



# State of the Park Report

## Natchez Trace Parkway

Alabama/Mississippi/Tennessee

Natchez Trace National Scenic Trail

Brices Cross Roads National Battlefield Site

Tupelo National Battlefield



2016

**On the cover:** The Natchez Trace Parkway, near milepost 75. NPS/©MarcMuench.

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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

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The mission of the National Park Service (NPS) 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.

The Natchez Trace Parkway (Parkway or park) was established on May 18, 1938. Three other units—with their own enabling legislation—are located along or in proximity to the Parkway and are managed by Parkway staff. These units are the Natchez Trace National Scenic Trail (established March 28, 1983), Brices Cross Roads National Battlefield Site (established February 21, 1929), and Tupelo National Battlefield (established February 21, 1929). These dates reflect when the enabling legislation adopted by Congress was signed into law.

The Natchez Trace Parkway commemorates more than 10,000 years of travel along the Old Natchez Trace corridor and provides a 444-mile journey linking culture, nature, and history along one of the oldest transportation routes on the North American continent.

The summary table, below, and the supporting information that follows, provide an overall assessment of the condition of priority resources and values at the Parkway based on scientific and scholarly studies and expert opinion. The internet version of this report, available at <http://www.nps.gov/stateoftheparks/natr/>, 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.

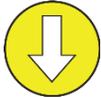
The Status and Trend symbols used in the summary table below and throughout this report are summarized in the following key. The background color represents the current condition status, the direction of the arrow summarizes the trend in condition, and the thickness of the outside line represents the 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	
	<b>Warrants Significant Concern</b>		<b>Condition is Improving</b>		<b>High</b>
	<b>Warrants Moderate Concern</b>		<b>Condition is Unchanging</b>		<b>Medium</b>
	<b>Resource is in Good Condition</b>		<b>Condition is Deteriorating</b>		<b>Low</b>

## State of the Park Summary Table

Priority Resource or Value	Condition Status/Trend	Rationale
<b>Natural Resources</b> <a href="#">web</a> ▶		
<b>Air Quality</b>		Scenic views are often obscured by air pollution-caused haze; however, visibility is improving. 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 park 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.
<b>Soils and Geology</b>		Maintaining infrastructure along the Parkway is challenging as natural and human-caused erosion issues have increased in frequency and severity. In many instances, the loss of soil and the addition of material moved by water or gravity can cause separate but related impacts. The linear configuration of the Parkway boundary allows for increased exposure to erosion events caused from development and other activities adjacent to the park. The Parkway also preserves unique areas of highly erodible soils (Black Belt prairie and Loess) and geologic formations such as caves and karst.
<b>Water Quantity and Quality</b>		Quarterly water quality sampling began at the Parkway in summer 2007 at 52 sites along the Parkway (Earleywine 2010). Beginning in 2008 monitoring has been narrowed to quarterly monitoring of 32 stations by the NPS Gulf Coast Network.  Like most natural resources of the Parkway, Water Quality is difficult to summarize in a singular fashion. Besides the large linear range of Parkway streams added variability is caused by flow condition. In general, the higher gradient bed-rock channeled streams of Tennessee have good water quality at low flow, while the low-gradient streams of Mississippi can have depressed dissolved oxygen as a reflection of hydrologic condition. All streams can have elevated <i>E. coli</i> bacteria immediately following rainfall during higher flows.

Priority Resource or Value	Condition Status/Trend	Rationale
Vegetation		<p>Parkway vegetation covers four distinct ecosystems and provides habitat for nearly 1,500 species of plants.</p> <p>There are more than 200 species of exotic and invasive plants present in the Parkway and they continue to invade over time and with new land disturbances. Despite this trend, managers continue to treat exotics and foster native species. Some rare plant communities, such as Black Belt prairie and Western Highland Rim barrens, contain species of management concern, and the Parkway is working to protect them.</p>
Wildlife		<p>Researchers have documented 23 different reptile and amphibian species for the Parkway, as monitoring and research continues in critical habitat areas. For bird species data, Christmas Bird Counts have been conducted in addition to the breeding bird surveys. Fish research conducted on Parkway waterways has documented more than 200 species.</p>
Species of Active Management		<p>Many of the wildlife species that require active management are non-native or feral domestic animals. Limited trapping has been conducted on feral hogs, as they cause damage to natural and cultural resources. Fire ant baiting is done in administrative areas; however, fire ants also cause negative impacts to native wildlife in natural areas. Feral cats and dogs, including abandoned strays found through the park, require continual management and, when possible, human relocation to keep populations from growing. Finally, in numerous locations along the Parkway, native beaver have dammed waterways causing impacts to infrastructure and neighboring landowners; invasive nutria rats are also found in association with the dams.</p>
Species of Concern		<p>A majority of the species of concern for Parkway management are associated with rare or unique vegetation communities. Until restoration and prescribed burning was conducted on Black Belt prairie sites, the federally-threatened Price's potato bean was not documented. Tennessee yellow-eyed grass was reintroduced at three sites after a flood event; however, the population has not rebounded to previous numbers. The federally-endangered Mitchell's satyr butterfly has also seen population decline in recent years.</p>
Landscape Dynamics		<p>Adjacent land use affects many processes inside the park, including increasing the habitat degradation and fragmentation, spread of non-native species of plants and animals, impacts to air and water quality, and degradation of viewsheds and soundscapes. Mapping efforts can help managers become informed of land use changes; but, Parkway staff has very little control over development outside the park boundary. When the Parkway was established, right-of-ways were retained, and development pressures for roads and utility lines continue to be a constant impact for Parkway resources.</p>
Dark Night Sky		<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. ALR for Natchez Trace Parkway &amp; Scenic Trail is 1.40, which is considered a moderate condition. Trend is negative based on rapid population growth (30%) of the Nashville-Davidson-Murfreesboro-Franklin Metropolitan statistical area from 2008 to 2013 (U.S. Census Bureau 2013) and moderate growth of the Jackson, Mississippi metropolitan area (7%). No lighting ordinances or light pollution mitigation efforts are currently in place in these urban centers.</p>

Priority Resource or Value	Condition Status/Trend	Rationale
Acoustic Environment		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. The mean acoustic impact level at the park is 3.0 dBA, meaning that the condition of the acoustic environment warrants moderate concern. Overall, long-term projected increases in ground-based (U.S. Federal Highway Administration 2013) and aircraft traffic (Federal Aviation Administration 2010) indicate a deteriorating trend in the quality of acoustic resources at this location.
<b>Cultural Resources</b> <span style="float: right;"><a href="#">web</a> ▶</span>		
Archeological Resources		There are 321 archeological sites listed in the ASMIS database with 263 subsites. Time periods represented include sites from the Archaic Period 8,000 to 1,500 years Before Present (BP) to the Great Depression era sites. 300 are listed in good condition, 2 fair, 5 poor, 13 inundated (in the Tennessee River), 1 unknown, and 18 destroyed (by Parkway construction). Approximately 1% of the Parkway has been surveyed. The Parkway has a draft 2005 Archeological Overview and Assessment (AOA). Sites located since 2005 have to be added to make it complete. The park uses the draft AOA regularly for Compliance and management decisions.
Cultural Anthropology		The Parkway needs an Ethnographic Overview & Assessment (EOA). In the 1990s, a large NAGPRA consultation meeting for Natchez Trace Parkway was held. The meeting produced a list of 20 tribes associated with sites containing human remains. That list is the basis for past and current American Indian consultations. This will not affect the EOA for NAGPRA, but might affect the list for Traditionally Associated People.
Cultural Landscapes		<p>Of five component landscapes that have been identified for the Natchez Trace Parkway—Meriwether Lewis, John Gordon House, Tupelo Homesteads, Mount Locust, and the Parkway’s designed landscape—Cultural Landscape Reports have been completed for John Gordon House, Mount Locust, and Meriwether Lewis.</p> <p>Further research is needed to determine if other component landscapes could be identified. National Register documentation needs to be updated for four of the five component landscapes. Four of the five need completed Cultural Landscape Inventories.</p>
Historic Structures		The Parkway has 146 structures listed in the List of Classified Structures. A Historic Resource Study is needed to inventory and evaluate the Parkway’s historic structures. Additionally, Historic Structure Reports are needed to document existing conditions and provide treatment recommendations to inform management decisions and before any stabilization or restoration work.
History		There are numerous historical studies on topics ranging from American Indian history, Old Trace locations and context, historic inns, plantations, etc. The archival collection contains historic maps, photographs, and documents related to the historical sites along the Parkway and the creation of the Parkway itself. It is likely that hundreds of additional structures related to the Parkway’s infrastructure (bridges, drainage structures, roadway prism) are eligible to the National Register much like those of the Blue Ridge Parkway and Skyline Drive.

Priority Resource or Value	Condition Status/Trend	Rationale
Museum Collections		Museum and archival collections are in good condition with 884,179 total collections reported in FY 2014 in the following categories: archeology, ethnology, history, archives, art, biology, paleontology, and geology. Baseline Documents need to be reviewed and updated, and a comprehensive archival survey is critical for the entire Parkway.
<b>Visitor Experience</b> <a href="#">web</a> ▶		
Number of Visitors		Recreational visitor numbers show yearly fluctuations; however, the overall visitation trend over the last five years is stable with a median number of 5.75 million annual recreational visitors. An estimated 9 million non-recreational visitors use the Parkway annually.
Visitor Satisfaction		Visitor satisfaction, as evaluated by the annual visitor survey, is high. Scores range from a 98% to 100% positive rating.
Interpretive and Education Programs – Talks, Tours, and Special Events		Parkway staff works diligently to provide personal interpretive services to both traveling and local visitors. Using educational programming, public outreach, and special events, the park provides interpretive opportunities to over 120,000 people annually. Staffing levels are insufficient to provide adequate personal services along the Parkway’s 444-mile length.
Interpretive Media – Brochures, Exhibits, Signs, and Website		Formal assessments of the park’s interpretive offerings identified interpretive media as an effective, cost-efficient way to connect with Parkway visitors. Significant improvements (new interpretive films, new waysides, upgraded web and social-media content) have been made. Numerous sites along the Parkway’s 444 miles still contain outdated information in poor physical condition.
Accessibility		Significant improvements have been made in mobility accessibility with fewer but still noteworthy improvements in audio and visual accommodation. Numerous recreationally and thematically significant sites lack a full range of accessible opportunities throughout the park’s 444 miles.
Safety		The safety of visitors is a park priority. The park works to quickly identify and mitigate potential hazards. The number of accidents is very low with the majority the result of motor vehicle accidents.
Partnerships		The Natchez Trace Parkway has facilitated positive growth of partnerships in the last five years; successfully maintaining long-term partnerships with the Natchez Trace Parkway Association, the Natchez Trace Compact, and Eastern National. Parkway staff members are strengthening more recent partnerships with the Chickasaw, Choctaw, and educational and volunteer groups. Newer partnerships include various universities, National Heritage Areas, Adventure Cycling Association and other bicycle-related organizations.
<b>Park Infrastructure</b> <a href="#">web</a> ▶		
Overall Facility Condition Index		The Parkway continues to make investments in roadways, water systems, and buildings that serve visitor services. Management and upkeep of facilities is an ongoing challenge, due to the large, linear nature of the Parkway.

# 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 Parkway continued long-term Black Belt prairie restoration efforts, including re-establishment of rare and threatened plant species.
- Acquired four acres of new land along the Bogue Chitto creek in 2011 and conducted wetland restoration.
- Increased staff capacity in the resource management division by 33% in 2014 has helped to support the diverse projects and needs of a dynamic resource management program.
- Fire Management successfully conducts prescribed fires on approximately 1,000 acres annually.
- Treatment of approximately 50 acres of non-native plant species occurs annually.

## Cultural Resources

- The Parkway is exploring the historic leasing option for eight houses in the Tupelo Homestead historic district. A Request for Expression of Interest has been published and a public open house held. Staff continues to work with the Regional Office, and a Request for Proposals for historic leasing proposals is pending.
- The Parkway sponsored an Archeological Resource Protection Act (ARPA) class for Parkway staff to learn their roles and responsibilities to protect archeological resources, and to gain skills for documenting resource damage.
- The Parkway is currently partnering with the Chickasaw Nation to support the construction of a Chickasaw heritage center on Chickasaw land next to the NPS Chickasaw Village Site. When complete, this facility will augment the Parkway's interpretive themes from the Chickasaw's perspective.

## Visitor Experience

- NPS is currently working with the Chickasaw Nation and the Choctaw Nation of Oklahoma to update and accurately interpret the American Indian story at key locations along the Natchez Trace Parkway. This grant-funded project will ultimately produce 43 interpretive waysides and 10 new pieces of original art depicting the area's first inhabitants.
- The [Parkway's Facebook](#) page is a source of timely information about the park, including detour and road condition updates, special events announcements and photos of the beautiful scenery and wildlife found along the Natchez Trace Parkway.
- The National Park Foundation's "Ticket to Ride" program has enabled over 1,000 students to attend field trips to the Natchez Trace Parkway this year. This was the first national park experience for many of the students. This program is scheduled to grow.
- The Interpretive Division has been honored three times at the Southeast NPS Region "Keeper of the Light Award for Interpretive Excellence" in the last five years. The three categories are: Interpretive Support, Educational Outreach, and Interpretive Media.
- Parkway interpretive staff has strengthened relationships with tribal partners through cooperative work on interpretive media and educational partnerships. These partnerships have led to a greater understanding of the American Indian story along the Parkway and improved interpretation presented in the park's film, website, and waysides.

## Park Infrastructure

- The Parkway added eight new restroom facilities.
- Low-flow water fixtures and low-wattage lighting improvements were made to the visitor center, headquarters buildings, and other buildings along the Parkway.
- The Parkway has made a substantial investment in upgrading communications along the length of the park. New radio towers, a radio dispatch center, and improved communications equipment will improve park safety and expedite emergency response.
- Improved the safety of the Blackland Prairie section of the Natchez Trace National Scenic Trail by working in conjunction with Burlington Northern Santa Fe Railroad to construct a pedestrian crossing over the tracks that intersect with the trail.

# Key Issues and Challenges for Consideration in Management

## Planning

- The Parkway works with 3 states, 25 counties, 20 communities, numerous tribal governments, 13 members of Congress, 3,000 private and commercial landowners, three National Heritage Areas, and other conservation, economic, developmental, tourism, and preservation organizations.
- The Parkway is a 444-mile long, 52,000-acre unit of the National Park Service with an average width of 825 feet. Exceptions to this width include Jeff Busby, Meriwether Lewis, Rocky Springs, Chickasaw Village and a handful of other locations. The Parkway takes over 10 hours to drive from end to end.
- Nearly 15 million people visit the Parkway, and that use contributed approximately \$135,828,000 to the local economy in 2014.
- The total deferred maintenance for the Parkway was valued at \$307 million in February 2016. Of this, 93% is in roadway assets, paved roads, parking areas, and bridges. Good preservation maintenance of the roadway can cost \$150,000 per mile every 10 to 15 years. Lack of preservation can lead to full reconstruction, which can cost up to \$1 million per mile.
- The Parkway has 65 miles of national scenic trail, 40 miles of bike, equestrian, and hiking paths, and 100 miles of rivers and streams.

# Chapter 1. Introduction

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The purpose of this State of the Park report for Natchez Trace Parkway (Parkway) 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.

The Natchez Trace Parkway was established on May 18, 1938. Three other units—with their own enabling legislation—are located along or in proximity to the Parkway and are managed by Parkway staff. These units are the Natchez Trace National Scenic Trail (established March 28, 1983), Brices Cross Roads National Battlefield Site (established February 21, 1929), and Tupelo National Battlefield (established February 21, 1929). These dates reflect when the enabling legislation adopted by Congress was signed into law.

The Natchez Trace Parkway commemorates more than 10,000 years of travel along the Old Natchez Trace corridor and provides a 444-mile journey linking culture, nature, and history along one of the oldest transportation routes on the North American continent.

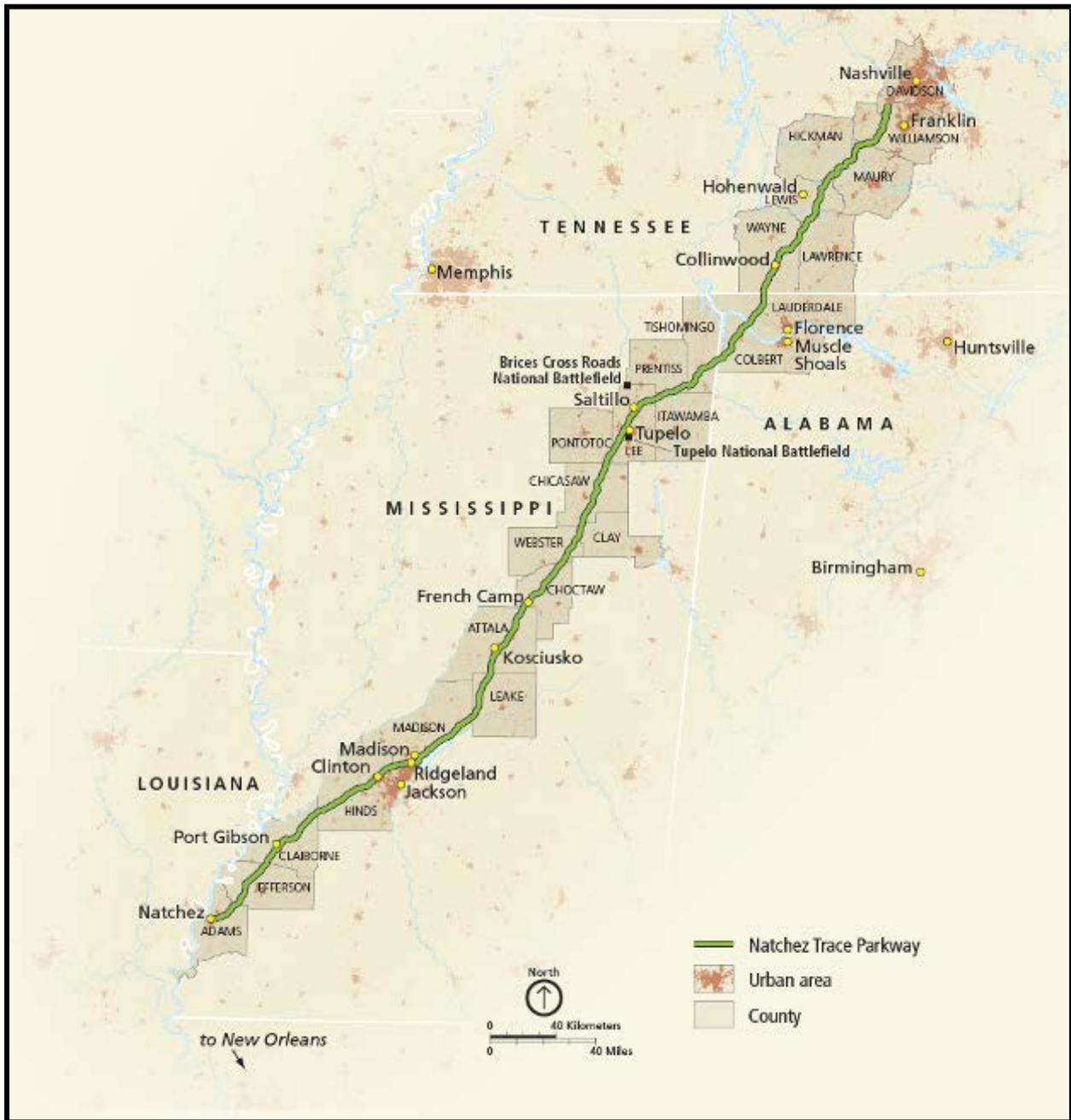
The following significance statements have been identified for the Parkway:

- As one of the oldest transportation routes, the Old Natchez Trace travel corridor has been an avenue of travel, trade, change, conflict, and communication for more than 10,000 years. It is now honored as a designed landscape, making the Natchez Trace the only Parkway to commemorate an ancient travel route.
- Many native peoples, including the Chickasaw, Choctaw, and Natchez, created vibrant cultures that thrived for thousands of years along what is now the Natchez Trace Parkway. Today, the Parkway links more than 350 archeological sites and 22 mound sites, including Emerald Mound, the second-largest ceremonial mound in the United States.
- The Parkway's uninterrupted corridor traverses approximately five degrees of latitude, includes seven major ecoregions, protects more than 2,600 species (some rare, threatened, and endangered), and preserves and restores historic landscape vegetation.
- The Old Natchez Trace played an important role in the development of the nation by providing a route to facilitate trade, settlement, and transportation throughout the Old Southwest. Notably, parts of the route were widened by the military in the early 1800s and then used by General Andrew Jackson to move volunteer militia and regular army troops to and from the Battle of New Orleans.

The following significance statement has been identified for Brices Cross Roads National Battlefield Site and Tupelo National Battlefield.

- Brices Cross Roads and Tupelo were two battles late in the American Civil War critical to the protection of the single-track railroad that provided supplies to the Union Army during Sherman's Atlanta Campaign.

Natchez Trace Parkway passes by or through several major urban areas along its route, including Jackson and Tupelo, Mississippi; Florence, Alabama; and Nashville, Tennessee. The Parkway boundary encompasses about 18,524 ha (52,332 acres), much of which is managed as undisturbed forest and open area. The average width of the Parkway land is 250 m (825 ft), though it varies, with notable exceptions being Meriwether Lewis, Rocky Springs, and Jeff Busby where there are campgrounds and recreational facilities that cover a few hundred acres. It ranges in elevation from 21 m (70 ft) to 335 m (1,100 ft) above sea level.



Location of Natchez Trace Parkway in Alabama, Mississippi, and Tennessee (NPS/TerraCarta)

For a map of the Natchez Trace National Scenic Trail, please visit [www.nps.gov/natt](http://www.nps.gov/natt).

For a map showing the Trail of Tears National Historic Trail, please visit [www.nps.gov/trte](http://www.nps.gov/trte).

# 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 involvement 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 used 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		 <a href="#">web ▶</a>	
Indicators of Condition	Specific Measures	Condition Status/Trend	Rationale
Ozone	Human Health: Annual 4th-highest 8-hour concentration		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 68.6 parts per billion (ppb). Ozone is a respiratory irritant, causing coughing, sinus inflammation, chest pains, scratchy throat, lung damage, and reduced immune system functions. Children, the elderly, people with existing health problems, and active adults are most vulnerable. For the 2004–2013 decade, the trend in ozone concentration improved. The degree of confidence in the status and trend of human health risk from ground-level ozone is high because there is a nearby ozone monitor (AQS Monitor ID: 280810005, MS; <a href="#">NPS-ARD 2015</a> ).

## Air Quality (continued)

[web](#) ▶

Indicators of Condition	Specific Measures	Condition Status/Trend	Rationale
<p><b>Ozone (continued)</b></p>	<p>Vegetation Health: 3-month maximum 12-hour W126</p>		<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 8.8 parts per million-hours (ppm-hrs). The W126 metric relates plant response to ozone exposure during daylight hours over the growing season. A risk assessment concluded that the risk for ozone damage to plants along the Parkway ranged from low to high depending on location (<a href="#">Kohut 2004</a>, <a href="#">Kohut 2007</a>). There are many ozone-sensitive plants in the park including: green ash (<i>Fraxinus pennsylvanica</i>), sweet gum (<i>Liquidambar styraciflua</i>), common blackberry (<i>Rubus allegheniensis</i>), cutleaf coneflower (<i>Rudbeckia laciniata</i>), and tulip poplar (<i>Liriodendron tulipifera</i>) (<a href="#">NPSpecies 2015</a>). For the 2004–2013 decade, the trend in the W126 metric remained relatively unchanged (no statistically significant trend). The degree of confidence in the status and trend of vegetation health risk from ground-level ozone is high because there is a nearby ozone monitor (AQS Monitor ID: 280810005, MS; <a href="#">NPS-ARD 2015</a>).</p>
<p><b>Deposition</b></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 3.0 to 3.7 kilograms per hectare per year (kg/ha/yr) range of wet sulfur deposition. To maintain the highest level of protection in the park, the maximum of this range (3.7 kg/ha/yr) is used to determine the significant concern (<a href="#">NPS-ARD 2015</a>). The degree of confidence in the wet sulfur deposition status is medium because estimates are based on interpolated data from more distant deposition monitors (<a href="#">NPS-ARD 2015</a>).</p> <p>Ecosystems at the Parkway were rated as having high sensitivity to acidification effects relative to other 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 park. Acidification can also affect the reproduction and survival of fish, invertebrates, and phytoplankton (<a href="#">Sullivan et al. 2011a</a>, <a href="#">Sullivan et al. 2011b</a>).</p>

## Air Quality (continued)

[web](#) ▶

Indicators of Condition	Specific Measures	Condition Status/Trend	Rationale
<p><b>Deposition (continued)</b></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 3.5 to 4.7 kilograms per hectare per year (kg/ha/yr) range of wet nitrogen deposition. To maintain the highest level of protection in the park, the maximum of this range (4.7 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 (<a href="#">NPS-ARD 2015</a>). While agricultural run-off contributes substantial amounts of nitrogen to waterways in the Parkway, atmospheric nitrogen deposition from nearby power plants can also contribute to nitrogen deposition.</p> <p>Although the Parkway 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 other parks. However, the park’s wetland communities may be vulnerable to excess nitrogen deposition, which can alter plant communities and reduce biodiversity (<a href="#">Sullivan et al. 2011c</a>, <a href="#">Sullivan et al. 2011d</a>). Excess nitrogen can also cause invasive exotic plant species to grow faster and out-compete native vegetation adapted to low nitrogen levels (Blett and Eckert 2013, Bobbink et al. 2010). Furthermore, the estimated total nitrogen deposition (wet plus dry) is above the minimum ecosystem critical loads for some park vegetation communities, suggesting that lichen and forest vegetation are at risk for harmful effects (<a href="#">NADP-TDEP 2014</a>, <a href="#">Pardo et al. 2011</a>).</p>

## Air Quality (continued)

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Indicators of Condition	Specific Measures	Condition Status/Trend	Rationale
<p><b>Deposition (continued)</b></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 12.8 to 14.8 micrograms per square meter (<a href="#">NPS-ARD 2015</a>) and predicted methylmercury concentrations in park surface waters range from very low to very high, depending on location (<a href="#">USGS 2015</a>). 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>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. Given the Parkway represents a diagonal bisect through a major agricultural region, persistent organic pollutants (POPs), especially pesticides, may also be of potential risk to the park’s resources (<a href="#">Gallaher et al. 2005</a>).</p>
<p><b>Visibility</b></p>	<p>Haze Index</p>		<p>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 10.9 deciviews (dv) above estimated natural conditions of 7.5 dv. Data from the Sipsy Wilderness visibility IMPROVE (Interagency Monitoring of Protected Visual Environments) monitoring site indicate that during the 2004–2013 decade, the trend in visibility improved on both the 20% clearest days and 20% haziest days, resulting in an overall improving visibility trend. The degree of confidence in the visibility status and trend at the Parkway is high because of the nearby visibility monitor (IMPROVE Site ID: SIPS1, AL; <a href="#">NPS-ARD 2015</a>).</p>



Indicators of Condition	Specific Measures	Condition Status/Trend	Rationale
<p><b>Erosion Issues</b></p>	<p>Severity of Erosion-related Challenges</p>		<p>In general, erosion-related issues are getting more severe along the Parkway. These issues manifest in two ways: either as problems related to removal of material such as unstable soil, or as the addition of material flushed downstream that contribute to sediment loading of streams. The Parkway has unique areas of highly erodible soils (Black Belt prairie and loess), where erosion management and soil preservation must be balanced. The Parkway also crosses a variety of landscapes, including wetlands and streams with beaver activity. Many areas of the Parkway are influenced by water and flow diversion from outside development adjacent to the park.</p> <p>Significant challenges to maintaining infrastructure include minimizing erosive processes in several locations. Bridge construction issues contribute to erosion, and rip-rap is used in some sections of the Parkway. To maintain habitat and the cultural landscape, the Parkway uses local rock, erosion-mats, strawing, and seeding where possible. A Parkway-wide survey of erosion issues would help track and monitor problem areas before they become severe.</p>
<p><b>Karst and Cave Formations</b></p>	<p>Geologic Inventory</p>		<p>A Geologic Resources Scoping Summary was prepared in 2010 in advance of a geologic resource inventory. Caves and karst formations provide specific habitat for amphibian and invertebrate species. Annual monitoring is conducted in the Parkway's largest cave. This cave serves as critical habitat for the endangered gray bat and is not open to the public.</p>



Indicators of Condition	Specific Measures	Condition Status/Trend	Rationale
<b>Water Quality</b>	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.</p> <p>With the exception of a few streams in the southern portion of the Parkway, water temperature is within state standards (Tennessee &lt; 30.5 °C, Alabama &lt; 32 °C, Mississippi &lt; 32.2 °C).</p>
	Specific Conductance		<p>Specific conductance 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. Anthropogenic factors, such as sewage discharge, can also affect conductivity, which may raise or lower conductance from natural levels. As a result, it is difficult to discern the impact potential for pollution from conductance values alone and is perhaps more useful to compare measurements to a baseline value.</p> <p>Middle Bywy Creek (Mississippi) occasionally has elevated specific conductance. This stream is partially recharged by the Red Hills lignite mine (<a href="#">Meiman 2014</a>).</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 (i.e. acidic) can potentially increase the mobility of toxic elements and in turn, their uptake by aquatic plants. pH of most Parkway streams is within state standards (<a href="#">Meiman 2014</a>).</p>
	Dissolved Oxygen		<p>Dissolved oxygen can drop below state standards (&gt; 5 mg/l) in some streams adjacent to the Parkway during the warm summer months. It is likely that these low values are within the stream's natural ranges. The warmer the water, the less oxygen that can be dissolved. Oxygen dissolves in the water by mixing with surface air, and increased speed increases the aeration. The oxygen deficiencies observed along the Parkway are compounded by slow moving streams typical of those found along the southern portions of the Parkway.</p>
	Acid Neutralizing Capacity		<p>Acid-neutralizing capacity is measured to assess the relative ability of the water to buffer acidic loading resulting from precipitation or other sources.</p>

## Water Quantity and Quality (continued)

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Indicators of Condition	Specific Measures	Condition Status/Trend	Rationale
<p><b>Water Quality (continued)</b></p>	<p>Bacterial Contamination</p>		<p><i>Escherichia coli</i> is used as an indicator of bacterial contamination. All Parkway streams have displayed elevated <i>E. coli</i> levels following rainfall events. The same streams have low bacterial counts under low flow conditions, a pattern consistent with non-point source agricultural runoff. Cypress Creek (TN) occasionally has high <i>E. coli</i> during low flow, which is caused by direct stream access by livestock immediately upstream of the Parkway. Colbert Creek (Rock Spring) (AL) sometimes has high <i>E. coli</i> attributed to heavy agricultural use or beaver activity upstream on the sampling site.</p>
	<p>Nitrate as NO<sub>3</sub></p>		<p>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.</p> <p>While there are no state nitrate standards for natural waters along the Parkway, we can use the USEPA drinking water standard of 45 mg/l as NO<sub>3</sub> as a comparison. Overall, Parkway nitrate levels are very low with the highest levels at Jackson Falls (TN) and Colbert Creek (Rock Spring, AL) ranging from 5 to 15 mg/l as NO<sub>3</sub>.</p>
	<p>Turbidity</p>		<p>Turbidity is a measurement of water clarity. With the exception of high flows following rainfall events, streams of the Parkway fall within state water quality standards.</p> <p>This measure has medium confidence due to the ambiguity of state standards.</p>

## Resource Brief: Water Quality at the Natchez Parkway



Glenrock Branch, TN, July 3, 2013. Image by Beth Meiman NPS.

The Natchez Trace Parkway traverses scores of streams. Some provide the traveler with a quiet recreational moment while others remain un-named and not accessed by many visitors. Streams of the Parkway are transient—commonly bisecting the park for only a few hundred meters—flowing across one boundary and out the other. Some are nearly pristine as they cascade over bedrock streambeds of Tennessee. Others fail to meet state designated use standards.

Very little was known about the water quality of the Parkway aside from a few limited studies and adjacent state ambient testing until a long-term monitoring program began in 2008. Streams of particular water and biological quality, and recreational and management significance, were chosen against a backdrop of basic logistics of collecting samples along a 444-mile long area. The long-term program is based upon annual quarterly sampling of 27 core sites, and bi-annual quarterly sampling of an additional six rotating sites, for a total of 33 sites.

While water quality is generally very good along the Parkway, there are streams and flow conditions that occasionally exceed state standards for dissolved oxygen, *E. coli*, and turbidity. Depressed dissolved oxygen occurs in the summer months as less oxygen can be dissolved in warmer water. Runoff during high flow events can cause exceedances of the turbidity standard. Agricultural runoff and re-entrainment of streambed sediments are likely the main contributors.

The same runoff that moves sediment also washes bacteria into the streams and higher flows are associated with elevated *E. coli*. Bacteria are also high at low flows in streams that allow direct livestock access.

### Vegetation



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Indicators of Condition	Specific Measures	Condition Status/Trend	Rationale
Wetlands	Wetland Acreage from Databases		<p>According to the <a href="#">U.S. Fish and Wildlife Service</a> (USFWS), there are approximately 1,110 ha (2,750 acres) of wetlands along the Parkway, most of which is forested.</p> <p>Although the National Wetlands Inventory data help identify larger complexes, many small scale wetlands are not included. Parkway projects that occur within wetlands may require individual site delineations. The completion of the Parkway's vegetation map in 2016 will help to identify smaller wetlands and their associated plant communities.</p> <p>Parkway roads, trails, and right-of-way corridors transverse wetland communities and impact function of the wetlands especially during new construction or renovation projects. In 2014, the Parkway acquired and restored four acres of wetlands at Bogue Chitto Creek as part of a mitigation project. This was a small step forward in protecting park wetlands.</p> <p>Many wetlands along the Parkway are created by ponding of water behind beaver dams; however, some dams have to be breached to alleviate flooding impacts. An assessment on beaver-created wetlands is in process in conjunction with <a href="#">NASA's Develop Program</a>.</p>

## Vegetation (continued)

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Indicators of Condition	Specific Measures	Condition Status/Trend	Rationale
<p><b>Exotic and Invasive Plants</b></p>	<p>Treatment Acreage</p>		<p>Invasive and exotic species have the ability to be particularly damaging to an ecosystem. Once established, these species can be difficult to eradicate (<a href="#">Hatch and Kruse 2008</a>). The linear nature of the Parkway leaves native habitats highly susceptible to the invasion of exotic plant species.</p> <p>Currently, more than 200 exotic species have been documented at the Parkway, representative of roughly 15% of all taxa in the park unit (NPSpecies; NPS 2012c). Some of the main problem species include Chinese privet (<i>Ligustrum sinense</i>), kudzu (<i>Pueraria lobata</i>), Japanese honeysuckle (<i>Lonicera japonica</i>), stiltgrass (<i>Microstegium vimineum</i>), Johnson grass (<i>Sorghum halepense</i>), tall fescue (<i>Schedonorus phoenix</i>), Callery pear (<i>Pyrus calleryana</i>), and tree-of-heaven (<i>Ailanthus altissima</i>).</p> <p>Although, exotic species continue to invade new areas within the Parkway, the trend for treated acreage is increasing. Ongoing treatments include mechanical reduction, prescribed fire, and herbicide application.</p>
<p><b>Native Plant Communities</b></p>	<p>Vegetation Map and Restoration Projects</p>		<p>Active management supporting native plant communities has helped to improve habitat conditions. Treatments include prescribed burning, herbicide application, and mechanical treatments. Plant communities of particular concern and management interest for the Parkway include Black Belt prairie and Western Highland Rim barrens. Restoration is important as these plant communities are essential to the survival of rare plant species and provide critical habitat to wildlife. The Parkway has many sites in need of more active management and restoration treatments to restore plant communities to desired conditions.</p> <p>A Parkway vegetation map is currently being developed with scheduled completion in 2016. The map and report will assist in the management, monitoring, and protection of native communities within the Parkway.</p>
<p><b>Fire Ecology</b></p>	<p>Vegetation Monitoring Data and Fire Ecology Annual Reports</p>		<p>The Parkway uses prescribed burning to restore fire as an ecosystem process. Prescribed fires can help decrease the encroachment of exotic species and facilitate fire-dependent understory plants and prairies. Currently, personnel conduct prescribed burns on approximately 1,000 acres each year. Rare and imperiled plant communities, many of which are fire dependent, have been identified within the boundaries of the Parkway. The NPS fire effects monitoring program is used to ensure that fire and resource management objectives are met.</p>

# Wildlife



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Indicators of Condition	Specific Measures	Condition Status/Trend	Rationale
<p><b>Reptiles and Amphibians</b></p>	<p>Availability of Species Data and Population Trends</p>		<p>There are 23 different reptile and amphibian species at the Parkway (<a href="#">NPSpecies</a>). Species richness monitoring data is collected at index sites, and long-term trend data currently under review.</p>
	<p>Parkway Crossing Counts</p>		<p>Permitted researchers and Parkway volunteers document amphibian and reptile presence and movement in limestone outcrops across the Parkway near Milepost 87. These volunteers work during cold rainy nights within migration periods to hand carry salamanders across the Parkway, thus significantly reducing mortality from vehicle traffic. Currently there is no long-term sustainable method to allow salamanders to cross the Parkway to access breeding pools. Reports on trends are in progress and will help inform this condition. Recent high population numbers indicate the positive benefit the volunteers have had over several generations of salamanders.</p>
<p><b>Birds</b></p>	<p>Species Richness</p>		<p>Although annual bird surveys occur, there is not comprehensive data for the entire Parkway to help guide management, particularly for the several species of high priority for conservation.</p> <p>Additional breeding bird survey along the Parkway and long-term data collection will help inform trends in the future.</p> <p>Christmas Bird Count data is collected annually and can be viewed at <a href="http://netapp.audubon.org/CBCObservation/">http://netapp.audubon.org/CBCObservation/</a>.</p>
<p><b>Fish</b></p>	<p>Species Diversity</p>		<p>According to <a href="#">NPSpecies</a>, Parkway water supports more than 200 species of native fish.</p> <p>Johnston (<a href="#">2007</a>) conducted a comprehensive survey of Parkway fishes from 2005–2006. Samples collected at 59 sites along the length of the Parkway documented 92 species.</p>

## Resource Brief: Why did the Salamander Cross the Parkway?



**Male Spotted Salamander, Jan 2011, Image by Tom Mann, Mississippi Natural History Museum**

Chickens have nothing to do with why salamanders cross the Natchez Trace Parkway between mileposts 85 and 87 on cold rainy nights in late winter and early spring. The wet weather and time of year trigger salamanders to move from their burrows and cross the Parkway road to reach seasonal breeding ponds. Within a few days, they make the trip back home. The breeding pond locations are hardwired into the salamanders as they return to the same pond year after year, with some adults living up to 20 years. As traffic has increased along the Parkway, amphibian and reptile mortality have also increased.

Since 2006, volunteers and researchers have carried salamanders across the road in containers to facilitate a safe crossing. This “bucket brigade” has been led by Tom Mann, a zoologist with the Mississippi Museum of Natural Science, using a team of volunteers to meet him on cold rainy nights. These dedicated volunteers work all night and into the early morning hours saving a majority of the amphibians to ensure future generations of salamanders.

Spotted, marbled, and the rare Webster’s salamanders, in addition to other amphibians and reptiles, all make the journey across the Parkway. Every year, between November and April, the Parkway will temporarily lower the speed limit to 35 miles per hour to provide safer conditions for volunteers and possibly reduce mortality to wildlife.



**Marbled Salamanders, Sept 2013, Tom Mann**

## Species of Active Management



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Indicators of Condition	Specific Measures	Condition Status/Trend	Rationale
<p><b>Fire Ants</b></p>	<p>Native Ant Population Health</p>		<p>Red imported fire ants are present along the Parkway and researchers have examined their distribution (Ross and Robertson 1990). Fire ant displacement of native ant species has been studied in the Black Belt prairie area. Abatement treatments in administrative and visitor areas have limited success.</p>
<p><b>Feral Hogs</b></p>	<p>Hog Management</p>		<p>Feral, non-native hogs occur in the park and cause damage to cultural and natural resources. Hogs are recognized as a persistent problem, and complete eradication is not considered a viable option. A feral hog management plan that outlines a monitoring and assessment regime to identify problem animals or areas has been drafted by the Parkway. The plan calls for the identification, targeting, and lethal disposition of specific problem animals.</p> <p>Mississippi State University <a href="#">reports</a> in 1988 hogs covered only 4% of land area in Mississippi; by 2009, hogs had expanded their range to cover 38% of Mississippi land area.</p>
<p><b>Beaver and Nutria</b></p>	<p>Balance of Beaver and Nutria Activity as it Effects Infrastructure</p>		<p>Beaver are abundant along the Parkway and are an important and largely beneficial member of the native animal assemblage. However, timber cutting, digging, and damming activities of beavers pose threats to sensitive cultural resources and motor roadway integrity. A beaver management protocol has been developed for beavers on the Parkway. This plan calls for annual surveys of beaver colonies and dams. Dams that pose risks to park resources or visitors are mitigated by removal or leveling devices.</p> <p>Nutria, an invasive species common in beaver habitat along the Parkway, also damage vegetation and destroy wetlands. Nutria are removed from Parkway lands when possible.</p>
<p><b>Feral and Stray Domestic Animals</b></p>	<p>Number of animals removed from Parkway</p>		<p>The Parkway is highly exposed to abandoned and intentionally released cats and dogs. This causes negative impacts to native wildlife and presents a safety concern to Parkway visitors. Parkway staff work to humanely remove and find shelter for stray animals instead of sending animals to overcrowded facilities where they will be euthanized.</p> <p>In 2015, over 28 feral cats were removed from Jeff Busby campground alone. Resource management staff made sure they were treated, spayed/neutered, and adopted.</p>

## Resource Brief: Balancing Environmental Challenges – Beaver and Nutria

The North American beaver (*Castor canadensis*) is the largest rodent in North America. It is semi-aquatic and highly adapted to this lifestyle. The beaver's ability to create wetland habitat is paralleled by none, and sometimes that ability conflicts with humans and our infrastructure. This is particularly true along the Natchez Trace Parkway. Although sometimes impactful to the Parkway itself, the wetland habitat created by beavers is important for many species.

The Parkway itself serves as a long dam, with periodic crossings in the form of manmade and natural drainages. Beaver commonly use these crossings to create dams that obstruct culverts and cause water to back up along the soil on which the road is built. This creates problems from an engineering perspective. These impacts have to be balanced with the importance of the beaver on the landscape and the mission of the National Park Service to protect native wildlife. This balance is achieved by prioritizing beaver sites according to the need for action and breeching only those dams that threaten the Parkway or other important infrastructure. This often means more costs in labor relative to reducing beaver populations. To manage these manpower issues, the facilities and resource management divisions work together to achieve a balance between the protection of infrastructure and wetlands.



**Beaver dam within a culvert running below the Natchez Trace Parkway. NPS Photo.**



**Nutria, a non-native semiaquatic rodent that is destructive to wetlands and infrastructure at the Natchez Trace Parkway. Photo from FWS Digital Library.**

Often running in the same social circles as beaver is the non-native nutria (*Myocaster coypus*), which is native to South America. Nutria are also semi-aquatic, but smaller than beaver. Unfortunately, nutria are extremely prolific and cause damage to native plant species in wetlands. Nutria feed on the native plants that hold wetland soils together, and contribute to erosion and plant diversity loss. As a result, nutria are humanely euthanized on Parkway lands.

## Species of Concern



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Indicators of Condition	Specific Measures	Condition Status/Trend	Rationale
<p><b>Price's Potato Bean</b></p>	<p>Individual Plant Monitoring</p>		<p>Price's potato bean is a federally-threatened species that was not previously documented in the Parkway until 2014 after several years of restoration work and prescribed burning.</p> <p>Parkway staff is working toward a conservation plan for the species to help guide future restoration to improve habitat conditions. A research study has been funded for 2019, which should help to determine optimum environmental conditions for perpetuating the species.</p>
<p><b>Tennessee Yellow-eyed Grass</b></p>	<p>Individual Plant Monitoring</p>		<p>Tennessee yellow-eyed grass is a federally-endangered species that historically occurred at the Parkway, and was reintroduced in 2009 at three sites, after a large flood event. This was part of a statewide effort by the Tennessee Department of Conservation to reintroduce the species into suitable habitats. Individual plants are monitored and tracked over time. Management at the sites have included prescribed burning and limited exotic treatments. In spite of these efforts, the species has not recovered to previous population numbers.</p>
<p><b>State Plant Species of Concern</b></p>	<p>Element of Occurrence Records, Availability of Data</p>		<p>Since the Parkway spans three states, Resource Management has to coordinate and acquire current data from each state heritage program. Natural Heritage databases provide records that can help inform management.</p> <p>Comprehensive data for Parkway state-listed species of special concern is needed to compile a full picture of the entire Parkway. No trend is assigned here due to the lack of spatial data and monitoring efforts.</p>
<p><b>Mitchell's Satyr Butterfly</b></p>	<p>Flight Period Counts</p>		<p>Mitchell's satyr butterfly is a federally-endangered species that is dependent upon beaver created wetlands. Populations within the Parkway have been on the decline within the past decade (Dr. JoVonn Hill, personal communication, 2014); however, a new population was discovered on adjacent property. The Parkway has partnered with Mississippi State University researchers to determine optimal habitat conditions and plans to conduct restoration efforts. These sites will continue to be monitored annually to determine if the butterfly returns.</p>

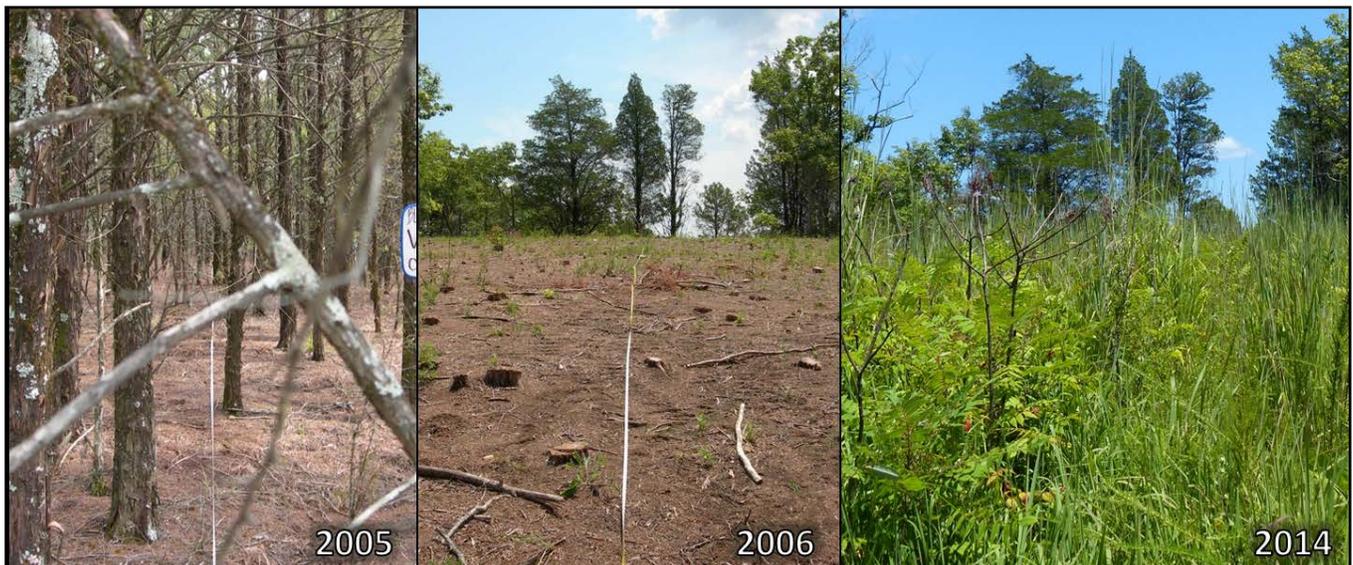
## Resource Brief: Restoration of Price's Potato Bean at the Black Belt Prairie

Parkway staff and cooperators at Natchez Trace Parkway have identified and restored portions of the federally-threatened Black Belt prairie within the NPS boundaries. Since 2006, these prairie restoration units have been the focus of university research pertaining to native grassland insects and plants and best management practices for southeastern prairie restoration. Simultaneously, these areas have been identified as a wildland fire urban-interface risk, due to the extreme density of eastern redcedar (*Juniperus virginiana*) directly adjacent to homes, apartments, and schools within the Tupelo area. Hazard fuel reduction objectives work hand-in-hand with ecological objectives of restoring this Black Belt prairie. The mechanical cutting of redcedar and subsequent prescribed fires greatly reduced woody plant encroachment on these sites and have restored historical nutrient cycles in the fragile calcareous chalky soils.

In addition to cutting encroaching cedar and burning, herbicide and mowing was used to control invading exotic species. In the summer of 2014, a USGS-NPS Vegetation Characterization Program survey crew working with the Alabama Natural Heritage Program discovered and confirmed the presence of the federally-threatened Price's potato bean within an active restoration unit. The Parkway plans to continue redcedar thinning and prescribed burns while also working with cooperators in propagating and increasing the population size of Price's potato bean. Use of prescribed fire has helped Price's potato bean by reducing the shading that often occurs in fire-suppressed areas. The continuing restoration treatments will ensure that rare plant communities of the southeast threatened with extinction will continue to be preserved for future generations to enjoy.



**Left:** Growing season prescribed burns have served as a vital component to restoring the federally-threatened Price's potato bean. (NPS Photo); **Right:** Price's potato bean in bloom. Price's potato bean, along with eight uncommon and rare plant species, has been identified in the Black Belt prairie restoration site. (NPS Photo by J. Burton); **Below:** Long-term monitoring at this site has shown that since the site was cut in 2006, basic cover by tree seedlings and saplings has been reduced 3-fold, while grasses and grass-like plants increased 3-fold, and herbaceous forbs saw a more than 6-fold increase.



# Landscape Dynamics



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Indicators of Condition	Specific Measures	Condition Status/Trend	Rationale
<b>Urbanization and Encroachment</b>	Parkway Immunity to Outside Influence		Adjacent land use affects many processes inside the park, including increasing the habitat degradation and fragmentation, spread of non-native species of plants and animals, impacts to air and water quality, and degradation of viewsheds and soundscapes. The linear boundary of the Parkway increases the vulnerability of park resources to negative changes due to development.
<b>Impervious Surfaces and Road Development</b>	Square Footage, Linear Mileage, and Acreage		<p>The Parkway land surface map is currently being compiled and is expected to be complete in 2017. This mapping will assist with identifying the percent cover of impervious surfaces.</p> <p>Currently, managers do not monitor trends of road development and impervious surfaces. As dirt roads are paved, right-of-ways are expanded, and Parkway projects increase the square footage of paved surfaces, natural conditions are altered. The impervious surfaces alter the surface flow for rainwater, increase erosion, and can cause issues with stormwater runoff.</p>
<b>Right-of-way Establishment</b>	Continuity of natural and created landscapes		Construction permits are issued for right-of-way work or establishment. The Parkway typically averages one new right-of-way crossing per year. These projects are typically powerlines or pipelines. Recent projects have primarily been road construction. As roads are paved and widened, and new crossings are built across the Parkway, the remaining natural habitat becomes fragmented with additional environmental impacts such as conflicts with wildlife and vehicle traffic.
<b>Adjacent Land Conservation</b>	<b>Mississippi:</b> Acreage and Mileage of Buffers		Federal, state, and private lands under conservation provide essential habitat buffers and wildlife corridors. Due to the linear nature of the Parkway additional buffers are essential.
	<b>Tennessee:</b> Acreage and Mileage of Buffers		Federal, state, and private lands under conservation provide essential habitat buffers and wildlife corridors. Due to the linear nature of the Parkway additional buffers are essential.
	<b>Alabama:</b> Acreage and Mileage of Buffers		Federal, state, and private lands under conservation provide essential habitat buffers and wildlife corridors. Due to the linear nature of the Parkway additional buffers are essential.

# Dark Night Sky



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Indicators of Condition	Specific Measures	Condition Status/Trend	Rationale
<p><b>Anthropogenic Light: Tennessee</b></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. ALR for the Tennessee state segment of Natchez Trace Parkway and National Scenic Trail is 1.94, which is considered a moderate condition. Trend is negative based on rapid population growth (30%) of the Nashville-Davidson-Murfreesboro-Franklin Metropolitan statistical area from 2008 to 2013 (<a href="#">U.S. Census Bureau 2013</a>).</p>
<p><b>Anthropogenic Light: Alabama</b></p>	<p>Anthropogenic Light Ratio (ALR) — Average Anthropogenic Sky Glow: Average Natural Sky Luminance</p>		<p>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. ALR for the Alabama state segment of Natchez Trace Parkway and National Scenic Trail is 1.94, which is considered a moderate condition.</p>
<p><b>Anthropogenic Light: Mississippi</b></p>	<p>Anthropogenic Light Ratio (ALR) — Average Anthropogenic Sky Glow: Average Natural Sky Luminance</p>		<p>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. ALR for the Mississippi state segment of Natchez Trace Parkway and National Scenic Trail is 1.04, which is considered a moderate condition. Trend is negative based on moderate growth of the Jackson, Mississippi metropolitan area (7%) Mississippi. No lighting ordinances or light pollution mitigation efforts are currently in place in these urban centers.</p>

## Resource Brief: Night Sky Resources at Natchez Trace Parkway

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 the Parkway and National Scenic Trail is moderate with a median ALR of 1.40. Maximum ALR is 10.4 near the Nashville metropolitan area, while the minimum ALR is 0.50 as the trail passes southwest of Columbus, Mississippi. The median sky quality 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.

The [Observatory and Planetarium](#) located at the intersection of HWY 413 and the Parkway (French Camp, Mississippi) is an important adjacent resource impacted by anthropogenic light.

### Assessment

One way the Natural Sounds and 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. When these data are unavailable they 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 parks’ landscape (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.

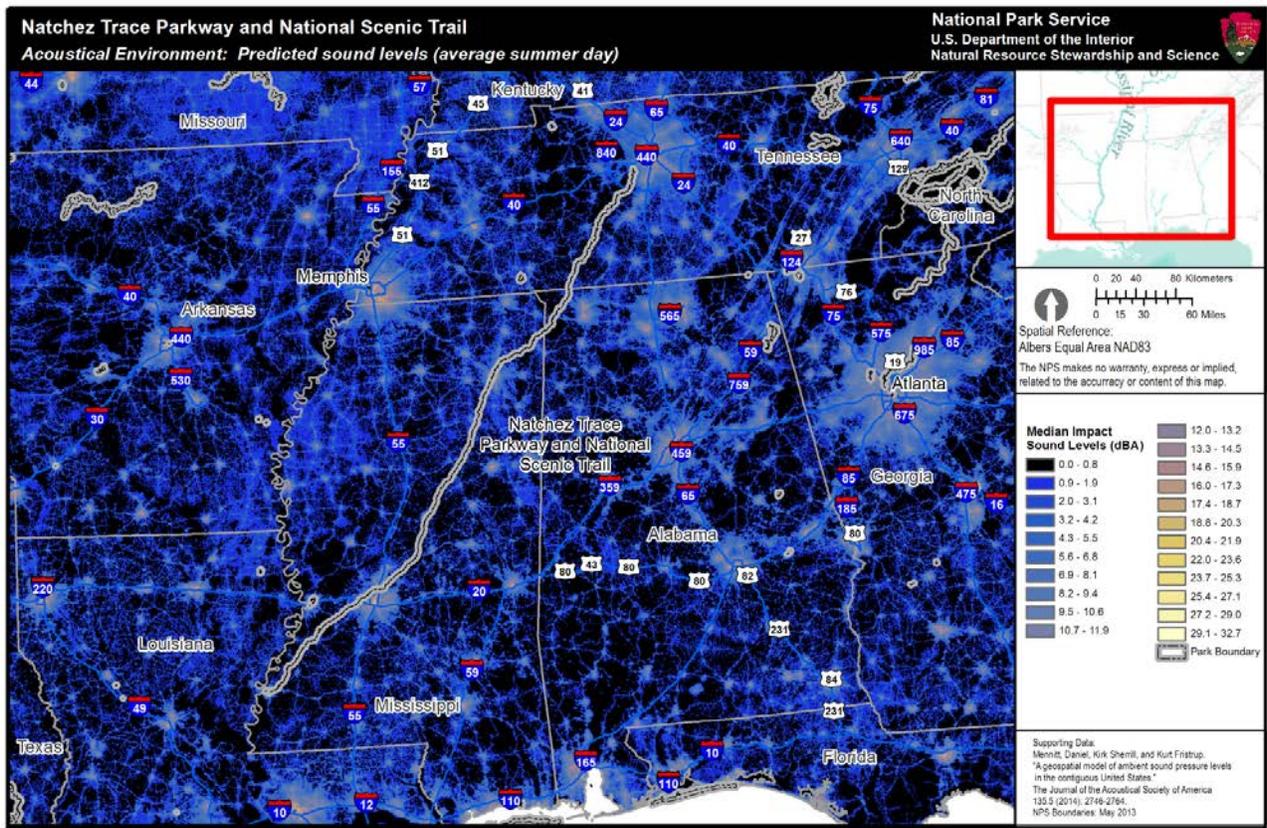
### Criteria for Impact

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, Natchez Trace Parkway and National Scenic Trail is categorized 71% as non-urban, and is therefore considered more sensitive ([U.S. Census Bureau 2010](#)). Learn more in the document [Recommended Indicators of Night Sky Quality](#), and the NPS Natural Sounds and Night Skies Division [website](#).









NPS Natural Sounds & Night Skies Division and NPS Inventory and Monitoring Program MAS Group 20151119

Map of predicted acoustic impact levels in the park and surrounding areas 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.

## Resource Brief: Recent Climate Change Exposure of Natchez Trace Parkway

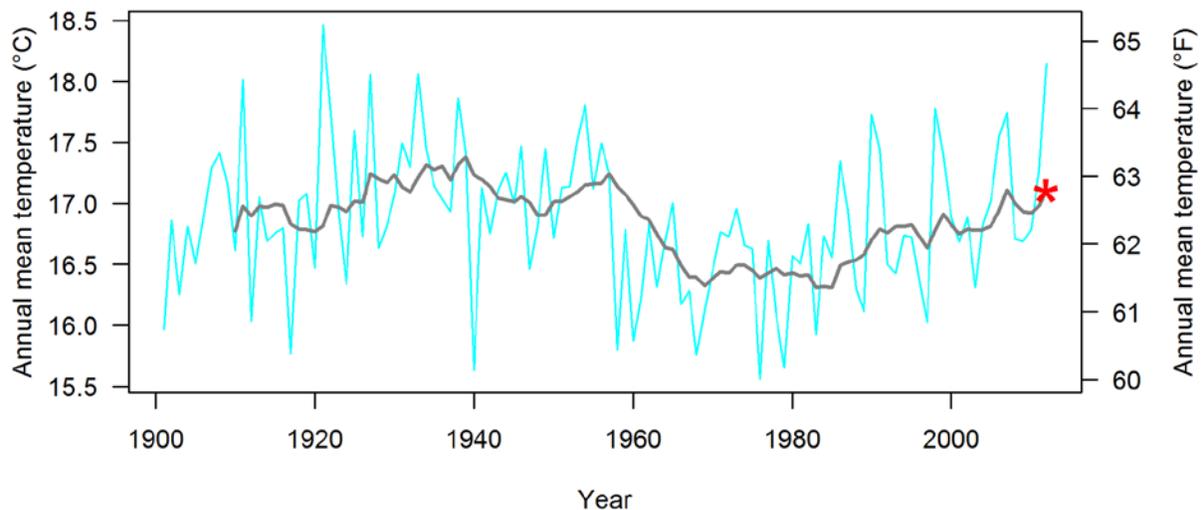
To understand Natchez Trace Parkway recent “climate change exposure”—that is, the magnitude and direction of ongoing changes in climate, we investigated how recent climate compares to historical conditions (see [Monahan & Fisichelli 2014](#) for updates to the basic climate inventories for 289 national 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.

### Methods

To evaluate recent climate within the context of historical conditions at Natchez Trace Parkway, we used the following methods (also illustrated 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.

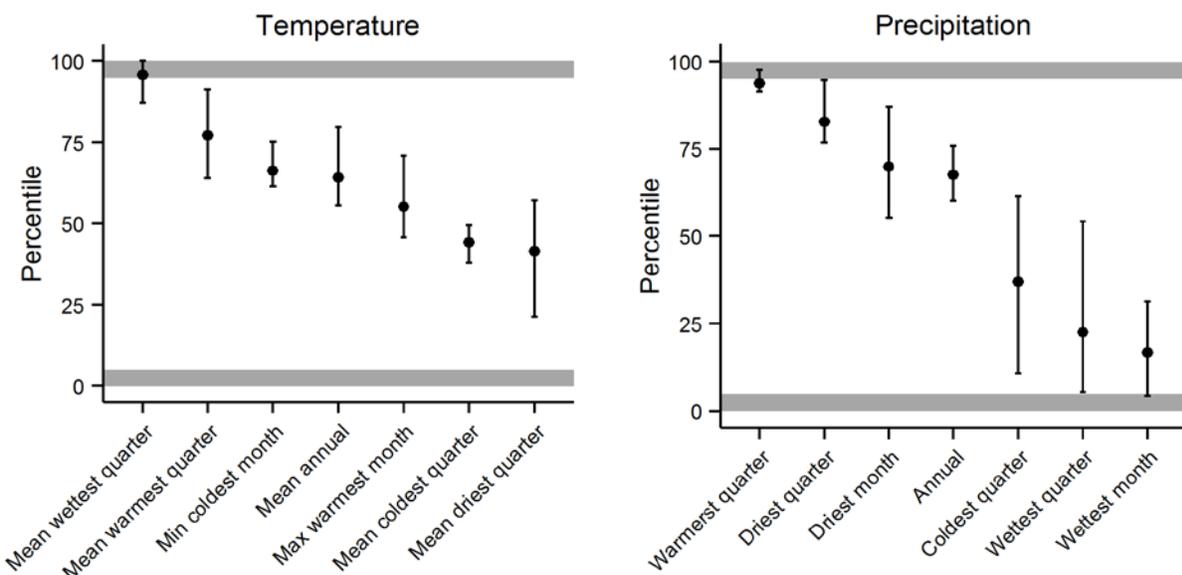


Recent annual mean temperature at Natchez Trace Parkway (including areas within 30-km [18.6-mi] of the park’s boundary). The blue line shows temperature for each year, the gray line shows temperature averaged over progressive 10-year intervals (10-year moving windows), and the red asterisk shows the average temperature of the most recent 10-year window (2003–2012). Here, the most recent 10 years was warmer than 80% of the historical range of conditions (see recent percentiles for all temperature and precipitation variables in the figures below).

**Results**

Recent percentiles for 14 temperature and precipitation variables at Natchez Trace Parkway appear in the figures below. Results for “extreme” variables at the park were as follows:

- One temperature variable was “extreme warm” (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 Natchez Trace Parkway (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.

## 2.2. Cultural Resources

Archeological Resources  <a href="#">web</a> ▶			
Indicators of Condition	Specific Measures	Condition Status/Trend	Rationale
<b>Knowledge</b>	Sufficient research is conducted to understand the relationship of the park's archeological resources to the historic contexts for the park.		Portions of the Parkway motor road corridor were surveyed for archeological artifacts before construction. Specific areas, such as American Indian mound and village sites, the Meriwether Lewis site, Mount Locust, Gordon House, and various other archeological sites, have been intensively surveyed. Additional surveys are conducted on an as-needed basis and are primarily project driven.
	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.		The scope of the archeological resources is understood and documented. The Parkway's archeological sites database (ASMIS) shows 10 sites listed on the National Register (NR) as significant at the local level, 11 at the state level, and 5 at the national level. The remaining 304 sites need to be evaluated for significance and the database updated.
<b>Inventory</b>	Percentage of park intensively surveyed.		1% of the Parkway has been intensively surveyed. The bulk of the archeological resource sites along the Parkway are not currently threatened. All areas of new construction are surveyed and inventoried.
	Percentage of archeological resources with complete, accurate, and reliable State site forms.		56% of archeological resources have complete, accurate, and reliable State site forms.
<b>Documentation</b>	Percentage of known sites with adequate National Register documentation.		8% of sites listed in the Parkway's archeological sites database have adequate National Register documentation.
<b>Certified Condition</b>	Percentage of archeological resources certified as complete, accurate, and reliable in the Archeological Sites Management Information System (ASMIS) in good condition.		93% of archeological resources certified as complete, accurate, and reliable in the Archeological Sites Management Information System (ASMIS) are listed in good condition.

## Resource Brief: Emerald Mound Site



Emerald Mound NPS/©MarcMuench

Located about 10 miles northeast of Natchez, Mississippi, Emerald Mound is the second-largest Mississippian Period mound in the United States, surpassed only by Monks Mound near Cahokia, Illinois. Built and used between the years 1200 C.E. (current era) and 1730 C.E., this 35-foot-high mound covers eight acres and measures 770 feet by 435 feet at its base. Two secondary mounds sit atop the primary mound, bringing the total height to approximately 60 feet. The larger one at the west end measures 190 feet by 160 feet by 30 feet high. Early records suggest there were six smaller mounds located along the sides of the primary mound, but visual evidence of these smaller mounds has long since disappeared. These features remain important to modern tribes.

### Cultural Anthropology



[web](#) ▶

Indicators of Condition	Specific Measures	Condition Status/Trend	Rationale
<b>Knowledge</b>	Sufficient research is conducted to understand the relationship of the park's ethnographic resources to the historic context(s) for the park.		An Ethnographic Overview and Assessment needs to be conducted for Natchez Trace Parkway, Natchez Trace National Scenic Trail, Brices Cross Roads National Battlefield Site, and Tupelo National Battlefield.
<b>Inventory</b>	Appropriate studies and consultations document resources and uses, traditionally associated people, and other affected groups, and cultural affiliations.		In the 1990s, the NPS conducted a large NAGPRA (Native American Graves Repatriation and Protection Act) consultation meeting that produced a list of American Indian tribes associated with sites containing human remains. That list is used as a basis for tribal consultations involving NAGPRA and NHPA compliance.
<b>Documentation</b>	Resources eligible for the National Register of Historic Places as traditional cultural properties are identified.		American Indian mound sites and Chickasaw Village are Tradition Cultural Properties (TCP). The mound sites are included on the National Register of Historic Places. Chickasaw Village is eligible but has not yet been listed.  An Ethnographic Overview and Assessment is needed to identify additional TCPs for American Indians and traditionally associated people, affected groups, and cultural affiliations.

## Resource Brief: Native People

Many native peoples, including the Chickasaw, Choctaw, and Natchez, created vibrant cultures that thrived for thousands of years along what is now the Natchez Trace Parkway. Today, the Parkway links more than 350 archeological sites and 22 mound sites, including Emerald Mound, the second-largest ceremonial mound in the United States. Scholars have conducted research since the 1930s at a variety of sites that helps to inform the Parkway’s interpretation and management decisions.

In addition to the scientific information that archeologists, anthropologists, ethnographers, and historians have collected, the Parkway also benefits from the fact that 20 modern tribes are associated with resources within the park. The knowledge and insight that those tribes share with the park make their stories come alive for modern visitors. The Parkway consults with those tribes on how best to tell their stories and interpret their past. An example of this is the naming of Old Trace segments. People from different backgrounds and ethnic groups have walked the trails, but the American Indians were the first. Naming of trails like Potkopinu (a Natchez word meaning “little valley”) and Chisha Foka (Choctaw words meaning “among the post oaks”) connects the visitor with those who came before us.



LaDonna Brown, Tribal Anthropologist for the Chickasaw Nation, speaks with Chickasaw students at Bear Creek Mound.

In addition to the Old Trace, there is another significant trail that the park protects and interprets. The Trail of Tears is a very real reminder of the injustice and suffering that one group can impose on another. By telling the stories of those who journeyed along the trail, we can acknowledge the past and use those lessons to better inform future decisions that affect us all. The park also engages with associated tribes on decisions that have the potential to affect cultural resources. Whenever the Parkway issues a permit, constructs a trail, builds a road or a building, we take into account what affect that action will have on existing resources. By engaging different groups in the decision-making process, we gain different perspectives and therefore make better decisions.

Cultural Landscapes  <a href="#">web</a> ▶			
Indicators of Condition	Specific Measures	Condition Status/Trend	Rationale
<p><b>Knowledge</b></p>	<p>Sufficient research exists to understand the relationship of the park’s cultural landscapes to the historic context(s) for the park.</p>		<p>Five component landscapes have been identified for the Parkway; further research would likely identify more. Existing landscapes include, but are not limited to:</p> <ul style="list-style-type: none"> <li>• Meriwether Lewis Site</li> <li>• John Gordon House</li> <li>• Tupelo Homesteads</li> <li>• Mount Locust</li> <li>• Natchez Trace Parkway</li> </ul> <p>A Cultural Landscape Report has been completed for John Gordon House, Meriwether Lewis Site, and Mount Locust. A Cultural Landscape Inventory (CLI) has been completed for Meriwether Lewis Site.</p> <p>The five landscapes identified do not include the Old Trace, Brices Cross Roads National Battlefield Site, or Tupelo National Battlefield.</p>

## Cultural Landscapes (continued)

[web](#) ▶

Indicators of Condition	Specific Measures	Condition Status/Trend	Rationale
<b>Knowledge (continued)</b>	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.		Cultural landscapes are described as Fundamental Resources in the Parkway’s Foundation Document.  Although the documented landscapes (as noted above) are well understood, a Cultural Landscape Report for the Parkway, Tupelo Homesteads, Old Trace, Brices Cross Roads National Battlefield Site, and Tupelo National Battlefield would provide the park with treatment recommendations for identified landscapes and improve the scope of the cultural landscapes in the park.
	Adequate research exists to document and preserve the cultural landscape’s physical attributes, biotic systems, and uses when those uses contribute to historical significance.		Although Cultural Landscape Reports have been completed for John Gordon House, Meriwether Lewis Site, and Mount Locust, additional reports are needed for other sites, including the Parkway, Tupelo Homesteads, Old Trace, Brices Cross Roads National Battlefield Site, and Tupelo National Battlefield.  A Preservation Maintenance Plan is also needed to ensure the integrity of the Parkway’s design intent, which has been negatively impacted in recent years by a reduction in the maintenance budget. Decreased budgets have reduced the area of vegetation along the Parkway that is maintained by mowing, which is causing significant changes to the cultural landscape.
<b>Inventory</b>	Percentage of landscapes eligible for the National Register in the Cultural Landscapes Inventory (CLI) with certified complete, accurate, and reliable data.		20%. There are five component landscapes currently identified. Only Meriwether Lewis has a completed CLI with certified complete, accurate, and reliable information; it is eligible for the National Register.  This inventory does not include important sites, such as the Old Trace, Brices Cross Roads National Battlefield Site, or Tupelo National Battlefield. The Parkway itself would be difficult to inventory due to its linear nature, but representative areas could be documented.
<b>Documentation</b>	Percentage of cultural landscapes with adequate National Register documentation.		20%. Of the five component landscapes identified, only the Tupelo Homestead has adequate National Register documentation.  Meriwether Lewis, John Gordon House, the Old Trace, Brices Cross Roads National Battlefield Site, and Tupelo National Battlefield have completed National Register nominations that need to be updated.  No nomination exists for Mount Locust or the Parkway.

## Cultural Landscapes (continued)

[web](#) ▶

Indicators of Condition	Specific Measures	Condition Status/Trend	Rationale
<b>Certified Condition</b>	Percentage of Maintained Landscapes (historic) in the Facility Management Software System (FMSS) with a Facility Condition Index (FCI) indicating good condition.		100% of Maintained Landscapes (historic) in the Facility Management Software System (FMSS) have a Facility Condition Index (FCI) indicating good condition.

### Resource Brief: Mount Locust Cultural 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.

In the 1820s, the property known as Mount Locust operated both as a small plantation and as an inn for travelers along the historic Natchez Trace. Its location on a high spot gave the house a commanding view out over the Natchez Trace and the town of Union to the south and the Choctaw Flat to the north. The Mount Locust cultural landscape was based on a clustering pattern of work spaces and outbuildings enclosed by a variety of fence types. Archeological investigations have identified the locations of a kitchen, guesthouse, nursery for children of enslaved workers, and overseer’s house clustered near the dwelling house. Barns, other farm buildings, and the quarters for enslaved workers were clustered north of the work yard. A brick kiln was located southwest of the house. A system of brick walks around the house and a garden retaining wall date to the antebellum period.

During the 1820s, it is likely that crops like cotton and corn were planted right up to the house. In this early period before cotton prices began to rise in 1824, it is possible that more corn than cotton was planted. No crops other than cotton, corn, cowpeas, sweet potatoes, wheat, and rice were raised in Mississippi commercially before 1837. A hierarchy of fencing types would have been present at Mount Locust during the antebellum period. Most likely, Virginia fences delimited the perimeter of the property. Post-and-rail, stake-and-rider, and paling fences would have been used to enclose smaller garden spaces and separate the work yard from the larger agricultural landscape.



North view of Mount Locust historic structure. NPS/©MarcMuench

Little is known about the historic cultural vegetation at Mount Locust. The best source of documentation is a letter written by Johnnie Irene Chamberlain in 1957 describing some of the plant material present at Mount Locust during the time of Paulina Ferguson and Maybella Chamberlain Wade in the nineteenth century. Many heirloom southern plants were listed, including gardenia, tea olive, flowering pomegranate, crape myrtle, flowering quince, snowball bush, banana shrub, mock orange, flowering almond, deutzia, chionanthus, and wintersweet.

The dwelling house is the centerpiece of the Mount Locust cultural landscape. The house has been restored to a period of c. 1820. Even with the loss of the outbuildings that once stood on the property, Mount Locust has not lost its sense of time and place along the historic Natchez Trace. The lack of modern intrusions at the site has preserved the integrity of the cultural landscape.

# Historic Structures



[web](#) ▶

Indicators of Condition	Specific Measures	Condition Status/Trend	Rationale
<p><b>Knowledge</b></p>	<p>Historic Structures are identified and evaluated using historical contexts.</p>		<p>Although the park has 14 National Register (NR) nominations and a set of Historic American Engineering Record (HAER) drawings, all were written without considering themes and analysis from a Historic Resource Study (HRS). Also, because the roadway prism (<i>the portion of the highway right of way between back of ditch, bottom of ditch, back of curbs including slopes, shoulders, pavement, and a median of less than 16' in width</i>) itself is potentially eligible for the National Register, the research that would be part of an HRS would go a long way towards amending existing National Register nominations (where necessary) and writing a new nomination for the Parkway itself.</p> <p>The Natchez Trace Parkway represents a nationally-significant achievement in roadway engineering, design, and construction, spanning decades and requiring thousands of hours of manual and motorized labor and millions of dollars in federal spending (<a href="#">HAER MS-15</a>). With its carefully planned and constructed alignment, the roadway incorporated dozens of engineering and landscape design concepts that continue to provide its visitors with a unique driving experience.</p>
	<p>Adequate research exists to document and preserve the historic structure's physical attributes that contribute to historical significance.</p>		<p>A Historic Structure Report (HSR) exists for the John Gordon House. The Mount Locust HSR needs to be updated. HSRs are needed for the remaining historic structures. There are 146 structures on the List of Classified Structures (LCS) with complete, accurate, and reliable information. Overall, there are six maintenance subdistricts that have approximately 24 structures total to be evaluated.</p>
<p><b>Inventory</b></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>The exact percentage cannot be determined until a determination of eligibility, preferably through the writing of a Historic Resource Study is completed. The 146 structures listed on the current List of Classified Structures have complete, accurate, and reliable information. There are six maintenance subdistricts on the Parkway that have structures to be evaluated for inclusion on the LCS.</p> <p>Historic Structure Reports are needed to identify buildings significant for their construction during the National Park Service's Mission 66 era.</p>

## Historic Structures (continued)

[web](#) ▶

Indicators of Condition	Specific Measures	Condition Status/Trend	Rationale
Documentation	Percentage of historic structures with adequate National Register documentation.		50%. Based upon the age of the Parkway's existing National Register nominations and the need for a new National Register nomination for the Parkway road prism and designed landscape; it is likely that many historic properties in the park do not have adequate NR documentation.
	Percentage of historic structures in the Facility Management Software System (FMSS) with a Facility Condition Index (FCI) indicating good condition.		53% of all historic locations are listed in FMSS. 510 of 966 locations in FMSS are listed in good condition. The locations in FMSS are primarily historic roads and bridges.

## Resource Brief: Historic Structure – John Gordon House

The John Gordon House is a physical reminder of two strong pioneers closely associated with the Old Trace: John and Dolly Cross Gordon.

As a young man, John fought in the Revolutionary War and later became a close associate of Andrew Jackson. The two men fought side by side during numerous campaigns. Gordon played an important role in the events that would lead to the Battle of New Orleans. He was the first postmaster of Nashville, and the first non-Indian to operate a ferry crossing on the Natchez Trace. Sometime between 1808 and 1812, he moved with his family to the Duck River. Shortly after they began constructing the house we see today, John left to fight in the Seminole campaigns. Dolly remained at the site with their children and enslaved Africans to direct construction. John returned in 1818 to his new home but shortly after the birth of their eleventh child, John passed away in 1819 at their



home. Dolly remained in her home until she died in 1859 at age 80. She was a successful farmer and business woman in her own right. She reared not only her own children but several nieces and grandchildren. She was remembered as a strong woman:

*“Considering her appearance of great age, she was astonishingly active to the day of her death, riding horseback over the rough roads and by-paths wherever she cared to go, fording Duck River at Gordon’s Ferry or at Williamsport three miles further up the stream, whenever it suited her convenience to visit friends or relatives on the further side. She often rode her good roan pacer the fifteen miles to Columbia to visit her grandchildren at the Columbia Institute, of which she had become a patron as soon as it opened in 1836 ... At other times, the condition of the roads permitting, she preferred to use the carriage of her son, Maj. Bolling Gordon, or her own gig, though horseback was her usual choice.” (Turner 1955).*

The ferry continued operation until 1896 until Hickman and Maury Counties built a bridge across the Duck River. The house and surrounding property eventually passed out of the Gordon family. In 1973, the NPS acquired the property, and it was listed on the National Register of Historic Places in 1977.

# History



[web](#) ▶

Indicators of Condition	Specific Measures	Condition Status/Trend	Rationale
<p><b>Knowledge</b></p>	<p>Sufficient research is conducted to understand the national significance and historical contexts for the park.</p>		<p>The Natchez Trace Parkway represents a nationally-significant achievement in roadway engineering, design, and construction, spanning decades and requiring thousands of hours of manual and motorized labor and millions of dollars in federal spending (<a href="#">HAER MS-15</a>). With its carefully planned and constructed alignment, the roadway incorporated dozens of engineering and landscape design concepts that continue to provide its visitors with a unique driving experience.</p> <p>Although the park has 14 National Register (NR) nominations, all were written without considering themes and analysis from a Historic Resource Study (HRS). Also, because the roadway itself is potentially eligible for the National Register, the research that would be part of an HRS would go a long way towards amending existing National Register nominations (where necessary) and writing a new nomination for the parkway itself.</p> <p>The park's 1976 Administrative History has not been updated.</p>
<p><b>Inventory</b></p>	<p>Cultural resources are inventoried and evaluated in consultation with State Historic Preservation Officers (SHPOs).</p>		<p>The inventory and evaluation of the park's cultural resources takes place with consultation with appropriate SHPOs. This is often significant effort, as the park extends across three states (MS, AL, and TN).</p>

## History (continued)

[web](#) ▶

Indicators of Condition	Specific Measures	Condition Status/Trend	Rationale
<p><b>Documentation</b></p>	<p>Percentage of historic properties with adequate National Register documentation.</p>		<p>50%. Based upon the age of the park's existing National Register nominations listed below and the need for a new National Register nomination for the Parkway road prism and designed landscape, it is likely that many historic properties in the park DO NOT have adequate NR documentation, including the following:</p> <ul style="list-style-type: none"> <li>• Old Natchez Trace 1975</li> <li>• Elizabeth Female Academy 1977</li> <li>• Brices Cross Roads National Battlefield Site (No. 271-3C) 1978</li> <li>• Pharr Mounds 1978</li> <li>• Steele's Iron Works 1988</li> <li>• Napier Furnace 1988</li> <li>• Emerald Mound 1988</li> <li>• Bear Creek 1988</li> <li>• Rock Creek 1988</li> <li>• Mud Island Creek 1988</li> <li>• Bynum Mound 1988</li> <li>• Boyd Mound 1988</li> <li>• Old Natchez Trace and Choctaw Agency Site 1994</li> <li>• Tupelo Homesteads 1997</li> </ul>

## Resource Brief: Historic Trace

American Indians from the Paleo-Indian Period through the Archaic and Woodland Periods, down to the Mississippian era used the Old Trace. They used the trail for hunting, trade, and travel between villages and remote population centers. Along the Old Trace, archeologists have found hunting camps, ceremonial centers, cemeteries, and villages. Emerald, Boyd, Bynum, Bear Creek, and Pharr Mounds are just some of the archeological sites from past American Indian cultures.

European-Americans made their way into the Old Southwest using the Old Trace. The U.S. Government designated the road a postal route and spent funds on road improvements. Stands or inns, such as Colbert's, Brashear's, Doak's, and Mount Locust, were established to accommodate travelers and post riders. Men, such as Andrew Jackson and John Coffee, used the trail as a military transport corridor during the War of 1812. In later years, Civil War soldiers passed along its route and fought numerous battles in and around the corridor. The Old Trace was not only a witness to the trials of war but also saw the desperation of thousands of enslaved people as they trudged along the ancient trail. A new cotton economy was rising in the Deep South, carrying with it the lives of thousands of men, women, and children forced into labor.

The steamboat invention heralded a change in the Old Trace and its usage. This combined with improvements in transportation and changes in postal routes lessened its importance. Some sections faded into disuse, while others were incorporated into county road systems.



**An Old Trace segment worn down by generations of travelers.**  
NPS/©MarcMuench

## Resource Brief: Old Natchez Trace Travel Corridor to Designed Travel *Parkway*



**Left: Mission 66 Project photo (1959); Right: Archival photo of Natchez Trace Parkway construction (1947).**

As one of the oldest transportation routes, the Old Natchez Trace travel corridor has been an avenue of travel, trade, change, conflict, and communication for more than 10,000 years. The Natchez Trace Parkway is the only Parkway to commemorate an ancient travel route. In 1905, almost 100 years after the Old Trace passed its heyday, Mrs. Egbert Jones of Holly Springs, Mississippi suggested commemorating the Trace by placing inscribed granite markers in each county through which it passed. The first marker was erected in 1909 in Natchez at a cost of \$230. Tennessee and Alabama Daughters of the American Revolution chapters, historical groups, and other patriotic societies were encouraged to erect similar markers, and interest in the Natchez Trace grew.

In 1916, the Natchez Chamber of Commerce inaugurated a movement to reconstruct the Old Trace by creating a highway from Nashville to Natchez. The Natchez Military Association, later reorganized as the Natchez Trace Association, was formed that year and the organization had windshield stickers printed that said "Pave the Natchez Trace." Unfortunately, the United States' entry into World War I slowed the movement considerably and it lay dormant until the early 1930s.

Ironically, the Great Depression was a catalyst for the creation of the Natchez Trace Parkway. Franklin Roosevelt's various New Deal programs made funds available for projects that may never have gone beyond the planning stages. The economic and political climate of the 1930s combined with the efforts of the Natchez Trace Association President Roane Fleming Byrnes and Congressmen Thomas Jefferson Busby and Herbert T. Stephens, among others, created the perfect platform from which to launch a new park.

In February 1934, Congressman Busby introduced two bills: one for the survey of the Trace and the second for its construction. Meanwhile, Senator Stephens introduced similar bills into the Senate. Congress appropriated \$50,000 for a survey with a view to constructing a national road known as the Natchez Trace Parkway. President Roosevelt saw the project's merits and directed the survey to be financed from the 1935 NPS Roads and Trails appropriation.

The result was a Parkway conceived and developed as a designed landscape that integrates a traditional rural, agrarian, southern landscape experience; facilitates leisurely and scenic travel; and links scenic, cultural, and natural features of interest. It is comprised of both hard and soft design features. Hard features include curvilinear road alignments, scenic overlooks, stonework on bridges and culverts. Soft features include mowed areas and specimen trees. All features are drawn on the Parkway's Land Use and Maintenance Plans, which date from the mid-1940s to early 2000s. It is important to maintain these landscape features to the original design intent to preserve the integrity of the cultural landscape.



# Museum Collections



[web](#) ▶

Indicators of Condition	Specific Measures	Condition Status/Trend	Rationale
<p><b>Knowledge</b></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>Yes. Research has been conducted using artifacts to interpret sites along the Parkway. The Parkway's archival collection contains unique photographs and documents related to the cultural resources along the Parkway and to the Parkway's history.</p> <p>Museum and archival collections for Brices Cross Roads National Battlefield Site, Tupelo National Battlefield, and Natchez Trace National Scenic Trail are part of the overall collections at the Parkway.</p>
	<p>Scope of Museum Collections 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.</p> <p>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 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. The Parkway's SOCS was completed in 2002, and is usually reviewed and updated on a 2–5 year cycle.</p>
<p><b>Inventory</b></p>	<p>Percentage of existing collection that is accessioned and cataloged.</p>		<p>92.11% of the existing collection has been legally registered and added to the catalog.</p>
<p><b>Documentation</b></p>	<p>Accession (<i>formal addition to collections</i>) and deaccession (<i>legally and officially remove an item from the holdings of a museum</i>) files are complete with all appropriate signatures.</p>		<p>Accession information is kept up to date, but the folders are not complete (e.g. missing some legal documentation including signed Accession Receiving Reports). The park and Regional Office are working together to review and complete the files.</p> <p>Deaccessions are rare, but many have been completed in the last few years because of NAGPRA repatriations; all paperwork is complete.</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. Almost all the Baseline Documents are out of date, and need to be reviewed, updated, and approved.</p> <ul style="list-style-type: none"> <li>• Collection Management Plan (CMP) – 2000</li> <li>• Fire/Security Survey – 1995</li> <li>• Collection Condition Surveys (CCS) – 1994</li> <li>• Archives – 2000</li> <li>• Collection Storage Plan – None</li> <li>• Museum Emergency Operation Plan – 2005</li> <li>• Scope of Collection Statement – 2002</li> <li>• Integrated Pest Management Plan – None</li> </ul>

## Museum Collections (continued)

[web](#) ▶

Indicators of Condition	Specific Measures	Condition Status/Trend	Rationale
<p><b>Certified Condition</b></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>67% of museum facility buildings are in “good” condition.</p> <ul style="list-style-type: none"> <li>• Curatorial Building: Condition Good</li> <li>• VC &amp; Headquarters Building: Condition Good</li> <li>• Mt. Locust Historic Building: Condition Poor</li> </ul>

## 2.3. Visitor Experience

### Visitor Numbers and Visitor Satisfaction

[web](#) ▶

Indicators of Condition	Specific Measures	Condition Status/Trend	Rationale
Number of Visitors	Number of visitors per year		Visitation numbers can fluctuate from year to year, but have remained within 10% of 5.75 million recreational visitors per year over the past 25 years. An estimated 9 million non-recreational visitors use the Parkway each year.
Visitor Satisfaction	Percent of visitors who were satisfied with their visit		Visitor satisfaction is consistently high, averaging 99% the last five years as measured by the annual visitor survey. Increases in facilities' scores may reflect ongoing construction improvements to park restrooms. Satisfaction scores for restrooms jumped from 77% in FY13 to 98% in FY14 ( <a href="#">Park Visitor Survey Card Report</a> ).

### Resource Brief: Chickasaw and Choctaw Students Visit Ancestral Homelands along the Natchez Trace Parkway

The Parkway is working on the third year of an award-winning program that provides for Chickasaw and Choctaw students to travel from Oklahoma to return to their ancestral homeland. After their visit, the students develop lesson plans that can be used by educators. Digital presentations, videos, and articles by students have increased the knowledge base of park staff and provided authentic materials developed by American Indian tribes. Some of the materials crafted address difficult topics, such as “The Chickasaw Removal, through Our Own Eyes.”



LaDonna Brown, Tribal Anthropologist for the Chickasaw Nation, leads students from East Central University on a tour of the Chickasaw Village site.

Others address traditions, such as the “Choctaw Traditional Dances,” a video developed by Choctaw Central High School students from the Mississippi Band of Choctaw Indians. The lesson about the Native American Graves Protection and Repatriation Act (NAGPRA) addresses how the past has influenced policies today.

Many of the students who visited from Oklahoma had never been to their ancestral homeland. The students dug through old records at several community archives, talked to local historians, and visited American Indian mounds and known sites of home-groups and clans. As they traveled along the Parkway, many students said they were able to make both emotional and spiritual connections to the lands along the Parkway. This program has benefitted the Parkway, the indigenous tribes, and educators throughout the country.

## Resource Brief: *A Ticket to Ride* Provides Student Bus Funding

*A Ticket to Ride* has provided students from all over Mississippi the opportunity to visit the Parkway. The National Park Foundation-funded project pays for buses, bus drivers, and substitute teachers so that schools with limited funding may bring students to the Parkway. The park has been able to provide transportation to various groups as small as environmental clubs to groups of more than 200 students. In 2014, more than a dozen busloads of students participated.

Students have used their *Ticket to Ride* to attend educational events, such as the Parkway's Wildlife Celebration, Hernando de Soto living history encampment, and the Living History Timeline. As budget limits our staffing numbers, Parkway interpreters are developing materials for educators to use on teacher-led field trips. This program continued through the 2015–2016 school year, connecting with NPS initiatives, including the Centennial Celebration, Every Kid in a Park, and Find Your Park.



**Interpretive Park Ranger Jane Farmer leads students through a discussion about water quality.**

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



[web](#) ▶

Indicators of Condition	Specific Measures	Condition Status/Trend	Rationale
<b>Education Programs</b>	Mount Locust Historic Site and Visitor Contact Station (near Natchez, MS)		Over the past five years, outreach to schools has decreased with cuts to staffing levels. As staff size has decreased, the amount of time devoted to outreach also decreased. Group visits to the park have remained stable, and students have the opportunity to experience the resources of the Mount Locust Site both with and without park staff.
	Parkway Information Cabin (Ridgeland, MS – Site closed August 2013–January 2016)		Over the past five years, Parkway staff members have struggled to maintain visitor services on-site and in the classroom. Due to position vacancies and the resulting closure of this site, outreach services in the Ridgeland area have decreased substantially. A position was filled in FY 2015, and contacts have been made in eight to ten school districts.
	Parkway Visitor Center (Tupelo, MS)		Over the past five years, education programs have reached an average of 7,240 students annually through formal programming. The park has increased the overall quality of programming by shifting from large group to small group activities. Education programs meet Common Core Curriculum standards, and teachers are able to choose activities that meet their students’ learning objectives. In preparation for the NPS Centennial, Parkway staff has adopted a class from local Parkway Elementary School to participate in multiple classroom and on-site programs.
	Meriwether Lewis Visitor Contact Station (near Hohenwald, TN)		Staff shortages limit educational outreach. Only one educational program was done in the past fiscal year. When staff is available, they are dedicated to the visitor contact station. There are multiple opportunities to develop educational partnerships. The Parkway will not be able to capitalize on these opportunities without staff or supervisory capacity.
<b>Ranger Programs</b>	Mount Locust Historic Site and Visitor Contact Station (near Natchez, MS)		Ranger programs at the Mount Locust Site have remained stable. To better accommodate the visitors to the Natchez Trace Parkway, we offer tours of the Mount Locust house “on request,” as opposed to a scheduled house tour each day. We are able to reach a larger number of our visitors this way and provide quality interpretive experiences at the park.
	Parkway Information Cabin (Ridgeland, MS – Site closed August 2013 – January 2016)		<p>The park has chosen not to devote staff time to ranger programs in the Ridgeland area due to limited attendance. Instead staff time was and will be devoted to special events and educational outreach, which can lead to a greater overall impact to our visitors.</p> <p>The Parkway Information Cabin closed in August of 2013 until January 2016. A limited number of guided programs will be offered in the Ridgeland area.</p>

## Interpretive and Education Programs – Talks, Tours, and Special Events (cont'd)

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Indicators of Condition	Specific Measures	Condition Status/Trend	Rationale
<b>Ranger Programs (continued)</b>	Parkway Visitor Center (Tupelo, MS)		The park has shifted staff resources from formal programming to more special events and curriculum-based educational programming. A limited number of formal, ranger-guided programs are presented at strategic times throughout the year. Target audiences for ranger programs are families, and activities include night hikes, wildflower walks, evening programs, and other junior ranger activities. Park staff members work with park partners, including the Army Corps of Engineers and Mississippi State Parks to present programs at neighboring campgrounds and provide a service to our shared visitors to capitalize on limited resources.
	Meriwether Lewis Visitor Contact Station (near Hohenwald, TN)		Staff shortages limit ranger programs. Campfire programs have had limited attendance. Due to the nature of the site and interpretive planning goals, staff resources are used to conduct informal contacts through roving the campground and providing visitor services at the contact station. Limited programs will be offered as opportunities (such as special events) arise.
<b>Junior Ranger Programs</b>	Mount Locust Historic Site and Visitor Contact Station (near Natchez, MS)		An average of 200 visitors a year earns their Junior Ranger badges at the Parkway. Families are encouraged to be active on the Parkway and Scenic Trail through the Junior Boatmen program. Guided junior ranger programs range from limited to non-existent because staff resources are used for special events, guided tours of the historic house, and visitor center services.
	Parkway Information Cabin (Ridgeland, MS – Site closed August 2013–January 2016)		The Parkway Information Cabin closed in August of 2013 until January 2016. As facilities and staff become available, Junior Ranger booklets and badges will be distributed in Ridgeland.
	Parkway Visitor Center (Tupelo, MS)		An average of 200 visitors a year earns their Junior Ranger badges at the Parkway. Junior Ranger programs and events are offered throughout the year. Many special events and demonstrations are family-focused and offer opportunities for Junior Rangers to connect with the park's resources.
	Meriwether Lewis Visitor Contact Station (near Hohenwald, TN)		Junior Rangers starting at the northern end of the Parkway are at a distinct disadvantage. Due to staff shortages, the information cabin is often closed. The Junior Ranger book is available online; however, potential Junior Rangers have no place to pick up a physical copy of the book or receive their Junior Ranger badge.

## Interpretive and Education Programs – Talks, Tours, and Special Events (cont'd)

[web](#) ▶

Indicators of Condition	Specific Measures	Condition Status/Trend	Rationale
<b>Special Events</b>	Mount Locust Historic Site and Visitor Contact Station (near Natchez, MS)		Annual living history encampments during the spring and/or fall provide opportunities for both our local audience and traveling visitors to experience the history of the Natchez Trace in an engaging, interactive way. Encampments have declined due to lack of staff capacity to organize and manage an event, but new Parkway staff members are exploring special events options (including evening programs and special guided tours) that may require less staff time.
	Parkway Information Cabin (Ridgeland, MS – Site closed August 2013 – January 2016)		The Parkway Information Cabin closed in August of 2013, and reopened in January 2016. As facilities become available, special events will be offered in the Ridgeland area. Special events have proven to be successful at the Parkway Information Cabin in the past, and we plan to continue those events. By working with local partners and volunteers, we will continue to provide opportunities for both our local and traveling visitors.
	Parkway Visitor Center (Tupelo, MS)		<p>The Parkway hosts multiple annual events that engage both our local audience and traveling visitors. The annual Wildlife Weekend and De Soto Encampment provide opportunities for local schools, families, and visitors of all ages to connect with the natural and cultural resources of the park. The Wildlife Weekend event has grown from one presenter to multiple agencies and partners. The most recent event included a BioBlitz presented with a park partner—Mississippi State University’s Extension Service to help kick-off National Park Week. A BioBlitz engages members of the community to help identify and document plant and animal species. The resulting inventory helps scientists determine if biodiversity in the area is increasing or decreasing.</p> <p>The park is also represented in local community events, such as the Gumtree Festival, Oka Kapassa, and the Go Green Festival to help increase awareness of the NPS in the community.</p> <p>As the NPS commemorated the sesquicentennial of the Civil War, reenactments of the battles of Brices Cross Roads and Tupelo were conducted by one of our park partners. Park staff participated in the event with children’s activities, a living history reenactor, and interpretive and informational exhibits.</p>
	Meriwether Lewis Visitor Contact Station (near Hohenwald, TN)		Parkway staff members have actively participated in special events over the last five years, including “Muster Day on the Natchez Trace” and the Meriwether Lewis Bicentennial event. Up until the fall of 2013, the Parkway had been the host site for the annual Meriwether Lewis Crafts Fair, and park staff participated in the event commemoration. Park staff members will continue to participate in special events as opportunities arise and staffing levels allow.

## Resource Brief: Natchez Trace Parkway and Partners Commemorate the Bicentennial of the War of 1812

More than 2,000 visitors and volunteers honored the contributions of soldiers from the War of 1812 over the 2012 Memorial Day weekend at the Gordon House Historic Site on the Natchez Trace Parkway. Volunteers and representatives from 15 living history associations gathered to commemorate a historic troop “muster” for the War of 1812. In the years leading up to the war, both militia volunteers and Army regulars would gather during “muster days” for military training. The Natchez Trace was a major travel corridor during the War of 1812 as troops under the command of Andrew Jackson marched to and from conflicts along the southern coast.

Visitors were treated to numerous activities reminiscent of the early 1800s, as living history enthusiasts from around the southeast marched in full period uniforms, performed drills and historic weapons demonstrations, and interpreted camp life. Other volunteers conducted historic sawyering and engineering demonstrations to display the skills necessary to turn the Natchez Trace into a road capable of handling the troops destined to march along it. Volunteers reenacting a Chickasaw camp educated visitors about the important role of the United States’ American Indian allies during the war effort. No war is without political debates, and the War of 1812 was no exception. Volunteer actors entertained and educated as they debated both sides of the young United States’ decision to enter into war again with Great Britain. Visitors packed into the “Speaker’s Tent” to gain modern insight into the causes and repercussions of the War of 1812.

Former Parkway Superintendent Cameron Sholly opened the event and recognized the important contributions of the park’s partners, including Steve Abolt, Commanding Officer of the 7th U.S. Infantry Living History Association, and Tony Turnbow, President of the Natchez Trace Parkway Association. Also recognized were the many volunteers that collectively contributed more than 4,000 hours to make the event a success with assistance from the staff of Fort Frederica National Monument and Ninety-Six National Historic Site. Parkway staff from all divisions worked together to ensure a safe, educational experience. Funds from Eastern National and the NPS Southeast Region Special VIP program helped make the event a success.



**The Natchez Trace Parkway, Natchez Trace Parkway Association and volunteers from the 7th U.S. Infantry Living History Association worked together to commemorate the War of 1812 Bicentennial at the Gordon House site in May 2012.**

# Interpretive Media – Brochures, Exhibits, Signs, and Website



[web](#) ▶

Indicators of Condition	Specific Measures	Condition Status/Trend	Rationale
<p><b>Wayside Signs</b></p>	<p>Condition and Currency of Signs</p>		<p>The park has made significant progress in working to replace the waysides that are in the worst condition and/or are the most objectionable to our tribal partners. A wayside project scheduled for completion in FY 2016 will replace 43 of the highest-priority waysides. Updated art and text will respectfully depict the experiences of ancestral and modern tribal nations, who provided input in the development of the waysides.</p> <p>More than 60 waysides remain untouched with no current funding for design or replacement. Regrettably, many waysides currently found along the Parkway are over 20 years old, faded, in poor condition, and representative of outdated scholarship.</p> <p>Eighteen Natchez Trace National Scenic Trail trailheads lack any type of orientation/interpretive waysides. Other areas that are significant to the park’s enabling legislation and/or are in heavy visitor use areas lack interpretive waysides.</p>
<p><b>Park Directional Signs</b></p>	<p>Usefulness, Quantity, and Placement of On-site Park Directional Signs</p>		<p>The Parkway has made significant improvements to internal park signage over the last five years and continues to replace and upgrade signs. New entrance signs with stone bases were installed in 2010. All major entrance ramps have updated signage.</p> <p>The overall condition, accuracy, and quality of directional signs inside the park are generally good and continue to improve. The park will need to maintain a cyclic schedule of purchase and installation of signs to keep this resource in optimal condition. Additional new directional signs will be available for placement in 2016.</p>
	<p>Usefulness, Quantity, and Placement of Off-site Directional Signs (purchased and maintained by state DOTs)</p>		<p>Parkway staff members work with Tennessee Department of Transportation, Mississippi Department of Transportation, and the Alabama Department of Transportation to recommend and guide the replacement of signs outside park boundaries.</p> <p>Sign condition varies greatly along the Parkway as it travels through the states of Alabama, Tennessee, and Mississippi. Some signs are in poor condition and need replacement.</p>

## Interpretive Media – Brochures, Exhibits, Signs, and Website (continued)

[web](#) ▶

Indicators of Condition	Specific Measures	Condition Status/Trend	Rationale
<b>Exhibits</b>	Mount Locust Visitor Contact Station (near Natchez, MS)		The Mount Locust Visitor Center was reconstructed in 2012, but no funds were allocated for exhibits. The Mount Locust story is directly related to the park’s primary interpretive themes and enabling legislation. Mount Locust is only one of two structures dating from the peak of Old Trace travel, and the only site open to the public. Currently the visitor center, adjacent breezeway, enslaved persons’ and Chamberlain family cemeteries, and other significant sites lack interpretive media. Mount Locust is one of the best opportunities to interpret the Trace’s role in the movement of enslaved people. The park will need to acquire funding to develop the visitor experience at this important site.
	Parkway Information Cabin (Ridgeland, MS)		Visitor center exhibits were completed in 2013. Updated art and scholarship reflect the stories of the Choctaw people and provide orientation to the Parkway. Due to lack of staff this site has been closed since July 2013. The park reopened this facility on a part-time basis in FY 2016. The exhibits do not contain any electronic media and are in generally good condition. The shifting of the building foundation puts the exhibits at long-term risk and repair is needed.
	Parkway Visitor Center (Tupelo, MS)		The exhibits at the Parkway Visitor Center in Tupelo were updated in 2005. Most of the exhibits are functional and their condition is generally good. This site is open 364 days/year and is the largest visitor center on the Parkway.
	Colbert Ferry Contact Station (Alabama)		The Colbert Ferry Visitor Contact Station and restroom facility were reconstructed in 2014, but there are no exhibits or interpretive media. Due to a combination of lack of supervisory capacity and staffing and relatively low visitation, this site has been closed since 2010. Restroom facilities are open and are fully accessible.
	Meriwether Lewis Visitor Contact Station (near Hohenwald, TN)		Visitor center exhibits were replaced in 2011. Updated exhibits and new artwork depict the complex story of the untimely death and legacy of one of America’s greatest explorers, Meriwether Lewis. Outdoor exhibits were replaced in 2013 after the previous versions demonstrated structural defects. Current outdoor exhibit panels are peeling and need to be replaced.

## Interpretive Media – Brochures, Exhibits, Signs, and Website (continued)

[web](#) ▶

Indicators of Condition	Specific Measures	Condition Status/Trend	Rationale
<b>Print Media</b>	Accuracy and availability of primary park publications		<p>Parkway staff members have recently revised several site bulletins and added new ones. Currently the park has five available; Meriwether Lewis, Mount Locust Inn and Plantation, Gordon House, Wildflowers, and Emerald Mound. The Parkway also produces the Parkway Teacher’s Guide, revised in FY 2015. The Natchez Trace Parkway Park Map was revised in 2012 with minor upgrades needed at the next printing. The Brices Cross Roads National Battlefield Site/Tupelo National Battlefield brochure is current. A new map brochure for the Natchez Trace National Scenic Trail was created in 2011; minor adjustments are needed.</p> <p>The Parkway has difficulty maintaining an adequate inventory of handouts, maps, and brochures. Annual park needs are double what NPS normally provides, and the 444-mile long Parkway enlists many external partners in making park maps available. To combat shortages, all park maps and site bulletins are available online.</p>
<b>Audio-visual Media</b>	Orientation Films		<p><i>Traces through Time</i> debuted in September 2014. The film showcases the beautiful scenery of the Parkway and encourages visitors to experience the park for themselves. In August 2015 the film was awarded the Southeast Region’s “Keeper of the Light” Award for Interpretive Media and the 2016 Remi Special Jury Award in the Documentary category at Worldfest Houston.</p>
	Other AV material		<p>Most visitor centers along the Parkway do not currently use AV material. The Parkway Visitor Center does have 3 stand-alone videos and 12 orientation videos.</p> <p>Five web shorts that were produced with the park movie highlight resources critical to the park’s primary interpretive themes are available on the Parkway’s website.</p> <p>The Traveler’s Information Station (TIS) system provides interpretive information through AM radio station 1610 at seven different locations along the Parkway.</p>

## Interpretive Media – Brochures, Exhibits, Signs, and Website (continued)

[web](#) ▶

Indicators of Condition	Specific Measures	Condition Status/Trend	Rationale
<p><b>Websites</b></p>	<p>Currency and scope of website; number of website visitors</p>		<p>Website visitation data from February, 2013–September 2015 shows an approximate 16% increase in page views and a 19% increase in unique page views. In FY 2015, the park received 1,201,840 page views and 323,114 unique sessions. Website improvements including upgraded photos and content continue to be added. Parkway staff members have stayed abreast of changes and data needed for the Centennial redesign. Significant upgrades to bicycling information were completed in FY 2015.</p> <p>Parkway staff members maintain four websites:</p> <ul style="list-style-type: none"> <li>• Natchez Trace Parkway <a href="http://www.nps.gov/natr">www.nps.gov/natr</a></li> <li>• Natchez Trace National Scenic Trail <a href="http://www.nps.gov/natt">www.nps.gov/natt</a></li> <li>• Brices Cross Roads National Battlefield Site <a href="http://www.nps.gov/brcr">www.nps.gov/brcr</a></li> <li>• Tupelo National Battlefield <a href="http://www.nps.gov/tupe">www.nps.gov/tupe</a></li> </ul>
	<p>Social media: Facebook updates and “likes,” overall activity</p>		<p>Parkway social media efforts have focused on improving our <a href="#">Facebook</a> presence. Started in 2012, the Parkway’s page exceeded 7,000 “likes” in April 2016. The park currently has three active park Facebook authors in the Division of Interpretation with occasional input from other divisions. Dedicated staff uses social media effectively to keep the public aware of detours, icy road conditions/closures, interpretive programs, trail conditions, and other topics of natural and cultural significance. One recent post was picked up by the national <a href="#">#FindYourPark</a> feed and reached more than 80,000 viewers.</p>

## Resource Brief: *Traces through Time*



Director and cinematographer Chris Wheeler of Great Divide, Inc. films a “Kaintuck” reenactment scene on the Potkopinu section of the Natchez Trace National Scenic Trail.

The Parkway interpretive film, *Traces through Time*, visually tells the story of the natural and cultural history of the Natchez Trace. Debuting in August of 2014, the film showcases the beautiful scenery of the Parkway throughout and encourages visitors to experience the drive for themselves. Through vignettes, visitors can see a “Kaintuck,” or boatman on the Old Trace, witness the mound-building process as depicted by the Choctaw Nation of Oklahoma, and hear the words of early supporters of the Parkway who had the foresight to protect this travel corridor. In June of 2015, Nashville Public Television featured an extended version of the film and introduced the Natchez Trace Parkway to a new audience.

In addition to the film shown at the Parkway Visitor Center, five web shorts engage our web audience. By producing short, engaging films, we have provided opportunities for people who may not be able to visit the park to experience the resources in a virtual way.

## Resource Brief: Parkway Staff and Tribal Partners Develop New Interpretive Waysides



Parkway Interpretive Ranger Kristen Maxfield describes the Pharr Mounds site to the wayside development team.

Parkway waysides are a primary interpretive outreach tool for the park’s 15 million annual visitors. Unfortunately, most of the Parkway’s waysides are in poor condition and/or represent outdated scholarship. Parkway interpretive staff identified the American Indian cultural sites as the highest priority for replacement and secured funding through the National Scenic Byways grant program in 2013. Forty-three waysides will be installed at the most important cultural sites and exhibit shelters in 2016/17. Members of numerous tribes, including the Chickasaw Nation and Choctaw Nation of Oklahoma, provided critical input on art development, scholarship, and significant tribal stories. New interpretive audio and audio description will be included to meet current accessibility standards.

## Resource Brief: Long Range Interpretive Plan

In an effort to continue to enhance visitor experience and satisfaction, the Natchez Trace Parkway is working on a Long Range Interpretive Plan. The 5-year plan will help park staff members focus their efforts to effectively connect with park visitors through both personal and non-personal services. The park invited local stakeholders and park partners to participate in multiple stages of the process. They were able to provide input on what services they would like to see and suggest ways to strengthen or develop partnerships. Subject matter experts, as well as park partners, participated in the recommendations workshop. The completed document will help guide the interpretive operation over the next five years.

<b>Accessibility</b>  <a href="#">web</a> ▶			
Indicators of Condition	Specific Measures	Condition Status/Trend	Rationale
<b>Mobility</b>	ADA compliance		<p>Mobility accessibility varies greatly along the Parkway. While significant improvements have been made in the last five years, the length of the park (444 miles of accessible roadway) represents a practical, logistical, and funding obstacle. The park continues to aggressively pursue funding for additional accessibility projects.</p> <p>Significant improvements to restroom and visitor center facilities have been made over the last six years. Eighteen of the park's 23 open restroom facilities have been upgraded to meet current accessibility standards. All five of the Parkway's visitor centers are accessible to those with mobility concerns. The popular Multiuse Trail near Ridgeland, Mississippi is fully accessible with accessible parking at all trailheads. A new half-mile, fully accessible trail at the Meriwether Lewis site was installed in 2011. Many trails, waysides, and visitor attractions, including the historic Mount Locust home and grounds, however, do not meet accessibility standards.</p>
<b>Visual Accommodation</b>	ADA compliance		Some improvements have been made for visual accommodation. The Parkway and National Scenic Trail maps are now available in braille. The new park film and the five associated web shorts are audio described. Six of the new wayside sites will have interpretive audio components available either on-site or through the park's webpage or future applications.
<b>Auditory Accommodation</b>	ADA compliance		Some improvements to auditory accommodation have been made. The new park film and the five associated web shorts contain open captioning. The park film has assistive listening devices, and the new audio components for the wayside include the construction of custom units that meet the most recent standards for auditory accommodation. Six interpretive audio segments will be recorded for the current wayside project, scheduled for completion in FY 2016. However, most sites along the Parkway's 444-mile length lack auditory accommodation.
<b>Multi-lingual Resources</b>	Audio and print materials in multiple languages; bilingual staff		The park does not have materials available in languages other than English. Visitor demand for non-English options is low relative to overall visitation. The park employs no bi-lingual staff. The four websites maintained by Parkway staff members are available in Spanish.

## Resource Brief: Accessibility Improvements

The Parkway is taking steps to improve access for all of our visitors by replacing outdated contact stations and making historic structures physically accessible. In the past five years, the Parkway has taken on rehabilitation of three visitor contact areas: the Mount Locust Contact Station, the Parkway Information Cabin, and the Meriwether Lewis Contact Station and exhibits. Visitors now have access to an accessible restroom and contact station at each of the three sites. Care was taken to keep the historical integrity of the structures while providing physical access to all visitors. In addition to interior exhibits at the Meriwether Lewis Site, an accessible interpretive trail was also developed.



**A new entrance ramp was constructed at the Meriwether Lewis site.**



Indicators of Condition	Specific Measures	Condition Status/Trend	Rationale
<p><b>Visitor Safety</b></p>	<p>Motor Vehicle Incidents</p>		<p>Motor vehicle collisions are a serious issue and account for the majority of visitor injuries and fatalities on the Parkway. The Parkway is a unique highway in that it is narrower than a standard highway and has no roadway shoulder. These differences increase the chance for a motor vehicle collision. The three “E’s”: Engineering, Education and Enforcement, are used to reduce collision rates on all motor roads. Over the years the Parkway has made a number of engineering improvements, especially to high collision rate intersections, which has made a significant impact on reducing fatalities. However the fatality collision rate on the Parkway still remains high. The national average, which is determined by the number of fatalities for every 100 million vehicle miles traveled, is approximately 1.10. The Parkway has averaged 2.60 fatalities per 100 million vehicle miles traveled over the same time frame. As the majority of the engineering improvements, that could make a significant difference, have already been made, the Parkway has been studying if there are changes in education and enforcement that could reduce the collision rate.</p> <p>In 2016, an analysis of collision data from 2013 to 2015 was completed by the NPS Transportation Safety Program. The data showed that the most serious and highest number of collisions occurred in three areas of the Parkway; Kosciusko, Dancy, and Port Gibson. Other data showed that where there were high enforcement efforts, there was a corresponding reduced collision rate. Based on this information several Ranger positions have been relocated to these high crash rate areas to increase enforcement efforts. In addition, the rangers are holding more traffic safety checkpoints and are participating in national campaigns such as the <i>Click It or Ticket</i> and <i>Drive Sober or Get Pulled Over</i> efforts to educate the public on the importance of wearing safety belts and driving sober. Current data is not available to determine if these efforts have resulted in a decrease in fatalities or the overall collision rate.</p>
	<p>Road Conditions and Hazards, Emergency Notification</p>		<p>Construction detours and emergency notifications are provided through the park’s <a href="#">website</a> and <a href="#">Facebook page</a>.</p>
<p><b>Bicyclist Safety</b></p>	<p>Reportable Accidents</p>		<p>The Parkway is a designated bike route. Bicycle safety and awareness is a priority for the Parkway. From 2012 to 2015, there were several serious bicycling accidents on the Parkway, including two fatalities. As a result, the Parkway hosted three community bicycle safety focus groups in the fall of 2014. Improving bicyclist visibility and enhancing motor vehicle driver awareness were the top two outcomes from the groups. The Parkway and its partners are working to promote bicycle safety awareness through the use of bicycle lights, high visibility clothing, new signage, and a bike safety study (to be completed in 2016).</p>

## Safety (continued)

[web](#) ▶

Indicators of Condition	Specific Measures	Condition Status/Trend	Rationale
<p><b>Staff Training</b></p>	<p>Number of staff trained</p>		<p>Staff receives training in Operational Leadership, which encourages field level employees to recognize and report safety issues, as well as evaluate jobs and tasks for safety risks. Training in CPR, First Aid, and AED is offered to staff on a space-available basis. Eighty-five percent of employees provided positive response about working in a safe environment on the most recent employee viewpoint survey.</p>
<p><b>Staff Safety</b></p>	<p>Reportable Accidents and Injuries</p>		<p>The Parkway has made safety its highest priority. To promote safety it has created a zone safety officer position that was filled in early 2016; the superintendent regularly issues safety and hazard alert messages to all employees. Recent proactive management initiatives encourage employees to report safety issues before they become incidents. Personal protective equipment (PPE) has been purchased and distributed to employees, and supervisors monitor and ensure the PPE is properly worn and used. Two safety award programs recognize employee safety. One acknowledges employees who have been safe throughout the year, and the other recognizes employees' proactive efforts to ensure safety.</p>

## Resource Brief: Bicycling Safety

The Parkway takes visitor safety very seriously. As part of the NPS and designed as a touring motor road, the Parkway roadway is narrower than a standard highway. The narrow roadway increases the possibility for conflict among multiple users, especially between motorists and bicyclists. The park has taken steps to increase bicycling safety and awareness by hosting community focus groups. Two of the primary outcomes of the focus groups were to increase motorist awareness of bicyclists through increased signage and increasing bicyclist visibility. *Sharrows* (share-the-lane arrows) and signage have been placed at select locations to help increase bicycle awareness to all travelers of the Parkway. Other educational materials and safety information to promote bicycling safety is also available to park visitors through our web site, social media, and other means, including a 30-second public service announcement broadcast on Mississippi television stations for a year.

With the help of the Natchez Trace Parkway Association through its Gary Holdiness Cycling Fund, Natchez Trace Parkway staff members are actively promoting bicycle visibility and safety. To increase visibility of all bicyclists, those who are not easily seen will be given a gift from the Gary Holdiness Cycling Fund. Thanks to the generous donation, a high-visibility vest and set of bicycle lights will be given to cyclists to use while bicycling the Parkway while the supply lasts.



**A lone bicyclist rides through early morning mist along the Natchez Trace Parkway. NPS/©MarcMuench**

# Partnerships



[web](#) ▶

Indicators of Condition	Specific Measures	Condition Status/Trend	Rationale
<p><b>Volunteers</b></p>	<p>Number and hours contributed</p>		<p>Volunteer numbers and hours have fluctuated in the last five years. 137 to 200+ volunteers have donated 7,300 hours. A core group of individuals donate their time for the monthly Pioneer Days and Dulcimer Days programs. Lack of staff capacity to recruit, train, and supervise volunteers has inhibited some potential volunteer opportunities, particularly in the Jackson Metropolitan Area.</p> <p>A Student Conservation Association (SCA) Centennial Ambassador was hired in 2015 for a 1-year term to help forge new partnerships with civic organizations, increase the park's capacity for outreach, and attract new volunteers.</p>
<p><b>Partnerships</b></p>	<p>Number of official and unofficial partnerships</p>		<p>The Natchez Trace Parkway spans 444 miles, travels through over 20 communities, and transects the traditional homelands of the Natchez, Chickasaw, and Choctaw people. Partnerships with tribal, local, and state governments, tourism agencies, friends groups, private and civic organizations, and educational institutions are critical to the mission of the NPS.</p> <p>The park has several long-term, established relationships with the Natchez Trace Parkway Association, the Natchez Trace Compact, and Eastern National. Those relationships continue to evolve with new technologies and the influx of new partners and opportunities. The park maintains relationships with the Mississippi Hills National Heritage Area and the Muscle Shoals National Heritage Area.</p> <p>Five stakeholder/partner workshops for the Long Range Interpretive Plan solicited input from established partners, new partners, educators and the public.</p> <p>We continue to strengthen existing partnerships with universities as well as adding new ones. The Parkway plans to work with Alcorn State University to develop an accessibility video tour of the Mount Locust site. The University of Mississippi partnered with the park to make a digital story map and presented that result at the 2015 national ESRI Education GIS Conference. Mississippi State University joined us during National Park Week to host a BioBlitz in conjunction with our kick off of the FindYourPark campaign. Trail partners include Vanderbilt University, the University of Northern Alabama, Belmont University, and Columbia State College.</p> <p>The Chickasaw Nation, Choctaw Nation of Oklahoma, and the Mississippi Band of Choctaw Indians are valued partners who have played critical and ongoing roles in the development of new interpretive media and educational curriculum. <i>(continued on next page)</i></p>

## Partnerships (continued)

[web](#) ▶

Indicators of Condition	Specific Measures	Condition Status/Trend	Rationale
<p><b>Partnerships (continued)</b></p>	<p>Number of official and unofficial partnerships <i>(continued)</i></p>	 <i>(continued)</i>	<p><i>(continued from previous page)</i></p> <p>The park's primary partner for resources related to the Civil War is the Mississippi's Final Stands Interpretive Center (MFSIC). Park staff provided children's activities and displays to hundreds of park visitors during a sesquicentennial event in 2014 organized by MFSIC.</p> <p>Parkway interpretive staff members work with adjacent visitor centers along the length of the Parkway to coordinate information and improve visitor services by conducting volunteer training and leveraging resources.</p>

## Resource Brief: Centennial SCA Volunteer Ambassador



**Jay Carter, Centennial Volunteer Ambassador, is helping the park recruit and train new volunteers.**

In 2015, the Natchez Trace Parkway partnered with the Student Conservation Association (SCA), to host an intern to concentrate on increasing our volunteer outreach. The Centennial Ambassador Partnership embraces initiatives for youth, partnerships, and volunteers. This ambassador concentrated his efforts to reach youth volunteers. In addition, he fine-tuned our volunteer program. Jay worked for six months in the central district and then moved to the south district to enhance the volunteer program there. At both locations, he coordinated special events designed to engage young volunteers in community service at the Parkway.

In less than a month he recruited two new youth volunteers, as well as a Campground Host. He worked on a project with the local high school track team and helped to organize a National Public Lands Day event designed to capture the interest of young recreationalists.

## 2.4. Park Infrastructure

### Overall Facility Condition Index



[web](#) ▶

The NPS 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
<b>Buildings</b>	170 / 179	0.057 / 0.101		The Parkway has completed recent renovations to 9 comfort stations, 9 maintenance buildings, 8 homestead homes, 3 visitor centers, and replaced or renovated 14 radio equipment buildings. We have a unique challenge in that many of our structures are either historic or approaching historic status. Due to limited funding, some buildings are assigned lower priority. Decreasing overall FCI is reflective of this.
<b>Campgrounds</b>	3 / 3	0.040 / 0.036		Recent campground improvements include new picnic tables, fire rings, and grills.
<b>Trails</b>	54 / 55	0.039 / 0.027		The Scenic Trail is 65 miles of trail within the Natchez Trace Parkway boundary. The Parkway also has an additional 11 miles of multi-use trails in the Jackson area. Conservation crews and volunteers play a key role in trail maintenance.
<b>Waste Water Systems</b>	24 / 25	0.107 / 0.102		Most of the Parkway’s comfort stations are served by septic systems. Recent inspections indicate that several septic systems need to be replaced in the near future. FCI should be updated to accurately reflect a significant increase in the cost of replacement of these systems (\$3.2 million to \$7.3 million).
<b>Water Systems</b>	18 / 19	0.162 / 0.017		Connections to public water systems have been made in several areas. This allows the Parkway to decommission wells and water storage tanks. The Parkway has replaced the water distribution systems at the Tupelo Headquarters Campus and at the Meriwether Lewis site.

## Overall Facility Condition Index (continued)

[web](#) ▶

Asset Category	Number of Assets 2010 / 2015	FCI 2010 / 2015	Condition Status/Trend	Rationale
<b>Paved Roads, Unpaved Roads, and Parking Areas</b>	337 / 366	0.224 / 0.256		With over 450 miles of paved roads, approximately 30 miles of pavement need to be replaced annually as maintenance. The FCI is increasing because funding is not adequate to keep up with this need. The Parkway relies heavily on Federal Highway Administration (FHWA) pavement analysis to determine what areas need paving and when they need to be paved to be the most cost effective.
<b>Bridges</b>	486 / 485	0.150 / 0.044		The Parkway averages more than one bridge per mile. With 485 bridges, the Parkway is constantly repairing or replacing bridges. The Parkway relies heavily on FHWA's bridge inspection to determine what bridges need to be replaced or repaired. FHWA's Bridge Inventory Program provides deferred maintenance cost.
<b>All Others</b>	92 / 164	0.013 / 0.022		This category includes interpretive media, radio equipment (repeaters), maintained landscape, monuments, amphitheaters, fuel systems, IT system, and dams. This category also includes Brices Cross Roads National Battlefield Site, and Tupelo National Battlefield.

## Resource Brief: Green Parks Plan

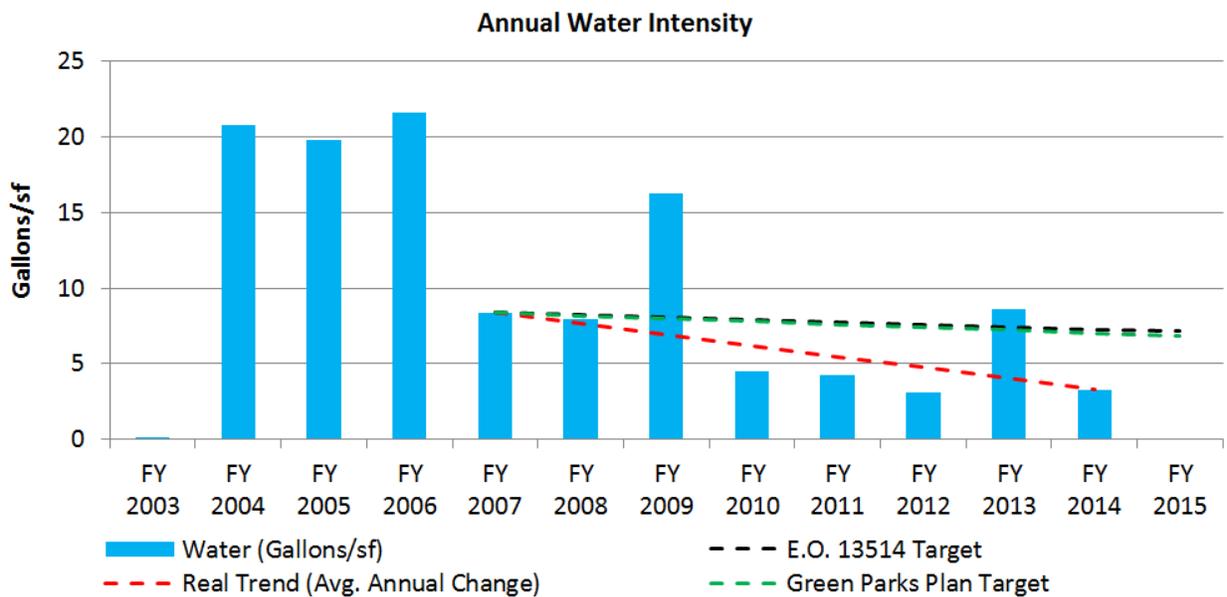
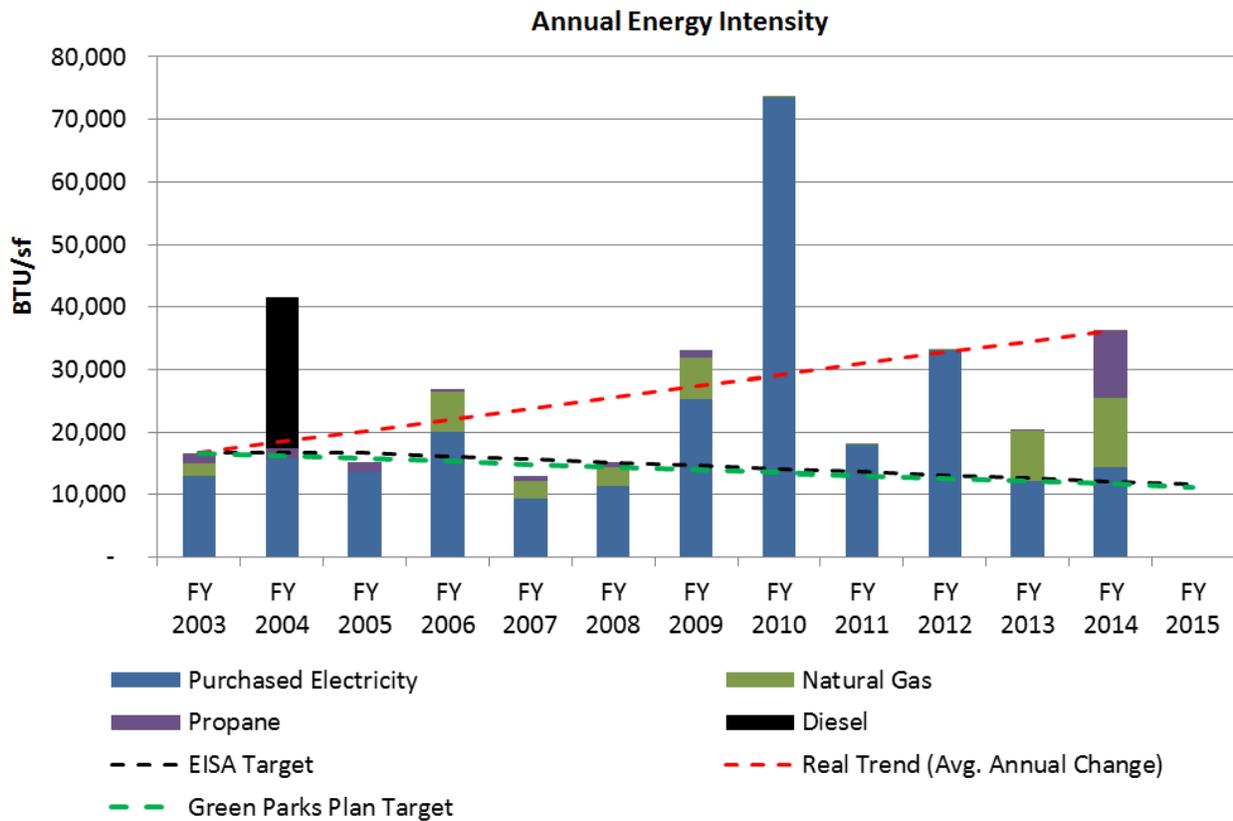
The NPS manages the largest number of constructed assets of any civilian agency in the Federal Government. It operates more than 67,000 structures that account for more than 50 million square feet of constructed space, such as visitor centers and historic structures. The [Green Parks Plan](#) (GPP) defines a collective vision and a long-term strategic plan for sustainable management of NPS operations. A critical component of the implementation of the GPP will be informing and engaging parks' staff, visitors, and community partners about climate change and sustainability to broaden opportunities to foster change.

The Vision defined in the GPP plan is, "The NPS will preserve park resources unimpaired for the enjoyment of current and future generations by reducing its environmental impact through sustainable operations, design, decisions, and management at every level of the organization." The plan is based on nine strategic goals that focus on the impact of facilities on the environment and human welfare. Two of those goals are closely aligned with Park Infrastructure as defined in this State of the Park report. Those are:

- Be Energy Smart: The NPS will improve facility energy performance and increase reliance on renewable energy; and
- Be Water Wise: The NPS will improve facility water use efficiency.

For Energy, one of the performance objectives is to reduce Servicewide building energy intensity by 35 percent by 2016 from the 2003 baseline, where energy intensity is energy consumption per square foot of building space. For Water, one of the performance objectives is to reduce potable water use intensity by 30 percent by 2020 from the 2007 baseline.

Historical data for energy and water consumption reported by the Parkway and available in the Energy Data Reporting Tool (EDRT) is shown below.



Highlights for the Parkway include:

- In 2014, the Parkway replaced 14 generators at communications radio towers, which included adding 250-gallon propane tanks for emergency power at each site (see propane use spike in chart above).
- In 2014, the Parkway added proximity sensors and went to energy-efficient fluorescent lights in all of our office areas, reducing electrical use.
- Low-flow fixtures have been added, and leaky pipes are repaired quickly.

# Chapter 3. Summary of Key Stewardship Activities and Accomplishments

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## 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 Parkway began long-term monitoring of key resources including: water quality, vegetation, reptiles, and amphibians with assistance from the [NPS Gulf Coast Inventory and Monitoring Network](#).
- The Parkway continued long-term Black Belt prairie restoration efforts, including re-establishment of rare and threatened plant species.
- In 2013, the Parkway acquired new land and conducted restoration of four acres of wetlands along the Bogue Chitto creek.
- The resource management division increased staff capacity by 33%.
- Fire Management successfully conducts prescribed fires on approximately 1,000 acres annually.
- Approximately 65 acres of non-native plant species are treated annually.
- There is an ongoing park-wide effort toward structured decision-making regarding beaver management practices and how to minimize damages while preserving the natural environment.
- A park-wide vegetation map is being compiled; data and accuracy assessments are partially complete, with final product expected in 2016.

### Cultural Resources

- The Parkway is exploring the historic leasing option for eight houses in the Tupelo Homestead historic district. A Request for Expression of Interest has been published and a public open house held. Staff continues to work with the Regional Office, and a Request for Proposals for historic leasing proposals is pending.
- The Parkway sponsored an Archeological Resource Protection Act (ARPA) class for Parkway staff to learn their roles and responsibilities to protect archeological resources and to gain skills to document resource damage.
- The Parkway is currently partnering with the Chickasaw Nation to provide access to a cultural center on Chickasaw land next to the NPS Chickasaw Village Site. When complete, this facility will augment the Parkway's interpretive themes from the Chickasaw's perspective.
- Electricity was installed in the historic Gordon House to facilitate the addition of an alarm system, improve security, and protect this historic structure.
- Consults with regulators and interested parties in the identification, evaluation, and treatment of cultural resources occurs on a routine basis. A good relationship with the regulators and 20 associated tribes is critical for the treatment of American Indian artifacts.
- Restoration of the cultural landscape for Mangum Mound was completed by removing a concrete sidewalk and inappropriate signs from the top of the Mound.

### Visitor Experience

- The division is currently working with the Chickasaw Nation and the Choctaw Nation of Oklahoma to update and accurately interpret the American Indian story at key locations along the Parkway. This grant-funded project will ultimately produce 43 interpretive waysides and 10 new complex pieces of original art depicting the area's first inhabitants.
- The Parkway joined social media in 2012 with a [Facebook](#) presence that has grown to over 7,000 "likes." The Parkway's Facebook page is a source of accurate information about the park, including detour and road condition updates, special events announcements, and photos of the beautiful scenery and wildlife found along the Natchez Trace Parkway.
- Funds acquired through the National Park Foundation's "Ticket to Ride" program have enabled over 1,000 students to attend field trips to the Parkway. This was the first national park experience for many of the students.
- The Interpretive Division was honored with three Southeast Region Keeper of the Light Awards for Interpretive Excellence in the last five years. The three categories are: Interpretive Support, Educational Outreach, and Interpretive Media. In addition to these team awards, Ranger Jane Farmer received the 2013 National Freeman Tilden Award (the most prestigious award given to a field interpreter) for her project, "Connect the Chickasaw and Choctaw Students to the Natchez Trace Parkway." Ranger Farmer has hosted six 1-week field trips that have enabled students from Oklahoma to connect with their ancestral homelands along the Natchez Trace.
- A Long Range Interpretive Plan was developed in 2015 to help focus interpretive efforts during the next five years. Through a series of stakeholder meetings and planning workshops park interpretive staff collected feedback on community and partner interests, identified primary interpretive themes, and developed a strategic implementation plan for the highest priority projects.

- Park interpretive staff members have strengthened relationships with tribal partners through cooperative work on interpretive media and educational partnerships. These partnerships have led to a greater understanding of the American Indian story along the Parkway and improved interpretation through the park's film, website, and waysides.
- The National Park Foundation funded the Park Stewards program that engaged students in long-term service learning projects and enabled high school vocational tech students to engage elementary school children in citizen science through water quality analysis and invertebrate sampling.
- Accessible interpretive exhibits and a new interpretive trail were designed and installed at the Meriwether Lewis Death and Burial site in 2012. Many Lewis and Clark enthusiasts visit the Lewis gravesite to pay their respects to the explorer. New exhibits, updated scholarship, and interpretive media have shed light on Lewis' final tragic days on the Natchez Trace.
- Numerous partnerships were created and/or renewed over the last five years to increase mutual understanding for communities and stakeholders in the Natchez Trace Parkway corridor. Mississippi Hills National Heritage Area and Muscle Shoals National Heritage Area are newly-formed partners, while the Natchez Trace Parkway Association and the Natchez Trace Compact are long-established friends of the park.
- An Interpretive Management Assessment Plan (IMAP) was completed in 2009. Key issues and implementation strategies were documented during interviews with park staff and experienced interpretive managers from the Southeast and Northeast NPS Regional Offices. As a result, the interpretive staff has increased its focus on the development of interpretive media, and has strategically used its limited staffing resources for the interpretive programs and special events that have the greatest potential impact on park visitors.
- The Parkway staff partnered with Great Divide Pictures and NPS Harpers Ferry Center to research, develop, and produce a new, award-winning interpretive film "Traces through Time" in 2014. Renowned singer and songwriter Amy Grant generously lent her distinctive voice for the film's narration. The film has been distributed through the public broadcasting network and reached thousands of people throughout seven states.
- New interpretive exhibits highlighting the Choctaw story and providing updated information were installed at the Parkway Information Cabin in Ridgeland, Mississippi in 2013. Rehabilitated and reopened in 2009, the Cabin was the Parkway's first visitor center, opened in 1954.
- The Parkway entered into a partnership with Adventure Cycling Association and the Natchez Trace Parkway Association to enhance the safety of Parkway users, primarily bicyclists. The team held four stakeholder focus groups that resulted in a focus on educational outreach, compliance with established laws, increased rider visibility, collection of data, etc.

### **Park Infrastructure**

- The Parkway added eight new restroom facilities.
- Low-flow water fixtures and low-wattage lighting improvements were made to the Parkway Visitor Center, headquarters buildings, and other buildings along the Parkway.
- The Parkway has made a substantial investment in upgrading communications along the length of the park. New radio towers, a radio dispatch center, and improved communications equipment will improve park safety and expedite emergency response. Land mobile repeaters are also being replaced at each tower location.
- The safety of the Blackland Prairie section of the Natchez Trace National Scenic Trail was improved in 2015 by working in conjunction with Burlington Northern Santa Fe Railroad to construct a pedestrian crossing over the tracks that intersect with the trail.
- As of 2015, all regulatory signs have been purchased in order to meet current safety and reflectivity standards.
- The water distribution system was upgraded and replaced at the Meriwether Lewis Death and Burial Site and at the Parkway Headquarters buildings.
- Multiple paving projects were completed along the Parkway in conjunction with the U.S. Department of Transportation. Approximately 28 miles of roadway are repaved annually.
- Forty-three entrance signs have been replaced along the Parkway. New signs are easier to read and current with NPS branding identity.
- The solid waste recycling program was established in 2010, and now includes visitor and employee recycling opportunities in three districts.

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

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**Size and shape** – The parkway is a 444-mile long, 52,000-acre unit of the National Park Service with an average width of 825 feet. Exceptions to this width include Jeff Busby, Meriwether Lewis, Rocky Springs, Chickasaw Village, and a handful of other locations. It takes over 10 hours to drive from end to end. This geographic makeup influences almost every aspect of the Parkway’s operation and management. In many ways, we are forced to rely upon the individual state’s environmental statutes, regulations, and enforcement.

**Neighbors inside and out** – The parkway works with 3 states, 25 counties, 20 communities, numerous tribal governments, 13 members of Congress, 3,000 private and commercial landowners, three National Heritage Areas, and other conservation, economic, developmental, tourism, and preservation organizations. The combined population of the counties it traverses is nearly two million.

**Economically impactful** – Nearly 15 million people visit the Parkway, and that use contributed approximately \$198 million to the local economy. The Parkway has 65 miles of national scenic trail, 40 miles of bike, equestrian, and hiking paths, and 100 miles of rivers and streams.

**Much work to do** – The total deferred maintenance for the Parkway was valued at \$307 million in FY16. Of this, \$287 million is in roadway assets, paved roads, parking areas, and bridges. Good preservation maintenance of the roadway can cost \$150,000 per mile every 10 to 15 years. Lack of preservation can lead to full reconstruction, which can cost up to \$1,000,000 million per mile.

**The numbers tell** – As with any other Government program, our success is heavily dependent upon our financial capacity. Planning for the future is always a difficult challenge, especially given the unpredictable nature of our financial climate. In FY14, the Parkway used 117 total full time equivalents (FTE)—down from 147 that the Parkway had in FY10—a 21% decrease in the workforce in five years. An FTE is equal to 2,080 hours of work per year, and the Parkway spends approximately 75% of its budget on personnel services. The appropriated budget in FY10 was \$12.1 million; in FY15 it was \$11.5 million.

## Stewardship

**Exotic plants** – As non-native species of plants invade areas along the Parkway, native plants and wildlife habitat can be negatively impacted. Invasive exotic plants are common in the park, and one of the most important threats to Parkway natural resources. Management of these plant pests is an ongoing issue at the Parkway.

**Non-native wildlife** – Non-native animals may alter habitat, compete with native species, or prey directly upon native species. In this report, non-native vertebrate animals were defined to include species or strains intentionally or accidentally introduced outside their native ranges by humans, and species spontaneously expanding their distributions to include areas never previously occupied. Non-native vertebrates were relatively rare in Parkway inventory data. One fish and six birds were considered non-native, and only the Brown-headed Cowbird (*Molothrus ater*) was relatively common. The three most impactful non-native species are red imported fire ants (*Solenopsis invicta*), nutria (*Myocastor coypus*) and feral hogs (*Sus scrofa*).

**Impaired water quality** – The Parkway crosses many streams and waterways, and the length of individual streams under NPS influence is typically short. Water quality varies within the park, and some streams and watersheds are negatively impacted by anthropogenic activities. High bacterial levels were the most common stressors observed in the park, though low pH and low oxygen were also problems in some waterways.

**Wildlife damage** – Non-native or native animals can negatively impact natural areas, human infrastructure or agriculture, or human health and safety. On the Parkway, feral hogs and beaver (*Castor canadensis*) are known to cause these types of damage. Management plans and protocols exist for both species, and park staff actively works to mitigate negative impacts from these species.

**Landscape change** – An expansive category including negative impacts from development, human population increases, agricultural land uses, and habitat alteration and fragmentation. These and other influences may affect not only the biological health of the park unit, but also the scenic integrity. The Parkway is especially vulnerable because of its configuration and little interior area to protect from adjacent development influences. This will undoubtedly continue to result in pressure along the Parkway including an increase in the fragmentation of forests near the park.

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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

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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 <a href="#">Climate Friendly Park</a> 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.
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.
Gulf Coast Network (GULN)	One of 32 I&M networks established as part of the NPS <a href="#">Inventory and Monitoring Program</a> . The <a href="#">Gulf Coast Network</a> provides scientific data and expertise for natural resources in 8 parks located in Florida, Mississippi, Louisiana, Texas, Alabama, and Tennessee.
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.

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.
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 <a href="#">Wilderness Act of 1964</a> .