA requires each federal agency to identify and assess the effects their actions will have on historic resources. The process requires each federal agency to consider public views and concerns about historic preservation issues when making final project decisions. The ultimate goal of Section 106 is to seek agreement among these participants regarding preservation matters arising during the review process.</i></p>
<p>Inventory</p>	<p>Cultural resources are inventoried and evaluated in consultation with State Historic Preservation Officers (SHPOs).</p>		<p>Any research and planning that is completed in LIRI is driven by processes defined by Section 106 of the National Historic Preservation Act (NHPA).</p>

Museum Collections



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Indicators of Condition	Specific Measures	Condition Status/Trend	Rationale
<p>Knowledge</p>	<p>Sufficient research and analysis exists to understand the relationship of the park's museum collection to the historic context(s) for the park.</p>		<p>No. Little research and analysis exists.</p>
	<p>Scope of museum collection in the park is understood and a determination has been made whether or not they are a fundamental or other important resource.</p>		<p>Yes, the museum and archival collections are a fundamental resource for the Park. The Scope of Collection Statement (SOCS) dates to 2006. The SOCS are reviewed and updated on a 2–5 year cycle.</p> <p><i>The Scope of Collection Statement (SOCS) is a stand-alone document that states the significance of the museum collection and sets limits on it based on the park's purpose and interpretive objectives as enunciated in legislation, other mandates, and park-specific planning documents. The SOCS defines the scope of present and future museum collection holdings of a park that contribute directly to the understanding and interpretation of the park's purpose, themes, and resources, as well as those objects that the Service is legally mandated to preserve.</i></p>
<p>Inventory</p>	<p>Percentage of existing collection that is accessioned* and cataloged.</p>		<p>82.55% according to the FY 2014 Collection Management Report (CMR), as reported to WASO. But the archives surveyed in FY 2012 have not been added to the backlog for LIRI, thus the numbers reported are not correct.</p> <p>* Legally registered as an addition to collections.</p>
<p>Documentation</p>	<p>Accession* and deaccession** files are complete with all appropriate signatures.</p>		<p>No. A survey of accession files should be completed and paperwork brought up to date with all signatures.</p> <p>* Legally register as an addition to collections. ** Legally and officially remove an item from the holdings of a museum.</p>

Museum Collections (continued)

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Indicators of Condition	Specific Measures	Condition Status/Trend	Rationale
<p>Documentation (continued)</p>	<p>Park has current and appropriate baseline documentation (Scope of Collections Statement, Collection Management Plan, Housekeeping Plan(s), IPM Plan(s), EOP, Security and Fire Safety Plan(s), and Conservation Survey(s).</p>		<p>No. Many of the Baseline Documents do not exist for LIRI. The CMP is recent and within the acceptable timeframe (10 year document). The SOCS needs to be reviewed and updated (2010). The IPM plan should be reviewed and updated (2010). The Collection Storage Plan (CSP) should be reviewed and updated (2006). The Archives survey needs to be followed up with a PMIS statement for a processing plan that includes a survey for records created since 2012.</p> <p>Collection Management Plan (CMP) – 2010</p> <ul style="list-style-type: none"> • Security Survey – None • Fire Protection Survey – None • Collection Condition Surveys (CCS) – None • Archives – In 2012 a survey was completed by the Regional archivist and staff • Collection Storage Plan – Yes 2006 • Museum Emergency Operation Plan (MEOP) – None • Included in the Structural Fire Plan – Yes • Scope of Collection Statement – Yes 2010 • Integrated Pest Management Plan – Yes 2010 • Housekeeping Plan – No
<p>Certified Condition</p>	<p>Percentage of museum collection storage facilities in the Facility Management Software System (FMSS) with a Facility Condition Index (FCI) indicating good condition.</p>		<p>100% – the FCI for the building NPS shares with Jackson State University is in good condition.</p>

2.3. Visitor Experience

Visitor Numbers and Visitor Satisfaction

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Indicators of Condition	Specific Measures	Condition Status/Trend	Rationale
Number of Visitors	Number of visitors per year		The total of 185,477 visitors to the park in 2013 is lower than that of 2011 (225,549) and 2012 (201,109) and also lower than the 10-year average of 204,119 visitors for 2003–2012.
Visitor Satisfaction	Percent of visitors who were satisfied with their visit		Based on the standard visitor satisfaction survey conducted each year, the percentage of visitors satisfied in FY 2014 was 100%, which is higher than the average for the last five years (96.5%) (2013 data not available). The ten year average is (95.3%) (2013 and 2010 data not available).

Interpretive and Education Programs – Talks, Tours, and Special Events



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Indicators of Condition	Specific Measures	Condition Status/Trend	Rationale
Education Programs	Number and quality of programs, and number of participants		In FY 2015, a Ticket to Ride Grant provided the requirement for 3-touch programs (present three different programs, one preparing visitors for the next program, and then a wrap-up program). This is one of the first programs presented in the Preserve that meet this educational standard (defined by NPS Servicewide Interpretive Report System). In FY 2015, 115 programs reached more than 5,200 visitors.
Ranger Programs	Number and quality of programs and attendance		In FY 2015, 63 onsite programs reached more than 2,300 visitors, and 34 offsite programs reached more than 3,560 visitors.
Junior Ranger Programs	Number of programs and attendance		In 2015, over 1,500 Junior Rangers earned their badges, in 300 events. These Junior Ranger activities are administered by the Volunteers-In-Parks and the park ranger at the front desk.
Special Events	Variety and longevity of events, community involvement		<ul style="list-style-type: none"> The <i>Knap-In</i> brings in flint knappers to demonstrate techniques for creating stone tools. Each August the park hosts History Day where those from the canyon area come in to share family stories and photos of life in the canyon before LIRI was established. DeSoto 475th anniversary program was hosted to discuss the impacts that this expedition had on the area and the people who lived here. Ranger-led interpretive Paddle Trips on Little River offer unique opportunity for visitors to see less-traveled sections of the river and canyon.

Interpretive and Education Programs – Talks, Tours, and Special Events (continued)

[web](#) ▶

Indicators of Condition	Specific Measures	Condition Status/Trend	Rationale
Recreational Opportunities	Quality and diversity of opportunities		The Little River offers a wide range of recreational opportunities on the river and bluffs, including world class kayaking, rock climbing, hiking, bird watching, and animal observation.
Hunting, Trapping, and Fishing Opportunities	Opportunity		The Preserve protects 13,000 acres for hunting white-tailed deer and turkey.

Interpretive Media – Brochures, Exhibits, Signs, and Website



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Indicators of Condition	Specific Measures	Condition Status/Trend	Rationale
Wayside Signs	Condition and currency of signs		Six wayside signs were recently updated. Most overlooks have an interpretive wayside, or safety conditions sign. Signs could be more comprehensive, and offer more information for visitors that do not visit the Visitor Center.
Park Directional Signs (off-site)	Usefulness, quantity, and placement		Many directional signs have been recently updated. Few directional signs remain in poor condition and are over 20 years old. Park headquarters could be better marked.
Print Media	Accuracy and availability of primary park publications		In 2015 the park started work on a new park brochure and map. This new brochure will address the shortcomings of the old one, such as lack of interpretive themes and information as well as the park map only having half of the park shown. The project will be completed in the summer of 2016. Site bulletins are in good condition.
Audio-visual Media	Orientation Films		LIRI does not have a park film. A film presented in the Canyon Center was produced by Jacksonville State University. The film is visually pretty, but lacks content describing interpretive themes of the park and contains errors related to natural resource content.
	Other AV material		LIRI currently is lacking other AV materials, and lacking available numbers of interpretive rangers to present the material.
Websites	Currency and scope of website; number of website visitors		The LIRI website is basic. It provides cursory park information, and lacks teacher materials, lesson plans, and resource info.
	Social media: Facebook updates and “likes,” overall activity		The LIRI Facebook page has over 7,000 “friends.” The page could be more active. The page could include real-time visitor information on road closures, and other safety information.

Accessibility



[web](#) ▶

Indicators of Condition	Specific Measures	Condition Status/Trend	Rationale
Mobility	ADA compliance		The Canyon Center (the building that hosts Park Headquarters) is accessible. Little River falls boardwalk is marked as being accessible. Canyon Mouth Picnic area is accessible through grass. Accessibility to outside restroom facilities needs improvement.
Visual Accommodation	ADA compliance		No audio accommodations or braille materials are available. Limited ranger-led programs related to fossils and geology are available by appointment.
Multi-lingual Resources	Audio and print materials in multiple languages; Bi-lingual staff		The safety waysides at the falls are bilingual (Spanish). The one canyon wayside is also bilingual.

Safety



[web](#) ▶

Indicators of Condition	Specific Measures	Condition Status/Trend	Rationale
Visitor Safety	Recordable incidents		<p>The safety of visitors is a park priority. The park works to quickly identify and mitigate potential hazards, and the number of accidents is very low. Nevertheless, LIRI averages 2 fatalities annually, with 0 in FY14, and one in FY15 out of over 200,000 visitors. Safety of park visitors is a paramount concern and an increasing challenge as visitation grows.</p> <p>Many visitor rescue events occur annually, with the primary hazard being recreational use on the river and cliffs.</p>
Staff Safety and Training	Number of staff trained		Operational Leadership Training has been completed by permanent and some seasonal park staff. CPR, First Aid, and AED training are offered to staff on a space-available basis. Job Hazard Analysis is conducted before more dangerous jobs throughout the park. Regular safety messages are given and distributed to staff members.
Internal Emergency Response Capacity	Ability to provide emergency response		Park staff does not have the training or capacity to conduct high angle rescues, and relies on nearby volunteer emergency response.
Safety Rescue Partnership	Local emergency response		Fischer Rescue Squad is located adjacent to the park. Local fire departments provide fast emergency response to the canyon.

Resource Brief: Boardwalk Stroll to Little River Falls Overlook

The most popular section of Little River Canyon with out-of-state visitors is the Little River Falls. This 45-foot-high waterfall has been an attraction for hundreds of years and is also the place of most of the park's injuries and fatalities. The park had to seek a way to mitigate the threats to visitors from getting too close to the edge, while providing for enjoyment of the falls.

The solution came in the form of a boardwalk that goes from the parking lot to a traditional vantage point for viewing the falls. This gradual slope boardwalk winds its way through the trees to several viewing platforms for visitors to safely see the falls and minimize the danger of getting too close to the edge. Included in this project was secure handrails and seating for visitors to sit and reflect upon the beauty of the falls and a place for rangers to give programs to the public.

The boardwalk is made from recycled material, which greatly lessened the impact that building one out of lumber would have had upon the environment, and will hopefully last longer in the park's humid environment.



Boardwalk to Little River Falls (NPS Photo)

Recreational Use



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Indicators of Condition	Specific Measures	Condition Status/Trend	Rationale
Parking Lots	Availability of Parking		Parking lots are full on busy summer weekends. Full parking areas lead to vehicle accidents, angry visitors, and other safety issues. The Preserve sees a summer increase in crime, primarily from auto break-ins.
Trails	Impacts to trails from use		The limited number of trails in LIRI are heavily used. The amount of trash along these trails is significant. Trashcans are available, but are infrequently used. Erosion from heavy use, trail cutting, and social trails is increasing. Several popular trails are steep and difficult to hike and visitor safety on these trails remains a challenge.
Water Activities	Impacts to Natural Resources		Litter management and cleanup demand requires more manpower than LIRI has available. Damage to the natural environment is occurring along trails and waterways. Graffiti on rock outcrops is common and is damaging to the cultural and natural landscape.
	Safety		There is heavy (summer) use of pools along the river for wading and frolicking. Safety signs are posted along the river and cliffs, but incidents still occur. Litter often creates a safety hazard. Rangers frequently clean up sharp aluminum cans, broken glass bottles, plastic bottles and bags, and used diapers.
Extreme/Advanced Whitewater and Climbing	Number of Visitors		LIRI offers world-class kayaking and climbing opportunity along the river canyon. Expert-level terrain attracts adventurous visitors. Social trails to climbing areas along the canyon have been created. No permit is required to boat or climb in LIRI. Permits are required to install rock bolts and anchors.
Picnicking	Availability of tables and locations		Picnic tables near waysides are popular and heavily used during the summer season. Maintenance and cleaning of these areas is a challenge.

Partnerships



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Indicators of Condition	Specific Measures	Condition Status/Trend	Rationale
<p>Volunteers</p>	<p>Number and hours contributed</p>		<p>Volunteers do almost all the station and roving interpretation in the park. About 20 volunteers work regular shifts, with another group working 1–3 days a month.</p> <p>In FY 2014, the Preserve recorded over 6,600 of hours of volunteer time.</p>
<p>Partnerships</p>	<p>Number of official and unofficial partnerships</p>		<p>Jacksonville State University hosts the Canyon Center Facility where Park Headquarters is located. The facility provides some interpretive material related to the region, and hosts events in a theater, multiple classrooms, and an outdoor amphitheater.</p> <p>DeSoto State Park is located within LIRI legislative boundaries. Programs are presented in conjunction with this park and its staff. DeSoto also offers camping facilities for visitors. Maintenance activities, search and rescue, compliance, and resource monitoring are completed with DeSoto where possible.</p> <p>Friends of the Preserve work to raise funds to support the park and its programs such as <i>Ticket to Ride</i> in conjunction with the National Park Foundation.</p>

Resource Brief: Partnership with Jacksonville State University

Little River Canyon National Preserve was established in 1992 and it came with no infrastructure for the new staff to work in. A rented storefront headquarters was opened in a strip mall in Fort Payne, almost 7 miles from the park, and the park offices might still be there if not for a unique partnership with Jacksonville State University.

Working with the university, the Park Service was able to lease space in a unique building that not only met the needs of the school and its education mission, but allowed the NPS staff to move within a few hundred yards of the park in June 2010. What the NPS got without having to build or maintain anything is shared space in a 23,000 square foot, LEED certified (Leadership in Energy and Environmental Design) modern building that not only helps JSU but provides a place for visitors to the park to get orientation and schools to meet a ranger for programs in the park as well as serve as a catalyst for joint JSU-NPS education programs reaching thousands of local students each year.

The building itself is an interpretive program, with all of the cost saving measures built into the structure and examples of how average citizens can save money on their energy cost at home as well as ways to harvest rain water. This partnership has all the makings of a long term successful undertaking that will meet the needs of JSU and the NPS for years to come.



Resource Brief: Partnership with Alabama Department of Transportation

The State of Alabama decided to do an upgrade and replace the highway bridge over the Little River just above the falls, which is the most visited site in the park. The state was in favor of replacing the bridge with an in-kind, which was the typical drab and unappealing bridge, and would have been in the background of many photographs of the falls. Since the state was going to have to replace the bridge, the park decided to work with our partners to try to get the state to do something different. Our goal was to make the bridge more visitor-friendly and serve as a model for the state to build bridges in other areas of the state where the same type of conditions exist.

The Alabama Department of Transportation was not initially enamored with changing their tried and true plans, but we eventually were able to make some inroads into the way the state designed bridges. What was proposed was to use colored fly ash from local TVA power plants, to make fake but real looking rocks that would be attached to the concrete and make the bridge more appealing. Secondly it was proposed that a pedestrian walkway be built on the falls side of the bridge, with bump outs for benches and attractive iron work so the visitors wanting to walk across the bridge from the Canyon Center would have a safe place to walk and view the top of the falls and the start of the canyon.

The state eventually became a valued partner in the design of the bridge and what could have turned out to be an ugly but functional bridge, has become a graceful, attractive, and well-used public bridge that also allows for all traffic, big or small, to safely cross the Little River.

Scenic Resources  web ▶			
Indicators of Condition	Specific Measures	Condition Status/Trend	Rationale
Scenic Views	Scenic Views Quality & Protection		<p>Scenic views are included in the park’s enabling legislation, and many visitors come specifically to view the landscape and falls along the river.</p> <p>LIRI is actively engaged in management of viewsheds with national partners (Nature Conservancy, Conservation Fund). Development along the park boundaries is minimal, and is mostly residential.</p>

Resource Brief: Our Beautiful Canyon

Little River Canyon National Preserve is known for many things but the reason most people come to the park is for the view. As one of the deepest canyons east of the Mississippi River, the Little River Canyon offers views that just can't be seen anywhere else in the east. The entire canyon rests within the boundaries of the park and a scenic drive on the west rim gives visitors to the park multiple access points to incredible views of the canyon as well as areas to hike down to the Little River, over 500 feet below.

The canyon is a place to see an eagle soar, listen to the roar of the rapids below, and see great vistas just a few miles off of the Interstate, but a world away. The view here has been recognized as special over 400 years ago when the men of the DeSoto expedition wrote in their journals of this deep canyon with waterfalls on top of a mountain. As the area became settled by Euro-Americans, one of the fashionable things to do a weekend was to come up Lookout Mountain and look at the wonders of the canyon, a tradition that is still carried out by visitors today.

Any time of year, the canyon offers special views and encourages visitors to make return visits as the seasons change. It is a place to see the powers of nature at work and get away from the stresses of everyday, by just watching the sun set on this jewel of a canyon, on top of a mountain in Northeast Alabama.



Fall foliage from the Canyon View Overlook.

2.4. Park Infrastructure

Overall Facility Condition Index



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The National Park Service uses a facility condition index (FCI) to indicate the condition of its facilities and infrastructure. FCI is the cost of repairing an asset, such as a building, road, trail, or water system, divided by the cost of replacing it. The lower the FCI number, the better the condition of the asset. The condition of the buildings and other infrastructure assets at each park is determined by regular facility inspections, or “condition assessments,” including daily informal inspections and formal yearly inspections. Deficiencies identified from these assessments are documented in the NPS Facility Management Software System and the cost for each repair determined. Repairs that cannot be completed within the year count against the condition of a structure. The total cost of these deferred repairs divided by the total cost to replace the structure results in the FCI, with values between 0 and 1 (the lower the decimal number, the better the condition). The FCI is assigned a condition category of Good, Fair, Poor, or Serious based on industry and NPS standards. Deferred maintenance projects that require additional funding are identified based on FCI. Planned preventive maintenance on critical components occurs during the year, using a park’s base budget. For additional information about how park managers use information about the condition of facilities and infrastructure to make decisions about the efficient use of funding for maintenance and restoration activities at the park, [Click Here](#).

Asset Category	Number of Assets 2010 / 2015	FCI 2010 / 2015	Condition Status/Trend	Rationale
Buildings	15 / 14	0.026 / 0.013		Little River Canyon National Preserve (LIRI) has provided upgrades to several of their buildings, including installing new roofs, painting interior and exteriors and scheduling replacement of restrooms facilities. Management is in the process of planning the removal of several excess buildings from their inventory. LIRI has removed their primitive campground facilities.
Trails	9 / 11	0.130 / 0.163		The park has constructed a new 6-mile backcountry trail in 2013. Several other trail projects are scheduled to provide tread and erosion upgrades to the most popular trails at LIRI. The condition here is shown as green, as projects for outstanding trail improvement have not yet had costs estimated and entered.
Waste Water Systems	2 / 2	0.000 / 0.000		LIRI has installed alternative waste management systems. These eco-friendly systems are a peat-moss bio filter system, which utilizes a specially-cultivated sphagnum peat moss for the treatment of tank effluent.
Water Systems	2 / 2	0.000 / 0.000		LIRI water systems in these two locations are provided by local city or county water companies, which guarantee visitors and employees a safe, potable water source.
Unpaved Roads	15 / 0	0.105 / ----		LIRI has several projects in the system to improve the current condition of their primitive road system. The roads currently receive annual maintenance to keep them in usable condition. Reclassification of the road type makes them not appear under Unpaved Roads in the FCI analysis.

Overall Facility Condition Index (continued)

[web](#) ▶

Asset Category	Number of Assets 2010 / 2015	FCI 2010 / 2015	Condition Status/Trend	Rationale
Paved Roads, Parking Areas, Bridges, Tunnels	28 / 44	0.006 / 0.012		LIRI owns 6 paved roads and parking areas. The rest of these listed are unpaved areas or assets owned by state or county agencies with some joint management. LIRI's paved roads and parking areas are all in Good condition.
All Others	34 / 37	0.174 / 0.071		New interpretive media waysides have been installed in 2014 to provide better information for visitors. Administrative functions are now located in the new Canyon Center.

Chapter 3. Summary of Key Stewardship Activities and Accomplishments

Activities and Accomplishments

The list below provides examples of stewardship activities and accomplishments by park staff and partners to maintain or improve the condition of priority park resources and values for this and future generations:

Natural Resources

- The park initiated a black bear research project in 2014 to determine the current status of bears using the park.
- LIRI recently received a grant to support bat house building workshops where visitors can “make-and-take” a bat house.
- A citizen science project for bat acoustics is in the planning stages, to be implemented in FY 2016.
- The park is supporting Spookapalooza, a partnership with De Soto state park and JSU for bat-centric education.
- Comprehensive exotics management and eradication is ongoing.
- Green Pitcher Plant monitoring.
- Long-term forest monitoring of 32 sites in the park was initiated in 2011. The plots are revisited every five years to document the status and long-term trends in the condition of park forests.

Cultural Resources

- Curatorial storage for LIRI and Russell Cave National Monument (RUCA) was established in the new partner facility.
- The park identified part of the Trail of Tears near park headquarters.
- The park conducted two History Day events during which local people permit the park to copy personal, historic photos, documents, and ephemera for the park archives, and to document the history of the park and adjacent settlements.

Visitor Experience

- New bilingual park waysides were installed, giving clearer direction.
- Kayaking programs have been initiated, providing a unique visitor experience, connecting with nature, experiencing the river from beyond the waysides.
- The Ticket to Ride (2 years) program assists with bringing local students into the park for learning activities.
- The Knap-In Event is held annually, providing instruction and demonstration of creation of stone tools by prehistoric processes.
- Second Saturday Programs provide activities in the park related to Natural and Cultural resources, including the butterfly walk.
- The DeSoto 475th commemoration Event was held in 2015 commemorating history of Spanish exploration of the south.
- For the 175th Anniversary of the Trail of Tears in 2013–14 the park hosted events to honor the native residents of this area and talk about their removal to the Indian Territory.
- In 2012 to commemorate the 20th anniversary of the creation of Little River the park invited those who were influential in creating the park to come and speak about their efforts.

Park Infrastructure

- Removed the primitive restrooms and campgrounds for the health and safety of visitors.
- Provide improvement to main visitor facilities throughout the park by reroofing, painting and other repairs.
- Provided upgrades such as new handrails, paving and signs to popular overlooks.
- Purchased and installed new directional road signs.
- Constructed a new Backcountry trail in 2013 (DeSoto BC Trail).
- Purchased and installed new interpretive media throughout park overlooks.
- Improvements to main falls viewing area such as parking and walkways were completed in 2010.

Chapter 4. Key Issues and Challenges for Consideration in Management Planning

Issue/Challenge/Opportunity #1

The preserve, like all other units of the National Park Service, faces many challenges. Shortage of staff is a major concern. The number of full time permanent staff of Little River has dropped since the last budget increase the preserve received due to increased personnel cost. This has led to smaller staffs in all operating divisions and a reliance on volunteers to do many jobs that are traditionally done by paid staff. While volunteers do an admirable job, they also work on an occasional basis and at times do not show up for a shift on the visitor center front desk, which further impacts park operations due to someone having to cover the front desk when they have more pressing needs elsewhere.

The preserve is fortunate to have a few very dedicated volunteers who work several days a week greeting visitors either at the front desk or at the falls providing some NPS presence. Visitors to the preserve are hard pressed to see someone in an NPS uniform. There is no foreseeable end to this challenge.

Archeological sites are known to have been disturbed. There is only one interpreter to do programing. A small maintenance staff means that the maintenance backlog grows every year. Despite the staffing shortcomings, the staff generally has a good attitude and is used to wearing many hats to get things accomplished. The divisions all help out each other for special programing and events.

Issue/Challenge/Opportunity #2

The preserve has a somewhat unique partnership with Jacksonville State University. In 2010, the park staff moved from rented office space in Fort Payne and other areas to a new state-of-the-art building, The Canyon Center. This building was built by Jacksonville State on property next to the preserve. This large space finally brought all divisions under one roof and adjacent to Little River Falls.

The building serves as the main contact station for visitors coming to the park as well as a place for joint education programs between the school and the service. There are large classrooms for programs and other events. A large theater shows a JSU-produced film about the university and its education efforts and the canyon. There are fully-accessible amenities including a gift shop and restrooms featuring many conservation signs about how the restrooms help protect the environment.

Because the visitor's center is not run by the NPS, it does not always meet the expectations of visitors. Its hours are non-standard—10 am to 4 pm—thus excluding early or late visitation. There are no exhibits and there is no mechanism to get permanent NPS exhibits, because the building belongs to and is managed by an outside organization. The park is pursuing options for obtaining temporary exhibits. An additional issue is that GPS and mobile mapping applications do not correctly map the address of the Canyon Center, which reduces visitation and occasionally results in visitors getting stuck on backcountry roads.

Issue/Challenge/Opportunity #3

One of the reasons for units of the National Park Service to exist is visitor enjoyment and Little River Canyon certainly supplies plenty of that for the over 200,000 annual visitors. That also comes at a cost to both park staff and visitors. A major issue we have is trash in the busy public areas along the river. Due to the small size of the staff of the Preserve (just two permanent maintenance workers) and the small Law Enforcement division, litter is a problem. Visitors to the swimming holes often feel inclined to leave cans, bottles, used diapers, articles of clothing and especially cigarette butts for staff and volunteers to pick up with no concern about the visual impact, the safety aspect of broken glass where visitors might be barefooted and health concerns with dirty diapers strewn about. When Law Enforcement is present these activities all cease, but as soon as they leave to go to another area of the park, the litter returns and there is not enough funding for the park to keep someone there during all daylight hours.

We are lucky to have a group of dedicated volunteers who have taken it upon themselves to clean up these areas when they can and it will look great for a few hours, but then the litter returns. This is not just a problem at Little River. It is a problem region-wide. In speaking with business and community leaders in the surrounding areas, they are all concerned with litter and its impact on the resource and it is viewed as a challenge to educate people, work with schools and organizations to get them to see what litter is, what it does to the area, and why they should not litter. It will be a long uphill battle, but one that must be fought.

Issue/Challenge/Opportunity #4

Little River has a visitor safety problem. We average two drownings and fifteen rescues from the canyon a year. Signs warning visitors of the dangers of the river and the steep drop offs often go unheeded. The park stations one interpretive ranger or trusted volunteer near the edge of Little River Falls to keep people away from the 45-foot drop into the pool below. The pull of jumping from the edge is just too great for some visitors and they deeply resent that we do not allow this activity, yet visitor injuries have decreased since we initiated this policy.

In other areas where people engage in risky behaviors, it is more difficult to patrol or intervene and there are more injuries and fatalities in these areas. The park is working hard to break these long-standing habits of individuals who believe it is their right to do these activities and we have reduced the fatality count over the past few years through intervention, uniformed presence, and signage, but there is always room for improvement and to attain our goal of zero visitor fatalities.

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See Also:

[Collection of Natural Resource-Related References](#)

[Collection of Cultural Resource-Related References](#)

[Collection of Visitor Experience-Related References](#)

Glossary

See the [State of the Parks home page](#) for a link to a complete glossary of terms used in State of the Park reports. Definitions of key terms used in this report are as follows:

Americans with Disabilities Act (ADA)	Law enacted by the federal government that includes provisions to remove barriers that limit a disabled person's ability to engage in normal daily activity in the physical, public environment.
Archeological Sites Management Information System (ASMIS)	The National Park Service's standardized database for the basic registration and management of park prehistoric and historical archeological resources. ASMIS site records contain data on condition, threats and disturbances, site location, date of site discovery and documentation, description, proposed treatments, and management actions for known park archeological sites. It serves as a tool to support improved archeological resources preservation, protection, planning, and decision-making by parks, centers, regional offices, and the national program offices.
Baseline Documentation	Baseline documentation records the physical condition of a structure, object, or landscape at a specific point in time. A baseline provides a starting point against which future changes can be measured.
Carbon Footprint	Carbon footprint is generally defined as the total set of greenhouse gas emissions caused by an organization, event, product, or person.
Climate Friendly Park	The NPS Climate Friendly Park designation requires meeting three milestones: completing an application; completing a comprehensive greenhouse gas (GHG) inventory; and completing a Climate Action Plan, which is the actions, policies, programs, and measures a park will put into place to reduce its GHG emissions.
Cultural Landscapes Inventory (CLI)	A Cultural Landscapes Inventory describes historically significant landscapes within a park. The inventory identifies and documents each landscape's location, size, physical development, condition, characteristics, and features, as well as other information useful to park management.
Cultural Landscape Report (CLR)	A Cultural Landscape Report is the principal treatment document for cultural landscapes and the primary tool for long-term management of those landscapes. It guides management and treatment decisions about a landscape's physical attributes, biotic systems, and use when that use contributes to historical significance.
Cumberland/Piedmont Network (CUPN)	One of 32 I&M networks established as part of the NPS Inventory and Monitoring Program . The Cumberland/Piedmont Network provides scientific data and expertise for natural resources in 14 parks located in Kentucky, Tennessee, North Carolina, South Carolina, Alabama, and Georgia.
Curation	National parks are the stewards of numerous types of objects, field notes, publications, maps, artifacts, photographs, and more. The assemblage of these materials comprises a museum collection. Curation is the process of managing, preserving, and safeguarding a collection according to professional museum and archival practices.
Exotic Plant Management Team (EPMT)	One of the ways the NPS is combating invasive plants is through the Exotic Plant Management Team Program. The program supports 16 Exotic Plant Management Teams working in more than 225 park units. EPMTs are led by individuals with specialized knowledge and experience in invasive plant management and control. Each field-based team operates over a wide geographic area and serves multiple parks.
Facility Condition Index (FCI)	FCI is the cost of repairing an asset (e.g., a building, road, bridge, or trail) divided by the cost of replacing it. The lower the FCI number, the better the condition of the resource.

Foundation Document	A park Foundation Document summarizes a park’s purpose, significance, resources and values, primary interpretive themes, and special mandates. The document identifies a park’s unique characteristics and what is most important about a park. The Foundation Document is fundamental to guiding park management and is an important component of a park’s General Management Plan.
Fundamental and Other Important Resources and Values	Fundamental resources and values are the particular systems, processes, experiences, scenery, sounds, and other features that are key to achieving the park’s purposes and maintaining its significance. Other important resources and values are those attributes that are determined to be particularly important to park management and planning, although they are not central to the park’s purpose and significance. These priority resources are identified in the Park Foundation Document and/or General Management Plan. The short-cut name that will be used for this will be Priority Resources.
General Management Plan (GMP)	A General Management Plan is a strategic planning document that outlines the future management of a National Park Service site for the next 15 to 20 years. The plan will set the basic philosophy and broad guidance for management decisions that affect the park’s resources and the visitor’s experience.
Historic Integrity	Historic Integrity is the assemblage of physical values of a site, building, structure, or object and is a key element in assessing historical value and significance. The assessment of integrity is required to determine the eligibility of a property for listing in the National Register.
Historic Resource Study (HRS)	The historic resource study is the primary document used to identify and manage the historic resources in a park. It is the basis for understanding their significance and interrelationships, a point of departure for development of interpretive plans, and the framework within which additional research should be initiated.
Historic Structures Report (HSR)	The historic structure report is the primary guide to treatment and use of a historic structure and may also be used in managing a prehistoric structure.
Indicator of Condition	A selected subset of components or elements of a Priority Resource that are particularly “information rich” and that represent or “indicate” the overall condition of the Priority Resource. There may be one or several Indicators of Condition for a particular Priority Resource.
Integrated Resource Management Applications (IRMA)	The NPS-wide repository for documents, publications, and data sets that are related to NPS natural and cultural resources.
Interpretation	Interpretation is the explanation of the major features and significance of a park to visitors. Interpretation can include field trips, presentations, exhibits, and publications, as well as informal conversations with park visitors. A key feature of successful interpretation is allowing a person to form his or her own personal connection with the meaning and significance inherent in a resource.
Invasive Species	Invasive species are non-indigenous (or non-native) plants or animals that can spread widely and cause harm to an area, habitat, or bioregion. Invasive species can dominate a region or habitat, out-compete native or beneficial species, and threaten biological diversity.
List of Classified Structures (LCS)	LCS is an inventory system that records and tracks the condition of the approximately 27,000 historic structures listed in the National Register of Historic Places that are the responsibility of NPS.
Museum Collection	NPS is the steward of the largest network of museums in the United States. NPS museum collections document American, tribal, and ethnic histories; park cultural and natural resources; park histories; and other aspects of human experience. Collections are managed by professionally-trained NPS staff, who ensure long-term maintenance of collections in specialized facilities.

National Historical Park (NHP)	Historic areas in the National Park System that have great physical extent and complexity. NHPs are automatically listed on the National Register of Historic Places.
National Historical Landmark (NHL)	National Historic Landmarks are nationally significant historic places designated by the Secretary of the Interior because they possess exceptional value or quality in illustrating or interpreting the heritage of the United States. Today, fewer than 2,500 historic places bear this national distinction.
National Natural Landmark (NNL)	The National Natural Landmarks (NNL) Program recognizes and encourages the conservation of sites that contain outstanding biological and geological resources, regardless of landownership type. It is the only natural areas program of national scope that recognizes the best examples of biological and geological features in both public and private ownership.
Native American Graves Protection and Repatriation Act (NAGPRA)	A federal law passed in 1990. NAGPRA provides a process for museums and federal agencies to return certain Native American cultural items (e.g., human remains, funerary objects, sacred objects, objects of cultural patrimony) to lineal descendants and culturally-affiliated Indian tribes and Native Hawaiian organizations.
Natural Resource Condition Assessment (NRCA)	A synthesis of existing scientific data and knowledge, from multiple sources, that helps answer the question: what are current conditions of important park natural resources? NRCAs provide a mix of new insights and useful scientific data about current park resource conditions and factors influencing those conditions. NRCAs have practical value to park managers and help them conduct formal planning and develop strategies on how to best protect or restore park resources.
Priority Resource or Value	This term refers to the Fundamental and Other Important Resources and Values of a park. These can include natural, cultural, and historic resources as well as opportunities for learning, discovery, and enjoyment. Priority Resources or Values include features that have been identified in park Foundation Documents, as well as other park assets or values that have been developed or recognized over the course of park operations. Priority Resources or Values warrant primary consideration during park planning and management because they are critical to a park's purpose and significance.
Project Management Information System (PMIS)	A servicewide intranet application within the National Park Service to manage information about requests for project funding. It enables parks and NPS offices to submit project proposals to be reviewed, approved, and prioritized at park units, regional directorates, and the Washington Office.
Resource Management	The term "resources" in NPS encompasses the many natural, cultural, historical, or sociological features and assets associated with parks. Resource management includes the knowledge, understanding, and long-term stewardship and preservation of these resources.
Specific Measure of Condition	One or more specific measurements used to quantify or qualitatively evaluate the condition of an Indicator at a particular place and time. There may be one or more Specific Measures of Condition for each Indicator of Condition.
Visitor and Resource Protection (VRP)	VRP includes, among other responsibilities, protecting and preserving park natural and cultural resources, enforcing laws that protect people and the parks, fire management, search and rescue, managing large-scale incidents, and on-the-ground customer service.

Volunteers In Parks Program (VIP)

The Volunteers In Parks Program was authorized by Public Law 91–357 enacted 1970. The primary purpose of the VIP program is to provide a vehicle through which the National Park Service can accept and utilize voluntary help and services from the public. The major objective of the program is to utilize this voluntary help in such a way that is mutually beneficial to the National Park Service and the volunteer. Volunteers are accepted from the public without regard to race, creed, religion, age, sex, sexual orientation, national origin, or disability.

Wilderness

A designation applied to certain federal lands set aside for preservation and protection in their natural condition, in accordance with the [Wilderness Act of 1964](#).