



# State of the Park Report

## Abraham Lincoln Birthplace National Historical Park Kentucky



2014

**On the cover:** *Top* – Photograph of the Memorial Building at Abraham Lincoln Birthplace National Historical Park that contains a symbolic log cabin similar to the one in which Abraham Lincoln was born. The building was constructed between 1909 and 1911 from funds donated by private citizens. The cornerstone of the Memorial Building was laid by President Theodore Roosevelt on the 100th anniversary of Lincoln’s birth in 1909; *Bottom* – Photograph of the seven acre field of the Knob Creek farm. The Lincoln family rented thirty acres of this farm from 1811 to 1816, including this field. One of Abraham Lincoln's earliest memories was of planting seeds in this field with his family. This area is now the Boyhood Home Unit of Abraham Lincoln Birthplace National Historical Park.

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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 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.

Abraham Lincoln Birthplace National Historical Park (ABLI) commemorates the birthplace and early boyhood home of Abraham Lincoln, the sixteenth president of the United States and one of America’s most famous historic figures. The legislated purpose of ABLI is to:

- Protect and preserve the significant resources of the birthplace of Abraham Lincoln, especially the symbolic Log Cabin, Memorial Building, lands and related features.
- Protect and preserve the significant resources associated with the Knob Creek Farm and the early boyhood of Abraham Lincoln.
- Commemorate the birth and early life of Abraham Lincoln and interpret the relationship of his background and pioneer environment to his service for his country as president of the United States during the crucial years of the Civil War.

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

- This is the birthplace and early boyhood home of the 16th president of the United States who successfully preserved the Union through the turmoil of the Civil War.
- The park protects a formal landscape and the memorial building that was constructed by the Lincoln Farm Association through popular subscription to formally enshrine and preserve a symbolic birthplace cabin.
- The Boyhood Home Unit preserves the setting and resources of Abraham Lincoln’s early character-building years (1811–1816).
- The Boyhood Home Unit protects unusually diverse and abundant flora representative of the mixed mesophytic forests in the Knobs Region of Kentucky, including unique limestone glades.

The Fundamental and Other Important Resources and Values of the park’s Birthplace Unit, as identified in the park’s General Management Plan, include the symbolic birthplace cabin; the 1911 memorial building containing the cabin; the cultural landscape and contemplative atmosphere of the memorial plaza; the Boundary Oak; historic Sinking Spring that refreshed the Lincolns, and the coolness, sounds, and smells experienced at the spring; the old-growth forest and the experience of walking through it; the historic Boundary Oak site; the inspirational experience at first view of memorial building and walking into memorial building; and seeing the actual Lincoln family Bible. The Fundamental and Other Important Resources and Values of the park’s Boyhood Home Unit include the historic 7-acre field and experience evocative of a rural 19th-century landscape; Knob Creek and its tributaries; rare limestone glades; unusually diverse and abundant flora; natural quiet in the northwest end of unit; fossil-bearing limestone of the Mississippian Period; and original Louisville/Nashville Turnpike (Cumberland Road).

The summary table, below, and the supporting information that follows, provide an overall assessment of the condition of priority resources and values at ABLI based on scientific and scholarly studies and expert opinion. The internet version of this report, available at <http://www.nps.gov/stateoftheparks/abli/>, 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>		For 2005–2009, estimated values for average visibility and nitrogen and sulfur wet deposition in the park warrant significant concern based on <a href="#">NPS Air Resource Division benchmarks</a> . Estimated ozone warrants moderate concern for 2005–2009.
<b>Water Quality</b>		Measurements of water temperature, pH, dissolved oxygen, nitrates, and turbidity between 2003–2012 for Knob Creek and Sinking Spring indicate good water quality relative to the standards set by the State of Kentucky.
<b>Eastern Deciduous Forest</b>		ABLI has the highest plant species diversity of the 14 parks being monitored by the Cumberland Piedmont Inventory and Monitoring Network (CUPN). Exotic plant species were found in all vegetation plots, with an average of 6 exotic species per plot in the Birthplace Unit compared to 1.9 exotic species per plot in the Boyhood Home Unit. Based on qualitative assessments, over browsing by deer is currently not a significant issue for the park.
<b>Wildlife Communities</b>		At least 115 species of birds and 30 species of mammals were documented at the park during inventories in 2004–2007. Fish populations were rated as excellent based on the Kentucky Index of Biotic Integrity. The number of amphibian and reptile species detected during 2006–2007 inventory studies was lower than what was expected, and there is no good explanation for why certain species were not detected.
<b>Dark Night Sky</b>		The modeled Anthropogenic Light Ratio (ALR), a measure of light pollution calculated as the ratio of Average Anthropogenic Sky Glow to Average Natural Sky Luminance, was 2.50 which is considered of significant concern. The Louisville Metropolitan Area, with a population of 1.3 million people, lies 50 km North of ABLI and has experienced moderate growth in the last decade (12.5 %).

Priority Resource or Value	Condition Status/Trend	Rationale
<b>Cultural Resources</b> <span style="float: right;"><a href="#">web</a> ▶</span>		
<b>Archeological Resources</b>		<p>Approximately 9% of the park has been adequately surveyed for archeological resources. The three known archeological sites are all in good condition, with adequate documentation being available for two of the sites.</p>
<b>Cultural Anthropology</b>		<p>No Ethnographic Overview and Assessment exists for the park, but the relationship of the park’s ethnographic resources and historic contexts has been partially documented in various park reports that were primarily developed for other purposes.</p>
<b>Cultural Landscapes</b>		<p>The park’s cultural landscapes are a Fundamental Resource described in the park General Management Plan and are listed on the National Register. Two Cultural Landscape Inventories (CLIs) were completed for the property in 2008—one for the Birthplace, and one for the Boyhood Home at Knob Creek. Cultural Landscape Reports (CLRs) with treatment recommendations also exist for both units.</p>
<b>Historic Structures</b>		<p>The park’s historic structures include the Lincoln Birthplace Memorial Building; the Symbolic Lincoln Birthplace Cabin contained within the Memorial Building; the steps, walls, and drain at the entrance to Sinking Spring; the Memorial Plaza and its associated features; the Lincoln Tavern; and the Lincoln Boyhood Home Replica. The Memorial Building was recently rehabilitated and is in good condition, as is the Memorial Plaza. The two cabins are in good condition, although the nature of both buildings requires constant maintenance and attention. Sinking Spring facilities are in good condition. The Lincoln Tavern is in serious condition, awaiting funding to support rehabilitation. Up-to-date historic structure reports are in place for the Memorial Building (2001), the Tavern (2006), and the Boyhood Home Cabin (2006). The Symbolic Birthplace Cabin has been extensively documented through a variety of studies, including dendrochronology. The Memorial Plaza, Sinking Spring, and their associated features were documented in the Cultural Landscape Report (2004).</p>
<b>History</b>		<p>The park’s initial National Register Nomination was written in 1977, and therefore did not address the recent Boyhood Home Unit (a separate NR nomination for the latter was written in 1988). 100% of the historic structures and cultural landscapes have been adequately evaluated in Historic Structure Reports, Cultural Landscape Reports, and other special studies. The Administrative History study was done 55 years ago in 1968. There is no full-time historian on staff.</p>
<b>Museum Collections</b>		<p>According to the FY 2012 Collection Management report, 99.9% of museum collections are cataloged; however, ABLI has not had an archival survey since 2001 and is certain to have a backlog accumulated over the past 12 years. The collections (stored at ABLI and MACA) are well cared for although the museum storage at ABLI is not ideal (basement location). The MACA museum storage facility is a multi-park facility. The museum curator is project funded through a partnership, and funding is tenuous. Without professional management, several park collections could be at risk. The park’s Scope of Collections Statement was reviewed and updated in August 2010.</p>

Priority Resource or Value	Condition Status/Trend	Rationale
<b>Visitor Experience</b> <span style="float: right;"><a href="#">web</a> ▶</span>		
Number of Visitors		The total of 169,515 visitors to the Birthplace Unit of the park in 2012 is higher than that of 2011 (163,568) but lower than the 5-year average of 193,031 visitors for 2007–2011. The counts do not include an unknown number of additional visitors to the Boyhood Home Unit of the park.
Visitor Satisfaction		Based on the standard visitor satisfaction survey conducted each year, the percentage of visitors satisfied in FY12 was 99.0%, which is higher than the average for the previous five years (94.6%) and ten years (95.6%). Source: <a href="#">2012 Visitor Survey Card Data Report</a>
Interpretive and Education Programs – Talks, Tours, and Special Events		Visitor participation in Ranger-guided programs at the park reached a 5-year high in 2012, but participation in Ranger-led education programs with local schools decreased by 88% between 2008 and 2012 because of budget and staffing reductions. The Junior Ranger program continues to be very popular, with an increase in the number of children participating over the past 3 years. The Park continues popular special events such as “Walk Through Lincoln’s Life” and annual Lincoln’s Birthday Celebration and participation in National Park Week and National Jr. Ranger Day.
Interpretive Media – Brochures, Exhibits, Signs, and Website		Visitor Center exhibits and many of the wayside exhibits were upgraded for the Lincoln Bicentennial Observance in 2009, but most of them still require accessibility upgrades including audio description and tactile/Braille components. Directional signs to the park are worn and faded and do not use the current National Historical Park designation which leads to confusion by visitors. The Park orientation film and brochures are current. A Facebook page for the Park was established in March 2013.
Accessibility		Improvements to the park orientation film, Visitor Center exhibits, and wayside exhibits are needed to accommodate visitors with vision, hearing, cognitive, and mobility impairments. The accessible boardwalk has areas where the cross-slope exceeds ADA standards. Improvements are being made to provide greater physical accessibility to the Birthplace Unit picnic area.
Safety		The safety of visitors is a park priority and the park works to quickly identify and mitigate potential hazards. All permanent park staff has completed Operational Leadership Training, and CPR, First Aid, and AED training are offered when available to park staff.
Partnerships		The Park works with a wide variety of partners and continues to seek opportunities to develop new partnerships. The Park’s Volunteer-In-Parks (VIP) Program has been recently expanded and improved. Volunteers provide support for daily park operations as well as special events and logistical and support operations.
<b>Park Infrastructure</b> <span style="float: right;"><a href="#">web</a> ▶</span>		
Overall Facility Condition Index		The 50 assets at ABLI have an overall FCI of 0.055, which is Good based on industry and NPS standards. FCI is the cost of repairing an asset, such as a building, road, trail, or water system, divided by the cost of replacing it.
Energy Consumption		Energy usage (BTUs per gross square footage of buildings) at the park in 2012 was 26.2% lower than the average for the previous 4 years. The park has made a number of improvements in recent years to reduce energy consumption.

Priority Resource or Value	Condition Status/Trend	Rationale
Water Consumption		Water consumption at the park in 2012 was 48.9% lower than the 4-year average for 2008–2011.

## 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

- Treatment of invasive/exotic plant species by the NPS Exotic Plant Management Team
- Completion of a vegetation map and associated reports and data sets for the park
- Completion of surveys for vertebrates and vascular plants
- Monitoring of natural resource vital signs by the Cumberland Piedmont Inventory and Monitoring Network
- Inventory of park wetlands in partnership with Tennessee Technological University
- Natural Resource Condition Assessment study completed to summarize condition of natural resources
- Development of a Resource Stewardship Strategy in 2010
- Installation of the Integrated Pest management/Pesticide storage building
- Development of a GIS map of exotic species locations in the park
- Aquatic insect study completed for ABLI and 17 other parks in the southeast
- Plantings of chestnut trees to help restore a species that was once found in the park

### Cultural Resources

- Rehabilitation of the Memorial Building, which included replacing the heating/air conditioning system and repairing the plaster for mold abatement, has greatly improved the park's ability to maintain and preserve the building and the symbolic birth cabin contained within it.
- Complete repair and rehabilitation of the cabin at the Boyhood Home Unit has ensured its continued preservation.
- Completion of three Historic Structure Reports and two Cultural Landscape Reports for the park since 2000 has established a baseline of information on the resources while providing comprehensive guidance for ongoing maintenance
- Completed archeological studies of the park's three archeological sites
- Digitizing the ABLI glass lantern slide collection through a partnership with Clemson University
- Project underway to move historic Lincoln Farm Association markers to a more secure site
- Finishes analysis and documentation (paint, wallpaper, etc.) of the Lincoln Tavern interior walls in preparation for the rehabilitation

### Visitor Experience

- Development of a new audio-described orientation film for the visitor center, *Lincoln: The Kentucky Years*
- Daily ranger-led programs during the summer season
- Expansion and publication of a formal program schedule to assist visitors in planning their visit and to encourage visitor understanding
- Establishment of the park's Facebook page in March 2013
- Various special events held throughout the year such as "Walk Through Lincoln's Life", the "Summer Season Celebration", and concerts.
- New tactile models and accessibility upgrades are being designed for the Memorial Building and landscape
- New large print park folder
- Expansion of the Volunteers-in-Parks (VIP) program
- Continued emphasis on the safety of visitors and park employees
- Park participates in the Student Conservation Association (SCA) NPS Academy program
- Study completed identifying improvements needed to increase accessibility for visitors with impairments
- Accessibility improvements made to the park picnic area trail and the picnic area
- New (2009) Visitor Center exhibits. Modifications are needed to meet accessibility standards for visitors with visual, hearing, or other impairments

## Park Infrastructure

- Implemented green infrastructure improvements to reduce energy and water consumption:
  - High efficiency HVAC system in Memorial Building
  - Energy-efficient roofing system installed on the visitor center
  - Replaced all incandescent and fluorescent bulbs with LED bulbs
  - Upgrades to park residences including installation of energy-efficient water heater and new cabinets, flooring, and carpet
  - Reduction in solid waste through aggressive recycling program
  - Maintain and encourage “green” solutions among park employees and visitors
- Installed new pavilion in park’s picnic area with accessible tables and grills
- New trash and recycling cans placed on park grounds
- Accessibility
  - Completed Accessibility Assessment study by the National Center on Accessibility
  - Resurfacing of trail in picnic area to meet with current accessibility standards
  - Handrail placed on the visitor center boardwalk

## Partnerships

Partnerships with other agencies, organizations, and educational institutions are integral to park management goals. The park has over 30 partners who work with the National Park Service to accomplish common goals. Some examples of successful, ongoing partnerships include:

- Frequent collaboration with the Lincoln Museum including shared library space
- Lincoln Days Committee partnership to provide visitor services and children’s activities during the annual Lincoln Days Festival.
- Cumberland Piedmont Inventory and Monitoring Network monitors vegetation plots to determine the diversity and vital signs used to evaluate the health of the park natural resources
- Lincoln Heritage Scenic Byway and the Kentucky Lincoln Heritage Trail Alliance coordinate activities, programs, and marketing of the park and other tourism sites in much of central Kentucky. These organizations also serve as coordinating entities for tourism organizations and sites throughout north central Kentucky
- Kentucky Lincoln Heritage Trail Alliance works with the National Park Service on a feasibility study for the proposed Kentucky Lincoln National Heritage Area
- Kentucky Heritage Cabinet includes the State Historic Preservation Office who works closely with the park on historic preservation compliance issues
- Clemson University digitizing the park’s historic lantern slide collection
- Eastern National worked with the park to provide sales services off site at the Nancy Lincoln Inn, contributing to the visitor experience and helping to preserve the viewshed from the Memorial Building
- Emergency services provided through agreements with the LaRue County Sheriff’s Department, LaRue County Ambulance Service, the Buffalo Fire Department, and other emergency response agencies

## Key Issues and Challenges for Consideration in Management Planning

### Boyhood Home Unit:

The Boyhood Home Unit, also known as the Knob Creek Farm, was the second home of young Abraham Lincoln. Lincoln said that “...my first recollections are of the Knob Creek place.” While living at the Knob Creek Farm, young Abraham planted his first seeds in the ground of his family’s farm. Here seeds were planted in him as well—his first formal education, his first exposure to the hard work of survival on the frontier, and his first exposure to slavery and the anti-slavery messages he heard from his family and the pulpit of the family church. Lincoln later wrote “I am naturally anti-slavery. If slavery is not wrong, nothing is wrong. I cannot recall when I did not so think and feel.” The seeds sown in young Abraham while he lived at the Knob Creek Farm bore fruit in his work ethic, his love of learning, and in his efforts to end slavery.

The Knob Creek Farm was acquired by Preservation of Lincoln’s Kentucky Heritage, Inc. using funds raised primarily from the community and the Commonwealth of Kentucky. The property was donated to the National Park Service in 2001 and became the Boyhood Home Unit of ABLI. While visitor use counts are not collected, estimated visitation to the Boyhood Home Unit is over 100,000 visits annually.



The facilities at the Boyhood Home Unit have the poorest Facility Condition Index of any in the park. The 1930s era Lincoln Tavern, the water system, the septic system, the restrooms, and the parking lot pavement are all in serious condition. The Lincoln Tavern has significant rot in over 30% of the structural log walls and does not meet building code standards for public assembly spaces, and so is closed to the public. The septic system is failing. The restroom has severe rot in over 50% of the walls and the interior log and concrete surfaces are impossible to keep clean. The water system relies on a contaminated well, and the restrooms do not have working sinks.

In 2012 park staff working with contract designers and staff from the National Park Service Southeast Region completed design and construction plans to rehabilitate the Lincoln Tavern and improve or replace the visitor use facilities at the Boyhood Home Unit. This project would resolve all of the facility issues identified above. It is a high priority for the National Park Service; at the time of this report Phase 1 of the project has been funded. This will resolve the restroom, water, septic, and some of the electric code issues. It is hoped that the remaining components of the project will be funded in future years.

The bottomland field visible from the Boyhood Home Unit developed area is little changed from the early 1800s and is a very important element to that unit of the park. It is currently planted in grasses and is cut and baled twice a year. Plans for this area include the installation of a septic field in part of this field. This will force a change to the mowing regimen since heavy equipment such as tractors and bailers could damage the septic field pipes. A solution that retains the field's appearance while allowing for maintenance that doesn't require heavy machinery needs to be developed.

### **Birthplace Unit Viewshed, Adjacent Land Use and Development**

One of the foundational visitor experiences at the Birthplace Unit is walking up the 56 marble steps in front of the Memorial Building. Most visitors then stand at the front of the Memorial and view the cultural landscape that is the setting for the Memorial. One of the more prominent areas within that viewshed is the Nancy Lincoln Inn, a private facility owned by the Howell family. The buildings were built in the 1920s as a store, visitor facility, and an early motel to take advantage of the increasing numbers of visitors coming to the park.

National Park Service staff has used a variety of strategies to deal with the impact of the Nancy Lincoln Inn facility on the view from the Memorial Building. A major element of the treatment recommendations of the Cultural Landscape Report for the Birthplace Unit involves plantings to screen the view of the Nancy Lincoln Inn. Park staff has had success working with the Howell family to ensure the appearance of the buildings is consistently good. Recently, Eastern National, the park's cooperating association, has rented the Inn building to continue the store operation previously run by the Howell family. All of these efforts have helped to preserve the view from the Memorial, but none of them may preserve that view for future generations. A long-term solution to the preservation of the view from the front of the memorial needs to be found.

Development continues to expand south on US 31E from the Hodgenville area. Park staff continues to monitor this development and work with local governments to ensure that adjacent development does not negatively impact the resources and values protected by ABLI.

### **Exotic and Invasive Species**

Most of the area of ABLI is wooded areas, glades, and fields. The park protects the most diverse plant communities of any of the parks within the Cumberland Piedmont Network. Important examples of Central Limestone Glades and a large Highland Rim Limestone Cliff/Talus Seep are significant natural resources in the park. These natural features are cultural resources as well. They reflect the natural condition of this part of Kentucky that existed when Abraham Lincoln was a child.

The park has widespread occurrence of exotic invasive plants. Most important is controlling those that impact pristine natural areas, such as the limestone glades, wetlands, and diverse forested slopes. Problem species include, Japanese Stiltgrass (*Microstegium vimineum*), Winter Creeper (*Euonymus fortunei*), Amur Honeysuckle (*Lonicera maackii*), and Oriental Bittersweet (*Celastrus orbiculatus*).

The diversity of the forested areas at the Boyhood Home Unit creates opportunities for development of interpretive trails, particularly along the Knob Creek Backcountry Access Trail. Any development or maintenance of these trails will be done in a manner that minimizes impacts such as trampling, poaching, and the introduction of non-native species.

Forest pests, particularly Emerald Ash Borer, have been discovered in Hardin County, nearby the park. Emerald Ash Borer bores beneath the bark of Ash trees, killing the tree. The park is working with other national parks in Kentucky and Tennessee to identify approved control measures for forest pests.

Management of the bottomland floodplains for pre-settlement conditions could involve the establishment of native grasses in open field areas and restoration of cane shrublands along portions of the creek. Management should consider re-introduction of fire to

maintain openness and promote plant diversity on rare glade habitats. Prescribed fire and strip mowing could also be used to maintain native grasses in open fields.

### **Community Relations and Partnerships**

The local community within LaRue County and the town of Hodgenville takes pride in their identity as the birthplace of Abraham Lincoln. The community has long been supportive of the park. The park has developed and maintained long-term partnerships with the Lincoln Museum, Lincoln Days Inc., LaRue County, and the Town of Hodgenville.

Planning for the 2009 bicentennial of Abraham Lincoln's birth expanded those relationships and partnerships. The Lincoln Scenic Byway board and the Kentucky Lincoln Heritage Trail Alliance are organizations made up of representatives of tourism organizations and attractions within central Kentucky. The park works with these organizations to collaboratively market and raise the visibility of the Kentucky Lincoln story.

A feasibility study for the proposed Kentucky Lincoln National Heritage Area is being developed at the time this report is being written. The proposed National Heritage Area would focus on Lincoln's relationship with Kentucky; his experiences with frontier life and slavery, the formation of his political credo resulting from his exposure to the philosophy of Henry Clay, and his efforts to keep Kentucky a Union state during the Civil War. It would also address the unique relationship between Kentucky's postwar identity and the place of Abraham Lincoln in American memory. The proposed National Heritage area could include up to eleven counties in central Kentucky. The study should be complete by December 2014. The approval of this National Heritage Area could dramatically expand the partnership role of the park and park leadership.

There are challenges that have the potential to impact the relationship with the community. The delay of over ten years in developing visitor facilities at the Boyhood Home Unit of the park continues to be a serious concern to the community and its leaders. The delay of nearly two years in the Kentucky Lincoln National Heritage Area feasibility study caused similar concern within the community and among community leaders throughout central Kentucky.

# Chapter 1. Introduction

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The purpose of this State of the Park report for Abraham Lincoln Birthplace National Historical Park (ABLI) 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.

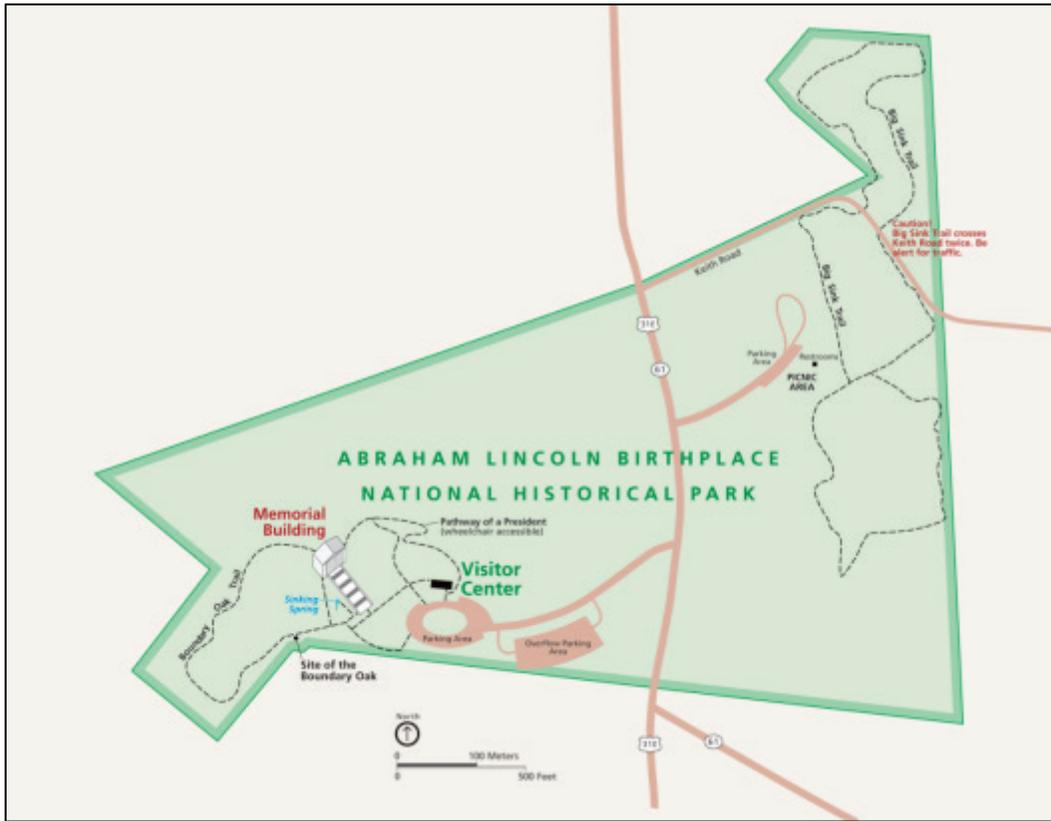
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- Protect and preserve the significant resources of the birthplace of Abraham Lincoln, especially the symbolic Log Cabin, Memorial Building, lands and related features.
- Protect and preserve the significant resources associated with the Knob Creek Farm and the early boyhood of Abraham Lincoln.
- Commemorate the birth and early life of Abraham Lincoln and interpret the relationship of his background and pioneer environment to his service for his country as president of the United States during the crucial years of the Civil War.

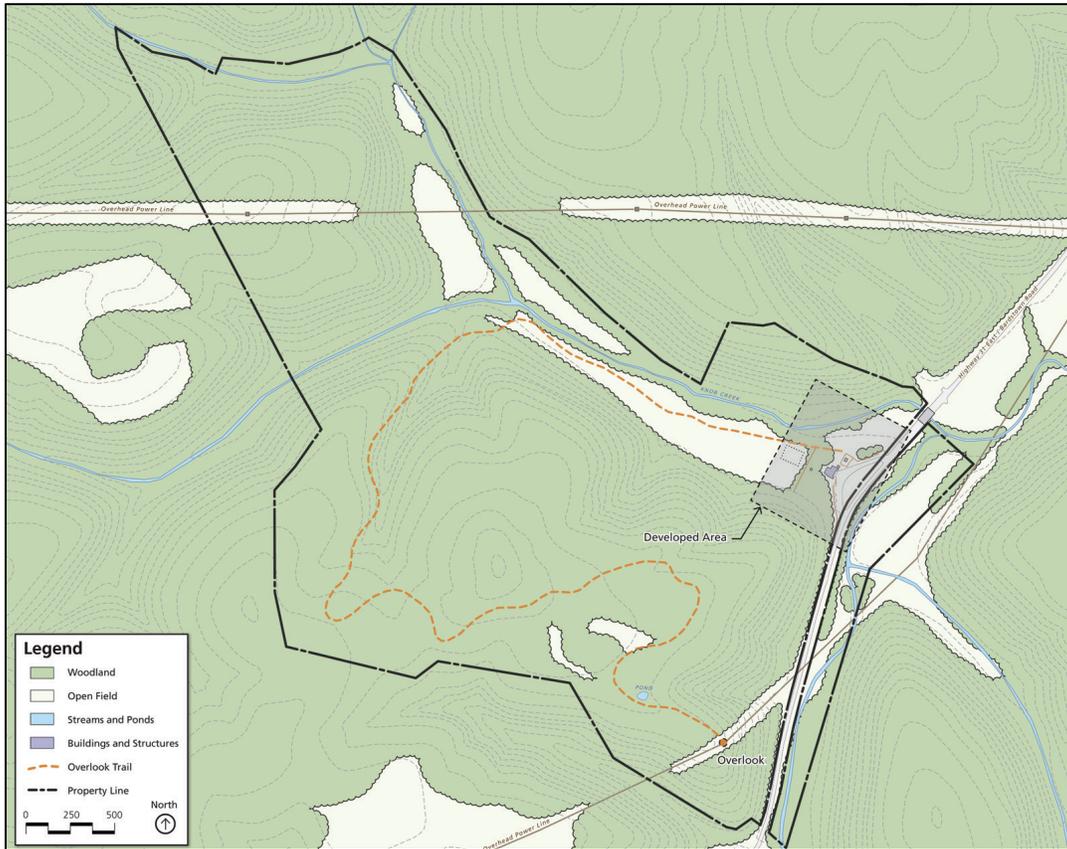
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- This is the birthplace and early boyhood home of the 16th president of the United States who successfully preserved the Union through the turmoil of the Civil War.
- The park protects a formal landscape and the memorial building that was constructed by the Lincoln Farm Association through popular subscription to formally enshrine and preserve a symbolic birthplace cabin.
- The Boyhood Home Unit preserves the setting and resources of Abraham Lincoln's early character-building years (1811–1816).
- The Boyhood Home Unit protects unusually diverse and abundant flora representative of the mixed mesophytic forests in the Knobs Region of Kentucky, including unique limestone glades.

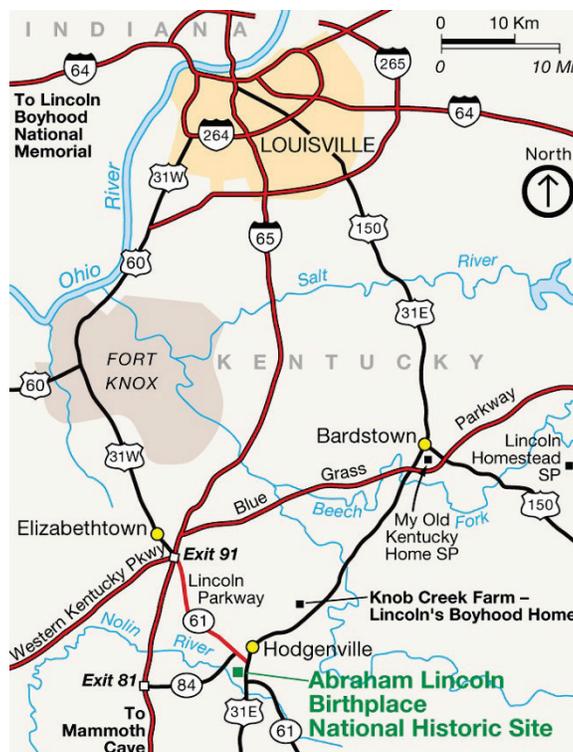
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**Map of the Birthplace Unit of the Park**



**Map of the Boyhood Home Unit of the Park**



Location of the two units of the Park in Kentucky

## Chapter 2. State of the Park

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

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

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

## 2.1. Natural Resources

Air Quality  <a href="#">web</a> ▶			
Indicators of Condition	Specific Measures	Condition Status/Trend	Rationale
Ozone	Annual 4th-Highest 8-Hour Concentration		The estimated ozone level for 2005–2009 at ABLI was 74.6 parts per billion (ppb), therefore, the condition status warrants moderate concern based on <a href="#">NPS Air Resource Division benchmarks</a> . No trend information is available because there are not sufficient on-site or nearby ozone monitor data ( <a href="#">NPS ARD 2013</a> ). <a href="#">List of ozone-sensitive plant species</a> .
Deposition	Sulfur Wet Deposition		For 2005–2009, estimated wet sulfur deposition was 5.8 kilograms per hectare per year (kg/ha/yr), therefore, the condition status warrants significant concern based on <a href="#">NPS Air Resource Division benchmarks</a> . ABLI may be moderately sensitive to acidification effects from atmospheric deposition relative to all Inventory & Monitoring parks ( <a href="#">Sullivan et al. 2011a</a> ; <a href="#">Sullivan et al. 2011b</a> ). No trend information is available because there are not sufficient on-site or nearby wet deposition monitor data ( <a href="#">NPS ARD 2013</a> ).
	Nitrogen Wet Deposition		For 2005–2009, estimated wet nitrogen deposition was 5.0 kilograms per hectare per year (kg/ha/yr), therefore, the condition status warrants significant concern based on <a href="#">NPS Air Resource Division benchmarks</a> . Although ABLI 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 nitrogen-enrichment effects relative to all Inventory & Monitoring parks ( <a href="#">Sullivan et al. 2011c</a> ; <a href="#">Sullivan et al. 2011d</a> ). No trend information is available because there are not sufficient on-site or nearby wet deposition monitor data ( <a href="#">NPS ARD 2013</a> ).
Visibility	Haze Index		For 2005–2009, estimated average visibility in ABLI was 14.2 deciviews (dv) above natural conditions, therefore, the condition status warrants significant concern based on <a href="#">NPS Air Resource Division benchmarks</a> . For 2000–2009, the trend in visibility on the 20% clearest days improved and remained relatively unchanged on the 20% haziest days (no statistically significant trend) ( <a href="#">NPS ARD 2013</a> ). The Clean Air Act visibility goal requires visibility improvement on the 20% haziest days, with no degradation on the 20% clearest days.

### Resource Brief: Historical and Projected Changes in Climate at Abraham Lincoln Birthplace NHP

Climate change, in conjunction with other stressors, is impacting all aspects of park management from natural and cultural resources to park operations and visitor experience. Effective planning and management must be grounded in our comprehension of past dynamics as well as the realization that future conditions may shift beyond the range of variability observed in historical data. Climate change will manifest itself not only as shifts in mean conditions (e.g., increasing mean annual temperature) but also as changes in climate variability (e.g., more intense storms and droughts). Put another way, land managers are dealing with both rapid directional

change and tremendous uncertainty. Understanding climate change projections and associated levels of uncertainty will facilitate planning actions that are robust regardless of the precise magnitude of change experienced in the coming decades.

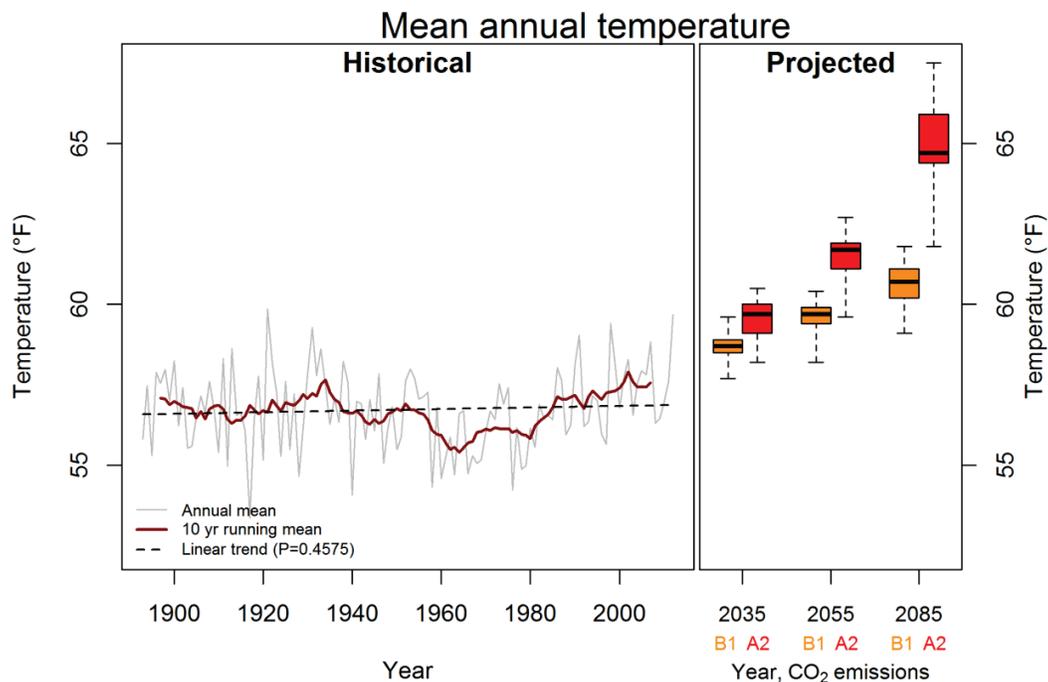
### Historical climate trends (1893–2012)

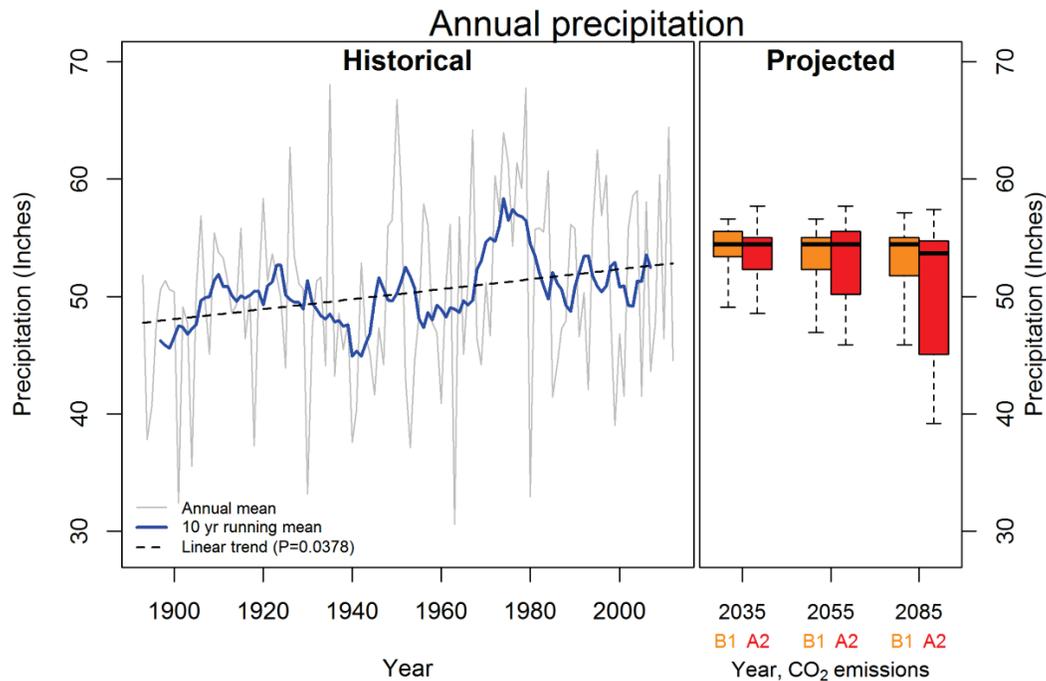
Historical climate trends for ABLI (Fisichelli 2013) are based on historic climate data from a nearby long-term weather station (Greensburg, KY; cdiac.ornl.gov). Over the entire 120 year instrumental record (1893–2012) mean annual temperature did not show a statistically significant linear trend; however, since 1960, mean annual temperature has increased at a rate of 0.5 °F per decade (see Figure below). Annual precipitation showed strong interannual variability and a statistically significantly increasing linear trend over the entire record, +0.4 inches per decade.

### Future climate projections

Future climate projections for the area including ABLI are from multi-model averaged data (Kunkel et al. 2013). Mean annual temperature, compared with the 1971–1999 average, is projected to increase 2–3 °F by mid-century and 4–8 °F by the end of the century, depending on the greenhouse gas emissions scenario (see Figure below). Current greenhouse gas emissions are on a trajectory similar to the higher emissions scenarios (see references in Fisichelli 2013). Warming by mid-century is projected for all seasons, with the greatest increases likely in summer and fall (Kunkel et al. 2013). There is wide agreement among individual climate models in the direction and magnitude of warming over the coming decades. Precipitation models indicate minor changes in annual totals over the coming century, though increases in winter and decreases in summer total precipitation are projected (Kunkel et al. 2013). Precipitation variability is likely to remain large over the coming decades, and there is greater uncertainty in precipitation than temperature projections (Kunkel et al. 2013).

In addition to warmer mean temperatures and changes in total precipitation, climate change will manifest itself in many other ways. This includes more frequent heat waves, droughts, floods, and an extended frost-free season. The number of days with maximum temperatures > 95 °F and the length of the frost-free season are both projected to increase by 20–30 days/year (high (A2) emissions scenario 2041–2070 compared with 1980–2000; Kunkel et al. 2013). Small changes in total annual precipitation may mask large shifts in the precipitation regime and associated impacts to ecosystems. The annual maximum number of consecutive days with rainfall less than 0.1 inches may increase by a few days while the annual number of days with heavy rainfall (> 1 inch) is projected to increase by 15–20% (high (A2) emissions scenario, 2041–2070 compared with 1980–2000; Kunkel et al. 2013). Significantly warmer temperatures and a more variable precipitation regime, including heavier rain events and an increased number of days between rain events, may lead to both more frequent droughts and more severe flooding and erosion.





**Figure legend. Historical and projected mean annual temperature and annual precipitation for ABLI. Historical data (1893–2012) are from the Greensburg, KY long-term weather station (cdiac.ornl.gov). Projected climate change (30 year means) for the region including the park (data from Kunkel et al. 2013, see Tables 4, 6 and Figures 26, 37) are for three future time periods centered on 2035 (2021–2050), 2055 (2041–2070), and 2085 (2070–2099). Two greenhouse gas emissions scenarios are presented, the low (B1) and high (A2) scenarios (IPCC 2007). Projected climate boxplots indicate the variability in future projections among 14–15 CMIP3 climate models. Values for the area including the park are based on projected changes from individual climate models averaged across the southeast region: the bold horizontal black line represents the mean among all models, the upper and lower bounds of the boxes indicate the 75th and 25th percentile model output values and the whiskers show the minimum and maximum change averaged across the region.**

## Resource Brief: Climate change effects at ABLI

Climate change is ongoing and past greenhouse gas emissions, long residence times of these gases in the atmosphere, and our current emissions trajectory suggest that future climate change will be substantial (Wigley et al. 2005, Peters et al. 2012). Even if greenhouse gas emissions are dramatically reduced in the future, ABLI will continue to experience impacts from ongoing changes. Although the precise magnitude of these changes cannot be predicted, many trends are already detectable and can be incorporated into planning efforts.

Warming temperatures mean not only increases in average temperature but also increases in extreme daily high temperatures (Kunkel et al. 2013). A shift of only a couple of degrees from mid 80s (°F) to low 90s can move visitors from a “Caution” to “Extreme Caution” zone according to the National Oceanic and Atmospheric Administration’s Heat Index. With higher temperatures more frequent and occurring over a longer summer season, it is vital to educate visitors on the dangers of heat and to maintain potable fresh water for visitor safety. Heat waves are also linked to unhealthy ozone levels, and this is particularly important for ABLI where ozone is already a moderate concern. Higher levels of ozone could cause foliar damage to the vegetation at the Site.

The forests in and around the grounds of ABLI are likely to change due to a warming climate in conjunction with other stressors such as tree pests (Fisichelli et al. 2014). Heat can be a key driver of forest impacts and insect pest outbreaks on urban trees (Meineke et al. 2013). Longer growing seasons will increase the risk of insect outbreaks and expand ranges of some species such as scale insects and cankerworm (Ingram 2013, Frank, S.D. in press). Near-term (2013–2027) disease and pest risks for the Site include oak decline and emerald ash borer (Krist et al. 2014). Climate change will cause increased stress to many trees and may favor different species on the landscape. At ABLI, tree species likely to be negatively affected by climate change include sugar maple (*Acer saccharum*) and white ash (*Fraxinus americana*), while species with potential increases in habitat in the future include post oak (*Quercus stellata*) and sweet gum (*Liquidambar styraciflua*).

Warming temperatures are predicted to increase evapotranspiration, drying forest vegetation and increasing wildfire risk. Increased evapotranspiration may also reduce streamflow (Ingram 2013). Increased wildfire risk to the forest at ABLI translates to an increased risk of loss of important historic wooden structures within the Site.

Climate change may increase risk from invasive plant species. Longer growing seasons and shorter cold snaps may allow invaders to expand into new ranges (Ingram 2013). Undesirable species that could impact the Site and are likely to benefit from climate change include kudzu (*Pueraria lobata*), privet (*Ligustrum sinense*; *L. vulgare*) and cogongrass (*Imperata cylindrical*) (Bradley et al. 2010).

Effective climate change adaptation requires collaboration among land managers across large landscapes. The Appalachian Landscape Conservation Cooperative is one of a network of Cooperatives planning for a sustainable landscape in the face of climate change. The Cooperative is a good place to find partners to work together to adapt natural and cultural resources to climate change.

Water Quality  <a href="#">web</a> ▶			
Indicators of Condition	Specific Measures	Condition Status/Trend	Rationale
<b>Water Chemistry</b>	Water temperature (degrees C)		100% of the 83 measurements of water temperature during 2003–2012 were below the State of Kentucky’s upper limit of 31.7 C ( <a href="#">Meiman 2012a, b</a> ).
	pH		100% of the 83 measurements of pH during 2003–2012 were within the range of 6–9 set by the State of Kentucky ( <a href="#">Meiman 2012a, b</a> ).
	Dissolved Oxygen		98% of the 82 measurements of water temperature during 2003–2012 were below the Kentucky lower limits of 4 mg/l for warm water and 5 mg/l for cold water ( <a href="#">Meiman 2012a, b</a> ).
	Nitrates NO <sub>2</sub> -N (mg/l)		100% of the 83 measurements of NO <sub>3</sub> -N during 2003–2012 were below the State of Kentucky’s upper limit of 90 mg/l ( <a href="#">Meiman 2012a, b</a> ).
	Turbidity (NTU)		100% of the 83 measurements of water temperature during 2003–2012 were below the State of Kentucky’s upper limit of 31.7 C ( <a href="#">Meiman 2012a, b</a> ).
	<i>E. coli</i> occurrence (mpn/100 ml)		86% of the 65 measurements of <i>e. coli</i> microorganisms during 2003–2012 were below the upper limit of 298 mpn/100 ml established by the State of Kentucky ( <a href="#">Meiman 2012a, b</a> ).

Eastern Deciduous Forest  <a href="#">web</a> ▶			
Indicators of Condition	Specific Measures	Condition Status/Trend	Rationale
<b>Species Diversity</b>	Mean number of plant species per 400 m <sup>2</sup> forest plot		Monitoring data substantiate the fact that ABLI supports a diverse assemblage of plant species with 72 species per plot (n=16). Within the 14 parks of the CUPN, this park shows the highest species diversity per plot ( <a href="#">Cumberland Piedmont Network 2013</a> ).
<b>Exotic Plants</b>	Percent of forest plots with exotic species present / Exotic/Native species ratio (1m <sup>2</sup> subplot)		100% of plots have exotic species (n=16). Birthplace Unit has much higher average per plot (6 exotics per plot) when compared to average at Boyhood Home Unit (1.9 exotics per plot). Approximately 8% of species identified in subplot are exotic ( <a href="#">Cumberland Piedmont Network 2013</a> ).

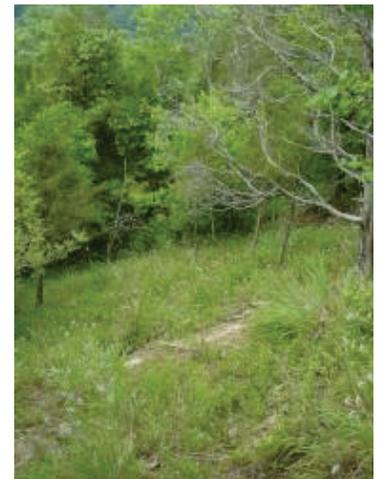
<b>Stand Structural Class</b>	Proportion of forest plots characterized as late successional (based on proportion of basal area in successive DBH size classes)		Based on Cumberland Piedmont Network 2011–12 forest vegetation monitoring, five of 16 plots are characterized as late successional. Fifty percent of plots (including 7 of the 8 plots on the Birthplace Unit) were classified as a successional or human-modified community type.
<b>Snag Abundance</b>	Density of snags		Based on Cumberland Piedmont Network 2011–12 forest vegetation monitoring, 22% of all standing trees ( $\geq 10$ cm DBH) are snags, and 12% of all large standing trees ( $\geq 25$ cm DBH) are snags.
<b>Native Tree Seedling Generation</b>	Native seedlings (5–137 cm) per hectare		Monitoring of vegetation plots by the CUPN in 2011–12 found densities of native tree seedlings of 48,594 seedlings/ha for trees with diameters of 5–50 cm, and 5,000 seedlings/ha for trees with diameters of 50–137 cm plot ( <a href="#">Cumberland Piedmont Network 2013</a> ). Based on qualitative assessments, deer browse does not appear to be a significant issue presently on established plots. Stocking indices, based on community type, need to be developed/refined to determine whether seedling densities are sufficient for forest regeneration.

## Resource Brief: Plant Diversity

A significant amount of acreage within ABLI is successional, mowed or maintained grassland. However, the park supports a number of natural vegetation community types ranging from rich forested slopes to dry calcareous (limestone) glades. Two notable communities (both found on the Boyhood Home Unit) are the xeric Central Limestone Glade and the Highland Rim Limestone Cliff/Talus Seep ([Jones and Pyne 2008](#)).

The xeric Central Limestone Glade community is infrequent but widely scattered in central Kentucky. The suite of glade endemics occurring within this association makes it worthy of management attention. Encroachment of woody species such as eastern red cedar (*Juniperus virginianus*) can threaten these glades over time. It is believed these communities would have burned periodically under ‘natural conditions’, thus maintaining the characteristic open structure. With too much encroachment by cedar or other woody species, the diversity of these sites will be compromised.

An unusually large example of the Highland Rim Limestone Cliff/Talus Seep is located along the northern boundary of the Boyhood Home Unit. This particular site is approximately 100 m wide and is primarily a smooth hydrangea (*Hydrangea arborescens*) shrubland on exposed wet limestone. Calcareous seeps are habitat for interesting to unusual vegetation, including the state-imperiled southern maidenhair (*Adiantum capillus-veneris*) ([Jones and Pyne 2008](#)).



The diversity of park vegetation was also underscored by recent forest monitoring efforts. ABLI had the greatest number of species (average = 72 per plot) amongst the 14 Cumberland Piedmont Network parks at the 20 x 20 m plot level. Most of this diversity is attributed to the Boyhood Home Unit where mean number of species exceeded 80 species per plot (n=8) ([Cumberland Piedmont Network 2013](#)).



## Resource Brief: Invasive Species

Invasive species may be the biggest single threat to the overall ecological health of the park ([Jones and Pyne 2008](#)). In the interior woods and forests, shrubs and vines such as Japanese honeysuckle (*Lonicera japonica*) and Multiflora rose (*Rosa multiflora*) are colonizing understory areas. Some of the floodplain for the creeks that run through the park is impacted by Japanese stiltgrass (*Microstegium vimineum*). Several other vines and shrubs such as Winter creeper (*Euonymus fortunei*), Amur bush honeysuckle (*Lonicera maackii*), Oriental bittersweet (*Celastrus orbiculatus*) are now established in the park and are likely candidates for future eradication efforts. The park is currently working with the NPS Exotic Plant Management Team (EPMT) on eradication of exotic plants.

Forest pests are of increasing concern to park managers. Emerald ash borer (*Agrilus planipennis*), one of the most destructive forest pests ever seen in North America, is present in neighboring Hardin County ([University of Kentucky 2013](#)). Adult ash borers have been known to fly up to a ½ mile from the tree where they emerge. No new discernible issues related to tree health or decline were detected during the 2011–2012 sampling season by the CUPN forest vegetation monitoring team, but the early detection rapid response team should be vigilant in checking for this forest pest and others during their annual sampling trips. ABLI and other area national park units are collaborating on an environmental assessment to identify approved treatments to address forest pests such as Emerald ash borer.

The park is currently mapping exotic plants and working with the CUPN I & M program to implement an early detection rapid response plan for high priority exotic plant and pests. This effort will allow park resource managers to assess each invasive species early detection record on an individual basis and target limited management resources and coordination toward the highest priority risks.

## Resource Brief: Inventory & Monitoring Partnership

As part of the National Park Service’s effort to improve park management through greater reliance on scientific knowledge, a primary role of the Inventory and Monitoring (I&M) Program is to collect, organize, and distribute natural resource data. The I&M program provides funding and technical assistance to parks through its 32 I&M Networks. ABLI is one of 14 parks within the Cumberland Piedmont Network (CUPN). The CUPN worked with this park to complete a vegetation community classification and map, a wetlands



**A hydrologist with the CUPN Network samples water quality at the park.**

inventory, and updated vascular plant and vertebrate species lists. During the vegetation community classification work, 13 distinct associations were documented and mapped, including a rare type of limestone glade. Remnants of floodplain canebrakes were also discovered and have potential for restoration. The Network monitoring program at this park includes four vital signs that involve repeated visits to established sites, following procedures established by each monitoring protocol. These four vital signs are: forest vegetation communities, invasive species early detection, ozone/foliar injury, and water quality. Water quality monitoring began in 2004 and continues on a bi-monthly

A natural resource **inventory** is an extensive point-in-time effort to determine location or condition of a resource, including the presence, class, distribution, and status of plants, animals, and abiotic components such as water, soils, landforms, and climate. **Monitoring** differs from inventory in adding the dimension of time, and the general purpose of monitoring is to detect changes or trends in a resource.

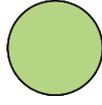
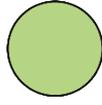
schedule every-other-year (even years) at three sites: two on the Boyhood Home Unit, and one at Sinking Spring on the Birthplace Unit. Forest monitoring began in 2011–2012 with the establishment of 16 long-term monitoring plots. Additional plots will be established over the next few years, followed by a five-year revisit schedule, occurring in early September. Ozone levels and foliar injury are assessed on-site every six years, beginning in 2008. The Invasive Species Early Detection protocol was completed in 2012 and will be used by field crews to monitor for priority exotics during their scheduled field work.

## Wildlife Communities



[web](#) ▶

Indicators of Condition	Specific Measures	Condition Status/Trend	Rationale
<b>Amphibians and Reptiles</b>	Species composition and diversity		The number of amphibian and reptile species detected during 17 sampling events during a 2003–2005 inventory was lower than expected ( <a href="#">MacGregor 2007</a> ). The lack of specific habitat requirements limits the presence of some species, but there is no good explanation why others were not found (e.g., stream breeding salamanders, kingsnakes, brown snakes). The fact that some relatively common species throughout the region were not detected in the park should not be overlooked ( <a href="#">Moore 2009</a> ). Additional studies are needed to determine the status of this group in the park.

<b>Fish</b>	Species composition and diversity		Based upon evaluation of limited inventory data on Boyhood Home Unit ( <a href="#">Zimmerman 2007</a> ), fish condition was considered excellent using the Kentucky Index of Biotic Integrity ( <a href="#">Hutchison et al. 2011</a> ).
<b>Birds</b>	Species composition and diversity		The park supports a diverse array of birds with a total of 115 species determined to occur in the park and an additional 16 likely to occur ( <a href="#">Monroe 2005</a> ). No federally listed species were discovered.
<b>Mammals</b>	Species composition and diversity		<a href="#">Gumbert et al. (2006)</a> documented 30 species of mammals as occurring in the park including 11 new LaRue County records. An additional seven were considered to be ‘probably present’ but undetected during inventory efforts. Based on these numbers the park supports one of the more diverse assemblages of mammals throughout the Cumberland Piedmont Network ( <a href="#">Moore 2009</a> ). The federally listed Gray bat ( <i>Myotis grisescens</i> ) was also documented in a follow-up study ( <a href="#">Adams et al. 2009</a> ).

## Dark Night Sky



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The nighttime photic environment and the perception of it by humans (the lightscape) are important to many facets of park integrity. They are both a natural and a cultural resource and are critical aspects of scenery, visitor enjoyment, and wilderness character. Many wildlife species and ecological processes depend on natural darkness and a natural nighttime photic regime. ABLI has important cultural and natural resources, including a number of nocturnal wildlife species, and is considered to possess a higher sensitivity photic environment (Level 1). The reference condition is set at the natural condition, based on an accurate physical model of the night sky. Current conditions or desired future conditions should be expressed as a ratio over the reference condition. Learn more in the document [Recommended Indicators of Night Sky Quality](#).

Indicators of Condition	Specific Measures	Condition Status/Trend	Rationale
<b>Anthropogenic Light</b>	Anthropogenic Light Ratio (ALR)— the Average Anthropogenic Sky Glow: Average Natural Sky Luminance		The modeled Anthropogenic Light Ratio (ALR), a measure of light pollution calculated as the ratio of Average Anthropogenic Sky Glow to Average Natural Sky Luminance, was 2.50 which is considered of significant concern. The Louisville Metropolitan Area, with a population of 1.3 million people, lies 50 km North of ABLI and has experienced moderate growth in the last decade (12.5 %). Cities close to the park have experienced slower population growth. Due to the already impacted sky quality and the overall moderate population growth, night sky quality is expected to have little change.

## 2.2. Cultural Resources

Archeological Resources  <a href="#">web ▶</a>			
Indicators of Condition	Specific Measures	Condition Status/Trend	Rationale
<b>Knowledge</b>	Percent of sites with known date ranges associated with a research theme		The Birthplace Unit is associated with Civil War and Westward Expansion. The Boyhood Home Unit has not been associated with any particular theme. The old maintenance boneyard is associated with 20th-century resources. ASMIS needs to be evaluated and updated.
<b>Inventory</b>	Percent of park adequately surveyed		An in-depth study was conducted at the Boyhood Home Unit. Overall, 8.6% of the park property has been surveyed, and more in depth surveying would be beneficial.
<b>Documentation</b>	Percentage of known sites with adequate National Register documentation		Two sites have fair documentation. One site has unknown documentation.
<b>Condition</b>	Percentage of archeological resources in good condition		All three archeological sites are in good condition.

Cultural Anthropology  <a href="#">web ▶</a>			
Indicators of Condition	Specific Measures	Condition Status/Trend	Rationale
<b>Knowledge</b>	Sufficient research exists to understand the relationship of the park's ethnographic resources and the historic contexts		No Ethnographic Overview and Assessment exists for the park, but the relationship of the park's ethnographic resources and historic contexts does exist.
	Appropriate studies and consultations document ethnographic resources and uses with regards to the park.		No documented ethnographic overview and assessment exists for the park. Other documents provide a good foundation for understanding people and communities associated with the park, but they do not provide the depth and nuance that a cultural anthropological focus on the site would reveal including identifying underrepresented groups and their associations with the park historically and presently. In particular, an assessment is needed of the Howard family—former owners of the Knob Creek property (now the Boyhood Home Unit), as well as the Howell family regarding that family's connection to Nancy Lincoln Inn.

## Resource Brief: Cultural Landscapes

ABLI contains two cultural landscapes: the Abraham Lincoln Birthplace, and the Abraham Lincoln Boyhood Home at Knob Creek. The Memorial Landscape at ABLI lies to the west of U.S. Highway 31 E in the Pennyryle physiographic region, which is identified by karst geology and rolling hills. Limestone dissolved in underground water systems results in caves, sinkholes, and ponds among steep ridges and stone escarpments. The location of the farm and cabin where Abraham Lincoln was born is the centerpiece of the cultural landscape. A Neoclassical Memorial Building encloses a reconstruction of the birth cabin within a formal commemorative landscape. The landscape includes the core 1911 John Russell Pope Memorial Building, stairway, plaza, allée, hedges, and small scale features as well as Sinking Spring, and development from the War Department and NPS Mission 66 initiative.



**Sinking Spring (1928)**



**Pastoral setting found at the Boyhood Home at Knob Creek (2005).**

The Boyhood Home Unit is

located in LaRue County, Kentucky, seven miles from Hodgenville. The cultural landscape includes the National Register district of the historic tourist area, and adjacent agricultural fields and woodlands. The 228-acre site is a flat valley along Knob Creek with several knobs, or hills, rising steeply nearby. The landscape also includes two historic buildings and a picnic area along the old Bardstown-Green River Turnpike, currently US 31E. The Lincoln Tavern, constructed in 1933, is a one-and-a-half story log building on a concrete foundation. The tavern was built to serve motorists stopping by the site and to exhibit Lincoln memorabilia. A single-pen log cabin, reconstructed in 1931–33 (from ca. 1800 logs used in the neighboring Gollaher family cabin) replicates Lincoln’s boyhood home and is oriented to the highway. The structure has a log and mud chimney on the east façade and a single door and window on the south façade. The fields behind the tavern and cabin were farmed by the Lincoln family.

## Cultural Landscapes



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Indicators of Condition	Specific Measures	Condition Status/Trend	Rationale
<b>Knowledge</b>	Sufficient research exists to understand the relationship of the park cultural landscapes to the historic contexts of the park.		There is sufficient research to provide an understanding of the relationship between the park’s cultural landscapes and historic contexts.
	Adequate research exists to document and preserve the cultural landscape of the park.		Two Cultural Landscape Inventories (CLIs) were completed in for the park in FY 2008—one for <a href="#">Abraham Lincoln Birthplace Memorial Landscape</a> and one for <a href="#">Abraham Lincoln Boyhood Home</a> . Both landscapes are listed in Good condition. Cultural Landscape Reports (CLRs) were written for the Birthplace (2004) and the Boyhood Home (2012) and provide treatment recommendations to guide preservation of these sites.

<b>Inventory</b>	The scope of cultural landscapes in the park is understood and a determination has been made whether or not they are a fundamental resource.		Cultural landscapes are listed as Fundamental Resources of the park that must be preserved and maintained.
	Percentage of landscapes eligible for the National Register with accurate, complete, and reliable Cultural Landscape Inventory (CLI) data.		The park's cultural landscapes are listed in the National Register and 100% of its current landscapes have complete and certified CLIs.
<b>Documentation</b>	Percentage of cultural landscapes with adequate National Register documentation.		The park's cultural landscapes are listed in the National Register; however, the documentation in the nominations does not adequately document the park's cultural landscapes. For the Birthplace, the period of significance should be expanded, and documentation should be added for several War Department and NPS features. For the Boyhood Home, the nomination should be expanded to include more discussion of the setting, particularly the field behind the tavern and cabin.

## Historic Structures



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Indicators of Condition	Specific Measures	Condition Status/Trend	Rationale
<b>Knowledge</b>	Percentage of historic structures evaluated using appropriate historical contexts.		All historic structures have been evaluated through historic structure reports and/or cultural landscape reports. The Memorial Building is a spectacular example of commemorative architecture designed by a nationally significant architect, John Russell Pope. The Memorial Plaza and its associated features were part of the War Department's improvements to the site.
<b>Documentation</b>	Percentage of historic structures with adequate National Register documentation.		100% of the structures have been adequately evaluated in Historic Structure Reports, Cultural Landscape Reports, and other special studies to document those characteristics that make them eligible for the National Register.
	All historic structures have been recorded commensurate with their significance and mandated purposes.		100% of the historic structures have been recorded through HSRs and CLRs. However, the Memorial Building and the Birthplace Cabin are significant enough resources that drawings and photographs should be developed to HABS/HAER standards, and the symbolic Birthplace Cabin deserves HSR documentation, separate from it as a part of the Memorial Building.
<b>Condition</b>	Percentage of historic structures in good condition		75% of the historic structures are in good condition. The Lincoln Tavern remains in serious condition, awaiting funding for rehabilitation as a visitor center for the Boyhood Home Unit of the park.

## History



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Indicators of Condition	Specific Measures	Condition Status/Trend	Rationale
<b>Knowledge</b>	Sufficient research is conducted to understand the significance of site and the reasons for park creation and site history.		Additional research is needed to address recent trends in scholarship regarding Abraham Lincoln, the history of tourism at the park, architecture, and commemoration practices. The Boyhood Home Unit needs to be integrated into the above research. The park's <a href="#">Administrative History</a> was written 55 years ago in 1968 and needs to be updated to include the addition of the Boyhood Home Unit, changes in facilities and visitor uses, and management issues since the previous plan.
	Research at the appropriate level precedes planning decisions involving cultural resources.		100% of the historic structures and cultural landscapes have been adequately evaluated in Historic Structure Reports, Cultural Landscape Reports, and other special studies. The park staff almost always follows the treatment recommendations in those documents.
<b>Inventory</b>	Percentage of cultural resources listed in appropriate Servicewide inventories, including the National Register.		Two National Register nominations were written and accepted by The Keeper. The Abraham Lincoln National Historic Site (district) was listed on the National Register in 1977; the Lincoln Boyhood Home (district) was listed in 1988. The park has eight structures related to the above NR districts entered on the List of Classified Structures (LCS). The buildings were last assessed for the LCS in 2009.
<b>Documentation</b>	Percentage of historic properties with adequate Nat'l Register documentation or with Determinations of Eligibility.		Both of the park's National Register nominations need to be updated to reflect recent scholarship on Abraham Lincoln, tourism, architecture, and commemoration. The park's Administrative History was written 55 years ago in 1968 and needs to be updated.

## Museum Collections



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Indicators of Condition	Specific Measures	Condition Status/Trend	Rationale
<b>Inventory</b>	The scope of museum collections in the park is understood. All resources have been surveyed to determine their appropriateness for inclusion in the museum/archive collection.		The Scope of Collections Statement (SOCS) was reviewed and updated in August 2010. The natural history collections created through I&M inventories are stored at Mammoth Cave National Park. SEAC manages 2,585 cataloged archeology items and approximately 50 uncataloged backlog items.

	Percentage of objects accessioned and cataloged		According to the FY 2012 Collection Management report, 99.9% of museum collections are cataloged; however, ABLI has not had an archival survey since 2001 and is certain to have a backlog accumulated over the past 12 years. Of the 312,700 objects in the collection, 308,342 are archives.
<b>Documentation</b>	Park has current and appropriate baseline documentation (scope of collections statement, collection management plan, housekeeping plan(s), IPM plans(s), EOP, security and fire safety plan(s), and conservation survey(s).		Baseline documentation for the ABLI museum collection requires updating and includes the following documents and completion dates: Scope of Collection Statement (2010); Security and Fire Protection Survey (2007) (integrated into the draft 2011 Emergency Operations Plan); Structural Fire Plan (integrated into Emergency Operations Plan); Collection Management Plan (2007). The park does not have an Integrated Pest Management Plan, Housekeeping Plan, or Collection Storage Plan. Collection condition surveys have been conducted at SEAC for paper (2002) photographs (2004), metal artifacts (2000 and 2010), and ceramic, glass, and organic artifacts (2006). ABLI collections at SEAC were included in these surveys.
<b>Condition</b>	Overall condition of the collection based on condition survey and improvements to storage.		The overall condition of the museum collection is good; however there are significant concerns with the museum storage and long term management of the collections. An ABLI Park Ranger has the collateral duty for the museum collections and works closely with the museum curator at MACA. The collections are well cared for although the museum storage at ABLI is not ideal (basement location). The MACA museum storage facility is a multi-park facility. The museum curator is project funded through a partnership, and funding is tenuous. Without professional management, several park collections could be at risk.

## 2.3. Visitor Experience

### Visitor Numbers and Visitor Satisfaction

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Indicators of Condition	Specific Measures	Condition Status/Trend	Rationale
<b>Number of Visitors</b>	Number of visitors per year		The total of 169,515 visitors to the Birthplace Unit of the park in 2012 is higher than that of 2011 (163,568) but lower than the 5-year average of 193,031 visitors for 2007–2011. The counts do not include an unknown number of additional visitors to the Boyhood Home Unit of the park.
<b>Visitor Satisfaction</b>	Percent of visitors who were satisfied with their visit		Based on the standard visitor satisfaction survey conducted each year, the percentage of visitors satisfied in FY12 was 99.0%, which is higher than the average for the previous five years (94.6%) and ten years (95.6%). Source: <a href="#">2012 Visitor Survey Card Data Report</a>

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



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Indicators of Condition	Specific Measures	Condition Status/Trend	Rationale
<b>Education Programs</b>	Number and quality of programs, and number of participants		The number of Ranger-led education program contacts decreased from 11,609 in 2008 to only 1,386 in 2012 because of staff reductions.
<b>Ranger Programs</b>	Number and quality of programs and attendance		Visitor participation in Ranger-guided programs at the park reached a 5-year high of 10,603 participants in 2012. During the 2013 summer season ranger-led programs occur daily at the Birthplace Unit, and on Friday through Sunday at the Boyhood Home Unit. A Schedule of Programs was published and used for the first time during the 2013 summer season and was popular with visitors.
<b>Junior Ranger Programs</b>	Number of programs and attendance		The Junior Ranger program continues to be very popular, and the number of children participating has increased over the past 3 years. The current Junior Ranger book was revised for the recent Lincoln Bicentennial. The book and other materials are available at the park and can be downloaded from the park website.
<b>Special Events</b>	Variety and longevity of events, community involvement		The Park holds special events such as “Walk Through Lincoln’s Life” and annual Lincoln’s Birthday Celebration and participation in National Park Week and National Jr. Ranger Day. Addition of special events to include the “Summer Season Celebration,” concerts, Emancipation Proclamation Observance and Lincoln Days Festival. Over the past 3 years, there has been an increase in participation in the park’s special events.

### Resource Brief: ABLI Special Events



Lincoln Days Info Booth



Summer Season Celebration Luminary

ABLI provides and participates in a variety of special events throughout the year. The popular “Walk Through Lincoln’s Life” is held for local and visiting school students every September. In 2012, over 4,000 visitors, primarily school children, attended the event. In October 2012, the park participated in the annual “Lincoln Days” Festival held in downtown Hodgenville. The park partnered with the Lincoln Days committee to develop a scavenger hunt activity geared specifically for children. The scavenger hunt activity was funded by a donation from the park and provided to the children both at the park and Festival. Children were asked to stop at the Park booth during the event to ask questions relating to Lincoln and his life here in Kentucky. The park and community partners staffed information booths throughout the weekend to answer questions and assist with the scavenger hunt.

The park held a “Summer Season Celebration” in May 2013 to mark the opening of the summer season. During the event, visitors were treated to a concert by “President Lincoln’s Own Band” who were featured in the movie *Lincoln* and National Geographic’s movie *Killing Lincoln*. Following the concert, a luminary was held on the park’s grounds including the Memorial Building steps and Sinking Spring steps. Another concert by “Privates by Choice”, a 19th-century period string band, was held in September 2013.

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



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Indicators of Condition	Specific Measures	Condition Status/Trend	Rationale
<b>Wayside Exhibits</b>	Condition and currency of signs		The park’s current wayside exhibits, both at the Birthplace Unit and Boyhood Home Unit, are relatively new. They require accessibility upgrades including audio and/or visual components, and the location or access to some of the signs need improvements to accommodate visitors with mobility impairments.
<b>Park Directional Signs (off-site)</b>	Usefulness, quantity, and placement		Many off-site park directional signs are worn and faded. The interstate signs do not use the current "National Historical Park" designation. Many visitors comment or complain about the lack of clarity in directional signs.
<b>Exhibits</b>	Visitor Center exhibits		Visitor Center exhibits were replaced in 2009 as part of the Bicentennial Observance. New exhibits increased visitor understanding of Lincoln’s early life and the park story. Accessibility upgrades are required for the exhibits to meet accessibility standards, such as audio description, tactile elements, Braille text, exhibit text panel height, and contrast.
	Symbolic Cabin		Viewing of the Symbolic Cabin that was placed in the Memorial Building in 1911 is an integral part of the visitor experience to the park.
	Knob Creek Cabin		Knob Creek Cabin is an important part of the visitor experience at the Boyhood Home Unit. The cabin was restored in 2010 and is treated annually by park maintenance staff to preserve the logs and maintain the chinking and daubing.
<b>Print Media</b>	Accuracy and availability of primary park publications		There is a good representation of park resources and stories in current print media. “Memorial Building” and “Lincoln and Slavery” brochures were recently developed, and improvements were made to the brochure for the Boyhood Home Unit. A large print park folder is available
<b>Audio-visual Media</b>	Orientation Films		The current park film “ <i>Lincoln: The Kentucky Years</i> ” is a 15-minuted edited segment of a longer documentary produced by Kentucky Public Television (KET) for the Bicentennial Observance. This new park film is an improvement over the former film as it addresses the larger park story and inclusion of the Boyhood Home Unit.
<b>Websites</b>	Currency and scope of website; number of website visitors		Improvements and updates to the park website are made on a regular basis. Education portal pages were updated during the summer of 2013. Visits (or “hits”) on park page have increased from 384,556 visitors in 2008 to 411,454 visits in 2012.

	Social media: Facebook updates and "likes," overall activity		A Facebook page was developed for the Park in March 2013 and currently has more than 1,200 "likes." The Park created Social Media Guidelines, as required by the NPS, and established a Social Media Team for support. Regular posts to Facebook include weekly "Museum Mondays" and "Wayback Wednesdays", with "Resource Roundups" included as a monthly feature.
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**Accessibility**  [web](#) ▶

Indicators of Condition	Specific Measures	Condition Status/Trend	Rationale
<b>Mobility</b>	ADA compliance		The "Pathway of a President" accessible boardwalk from the Visitor Center to the Memorial Building was constructed in the early 1990s. The boardwalk has areas where the cross-slope exceeds ADA standards. This is being addressed by repairs to the boardwalk in 2014 and 2015. The Sinking Spring is not fully accessible. Wheelchairs are available at the Visitor Center for visitors to borrow and use in the park. Improvements occurring in 2013 to the Birthplace Unit picnic area will improve physical accessibility.
<b>Visual accommodation</b>	ADA compliance		The park orientation film in the Visitor Center is audio described and includes a "scrolling marquee" screen that provides text for the film, but this feature does not meet current accessibility standards. The film should be open captioned. A Braille version of the park brochure is available, and tactile exhibits are being planned for the Memorial Building and Cultural Landscape. A large print park folder is available.
<b>Auditory accommodation</b>	ADA compliance		Audio devices to provide hearing assistance are available for the park's orientation film upon request. The park film is audio described. The Park does not have audio components for the visitor center exhibits or wayside exhibits.
<b>Multi-lingual resources</b>	Audio and print materials in multiple languages		Park brochures are available in French, Spanish, German, Japanese and Korean. No audio tour components are available for any park resources.
	Bi-lingual staff		One bilingual Seasonal Park Guide during the summer of 2013 (Spanish). One permanent park staff member speaks French and another permanent park staff member speaks German.

## Safety



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Indicators of Condition	Specific Measures	Condition Status/Trend	Rationale
Visitor Safety	Recordable incidents		The safety of visitors is a park priority. The park works to quickly identify and mitigate potential hazards, and the number of accidents is very low. The Park relies on local law enforcement agencies during special events and incidents.
Staff Safety and Training	Number of staff trained		Operational Leadership Training has been completed by park staff. CPR, First Aid, and AED training are offered to staff on a space available basis. Job Hazard Analysis reviews are conducted before jobs are started. Regular safety messages are given and distributed to staff members.

## Partnerships



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Indicators of Condition	Specific Measures	Condition Status/Trend	Rationale
Volunteers	Number and hours contributed		The park's Volunteer-In-Parks (VIP) Program has been recently expanded and improved. VIP services include daily operations at the park as well as special events and logistical and support operations. Improvements have been made to provide orientation training, development of VIP uniform and uniform standards, and implementation of a structured scheduling process.
Partnerships	Number of official and unofficial partnerships		The Park works with a wide variety of partners and continues to seek opportunities to develop new partnerships. See Chapter 3 for examples of a number of successful partnerships with different agencies, organizations, and universities that contribute to the stewardship of natural and cultural resources and the visitor experience.

### Resource Brief: ABLI Volunteer-In-Parks (VIP) Program

During the winter of 2013, ABLI staff renewed their efforts in the park's VIP program. In March 2013, an Informational Meeting was held at the park's visitor center. Over 25 potential volunteers braved the cold and snow to take part in the meeting. Park staff developed park VIP Uniform Standards and a structured scheduling process. Through the end of March and beginning of April, park staff members provided orientation training for new volunteers. The park currently has a core group of approximately 20 individuals who volunteer at the park's information desk regularly. During the first three months the enhanced volunteer program has been running, park volunteers contributed more than twice the number of volunteer hours as had been contributed in all of fiscal year 2012.

Park VIPs have supported special events and logistical operations to the park. The park held a "Park Clean Up Day" on April 27th. Volunteers worked on maintenance and landscaping projects in the Birthplace Unit of the park including weeding and cleaning the boxwood beds on the sides of the Memorial Building stairs. Volunteers participating in the event received a stainless-steel water bottle with the official VIP logo on it as thanks and as a "green" solution to producing plastic water bottle waste. During the May 24th "Summer Season Celebration" program, park VIPs provided support by setting up for the event and providing visitor services and crowd control before and during the event. Over the course of the summer 2013, park VIPs are assisting the park staff with cleaning

the Symbolic Cabin in the park's Memorial Building and distributing the annual Visitor Survey. Many of these vital park operations and services could not be provided without the help and assistance of the park's dedicated volunteers.



Park VIPs in action at Park Clean Up Day



Preparing for the Summer Season Celebration

## 2.4. Park Infrastructure

### Overall Facility Condition Index



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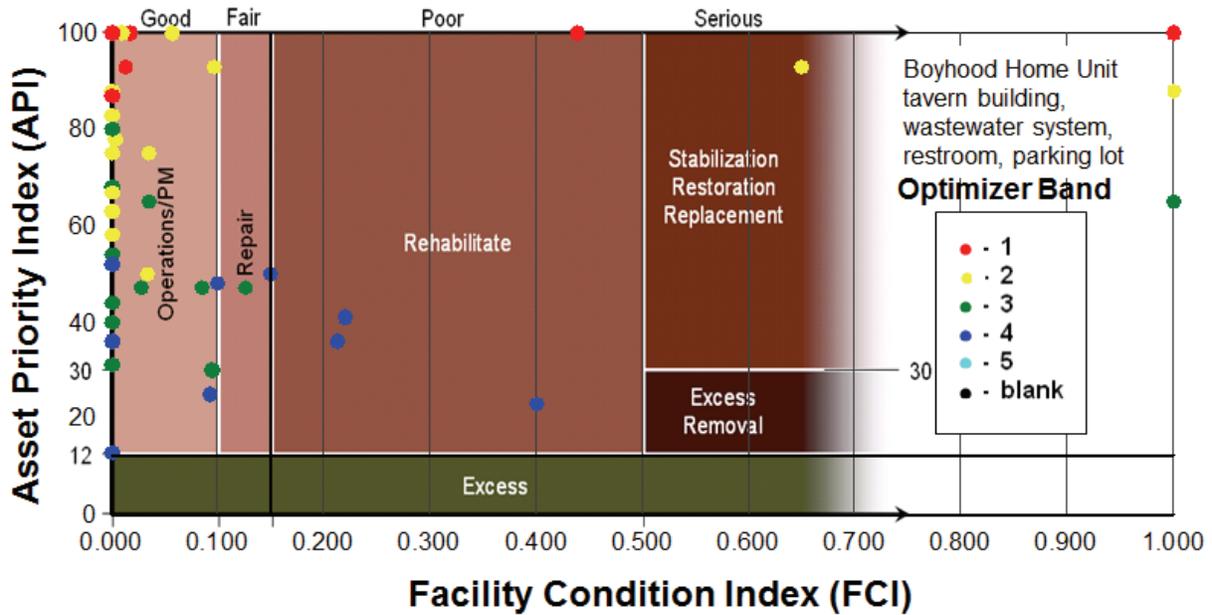
The National Park Service uses a facility condition index (FCI) to indicate the condition of its facilities and infrastructure. FCI is the cost of repairing an asset, such as a building, road, trail, or water system, divided by the cost of replacing it. The lower the FCI number, the better the condition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

Asset Category	Number of Assets 2008 / 2013	FCI 2008 / 2013	Condition Status/Trend	Rationale
<b>Buildings</b>	15 / 16	0.050 / 0.048		Upgrades have been completed to the mechanical systems of buildings, including the installation of energy-efficient water heaters, HVAC systems and roofing systems. Physical accessibility upgrades have been completed within park buildings. Planning has been completed for the rehabilitation of the Knob Creek Tavern and other infrastructure at the Boyhood Home Unit of the park.
<b>Trails</b>	4 / 4	0.444 / 0.066		Trail surface repairs have been made to improve the condition of all trails at the Birthplace Unit. The picnic area trail is undergoing repairs to meet accessibility requirements and will be completed in 2013.

<b>Waste Water Systems</b>	2 / 2	0.799 / 0.514		Design work has been completed and project funding has been approved to install a new septic system at the Boyhood Home Unit, where the waste water system is in serious condition.
<b>Water Systems</b>	3 / 3	0.000 / 0.000		The park's water systems provide water for the Visitor Center, picnic area and water fountains. Two of the three water distribution systems in the park are in good condition, but the Boyhood Home Unit water system has a contaminated well and is in serious condition. Funding has been approved to replace that system.
<b>Unpaved Roads</b>	2 / 3	0.000 / 0.065		Unpaved roads are routinely maintained and are in good condition.
<b>Paved Roads, Parking Areas, Bridges, Tunnels</b>	9 / 8	0.004 / 0.413		The Boyhood Home Unit parking lot is in serious condition. It will be replaced in 2014–2015 as part of Phase I of the Boyhood Home Unit/Lincoln Tavern project. Parking areas in the residence area are in serious condition. Funding has been requested for those repairs. Paved roads located at the Birthplace Unit are in good condition, but project funding will be needed for cyclic maintenance and repairs in the near future.
<b>All Others</b>	10 / 14	0.196 / 0.091		The All Others category includes the park's phone and IT systems, recycling system, wayside exhibits, picnic areas, and landscapes. Deferred maintenance on the Boyhood Home Unit landscape and the lack of accessibility elements on the wayside exhibits are issues. Upgrades were made to the picnic area in 2012–2013 that included the construction of a new pavilion and new accessible picnic tables, grills and trash cans. The park has followed through with treatment recommendations for the landscapes at the Birthplace Unit based on a 2007 condition assessment that has reduced the amount of deferred maintenance.

Another important facilities management planning tool used at a park is the Asset Priority Index (API). It identifies the importance of the various infrastructure components at a park. The API is determined using five criteria, and is calculated out of 100 possible points. The criteria are weighted based on their importance to NPS core priorities. They are distinct to ensure that each aspect of the asset is measured independently. As a result, most assets will not rate high in every category.

The scatterplot (below) for 2013 shows the FCI for each of the infrastructure asset types at ABLI. It plots buildings, trails, roads, parking areas, and other infrastructure assets against its Asset Priority Index (API). Park managers and maintenance staff use the FCI and API data for each park asset to focus on preventive maintenance and repairs to facilities that are most critical to their parks. The four park assets in the upper right-hand corner of the scatterplot, which are in serious need of replacement or restoration, include the Lincoln Tavern and the wastewater system, restrooms, parking lot, and landscape at the Boyhood Home Unit.



Optimizer bands—the color of the dots in the scatterplot—are assigned to each facility or asset as a tool to prioritize use of limited funding to maintain park infrastructure. Optimizer Band 1 includes those assets with the highest maintenance priorities. These assets are most important to the park—often linked to the park's enabling legislation or have high visitor use—and usually are in the best condition. Band 1 assets receive the highest percentage of base funding for routine operations, preventive maintenance, and recurring maintenance to keep them in good condition with proactive, planned maintenance. These assets are important to park operations, but because fewer park base dollars are available after maintaining Band 1 assets, Band 2 assets receive a lesser percentage of remaining funds. Assets in the lower priority bands may only receive preventive maintenance for the most critical components or may require special projects or partner funding to maintain them. For additional information about optimizer bands and how park managers use them to make decisions about the efficient use of funding for maintenance and restoration activities at the park, [Click Here](#).

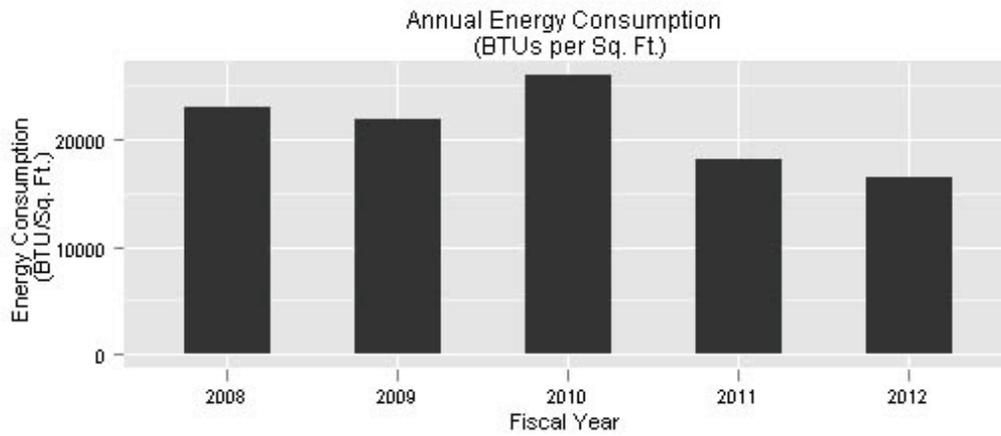
## Energy Consumption



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The production of energy to heat, cool, and illuminate buildings and to operate water utility systems is one of the largest contributors to greenhouse gas emissions in the United States. The National Park Service is committed to improving facility energy performance and increasing its reliance on renewable energy sources. The National Park Service has a goal to reduce Servicewide building energy consumption per square foot of building space by 35% by 2016 from the baseline set in 2003 ([NPS Green Parks Plan 2012](#)).

Indicators of Condition	Specific Measures	Condition Status/Trend	Rationale
Energy Consumption	BTUs per gross square footage of buildings		Energy usage (BTUs per gross square footage of buildings) at the park in 2012 was 26.2% lower than the average for the previous 4 years (Source: NPS Annual Energy Report).



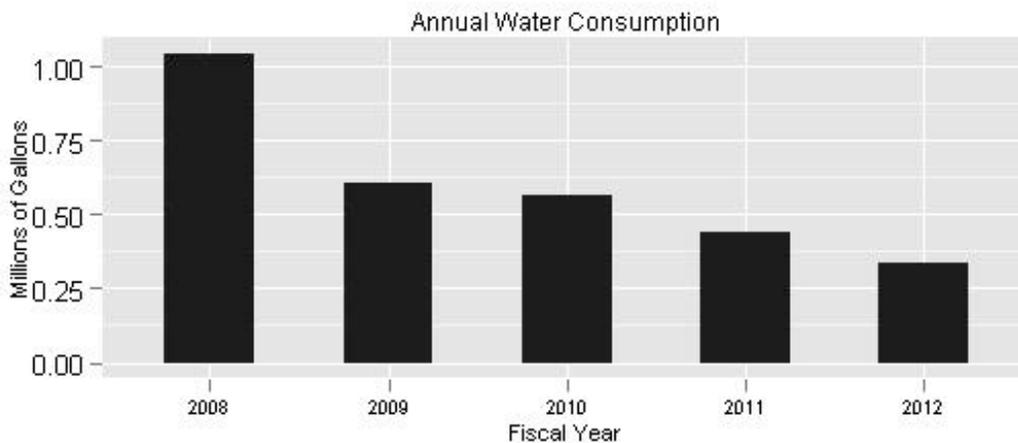
## Water Consumption



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The national and global supply of fresh water has diminished in recent decades, and this trend is likely to continue due to drought and other climatic changes. To contribute to the responsible use of freshwater supplies, encourage groundwater recharge, and protect water quality, the National Park Service is improving its efforts to conserve water, reuse gray water, and capture rainwater, and has set a goal to reduce non-irrigation potable water use intensity by 30% by 2020 from the baseline set in 2007 ([NPS Green Parks Plan 2012](#)).

Indicators of Condition	Specific Measures	Condition Status/Trend	Rationale
<b>Water Consumption</b>	Millions of gallons		Water consumption at the park in 2012 was 48.9% lower than the 4-year average for 2008–2011 (Source: NPS Annual Energy Report).



## Resource Brief: Energy and Water Conservation Efforts at ABLI

The park has placed significant focus on the reduction of its energy and water usage. Water consumption at the park in 2012 was 48.9% lower than the 4-year average for 2008–2011. Energy usage (BTUs per gross square footage of buildings) at the park in 2012 was 26.2% lower than the average for the previous 4 years. Solid waste in 2012 was reduced by 49% which is the lowest over the 4-year average. Specific steps such as replacing HVAC systems with the highest energy efficiency rating on the market and capable of solar power; in conjunction with point of use and Smart programmable water heaters and retrofitting the entire park with LED lights have contributed to the success in energy conservation. Roof replacements on the Memorial Building and Visitor center with an energy efficient system has also contributed the ongoing efforts to reduce energy consumption. Other steps such as the replacement of all flushing systems and faucets systems within the parks restrooms with automatic sensors has aided in the reduction of water usage. Energy efficient hand dryers allowed for the removal of all paper towels which is a vital part in the reduction of solid waste at the park. The park recycles 35.8% of its solid waste saving approximately 0.798 metric ton carbon dioxide equivalent in greenhouse gas emissions.



Energy reduction efforts at the park included installation of energy-efficient water heaters, new HVAC system, and LED lights.

# Chapter 3. Summary of Key Stewardship Activities and Accomplishments

## Activities and Accomplishments

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

### Natural Resources

- Treatment of invasive/exotic plant species by the NPS Exotic Plant Management Team
- Completion of a vegetation map and associated reports and data sets for the park
- Completion of surveys for vertebrates and vascular plants
- Monitoring of natural resource vital signs by the Cumberland Piedmont Inventory and Monitoring Network
- Inventory of park wetlands in partnership with Tennessee Technological University
- Natural Resource Condition Assessment study completed to summarize condition of natural resources
- Development of a Resource Stewardship Strategy in 2010
- Installation of the Integrated Pest management/Pesticide storage building
- Development of a GIS map of exotic species locations in the park
- Aquatic insect study completed for ABLI and 17 other parks in the southeast
- Plantings of chestnut trees to help restore a species that was once found in the park

### Cultural Resources

- Rehabilitation of the Memorial Building, which included replacing the heating/air conditioning system and repairing the plaster for mold abatement, has greatly improved the park's ability to maintain and preserve the building and the symbolic birth cabin contained within it.
- Complete repair and rehabilitation of the cabin at the Boyhood Home Unit has ensured its continued preservation.
- Completion of three Historic Structure Reports and two Cultural Landscape Reports for the park since 2000 has established a baseline of information on the resources while providing comprehensive guidance for ongoing maintenance
- Completed archeological studies of the park's three archeological sites
- Digitizing the ABLI glass lantern slide collection through a partnership with Clemson University
- Project underway to move historic Lincoln Farm Association markers to a more secure site
- Finishes analysis and documentation (paint, wallpaper, etc.) of the Lincoln Tavern interior walls in preparation for the rehabilitation

## Visitor Experience

- Development of a new audio-described orientation film for the visitor center, *Lincoln: The Kentucky Years*
- Daily ranger-led programs during the summer season
- Expansion and publication of a formal program schedule to assist visitors in planning their visit and to encourage visitor understanding
- Establishment of the park's Facebook page in March 2013
- Various special events held throughout the year such as "Walk Through Lincoln's Life", the "Summer Season Celebration", and concerts.
- New tactile models and accessibility upgrades are being designed for the Memorial Building and landscape
- New large print park folder
- Expansion of the Volunteers-in-Parks (VIP) program
- Continued emphasis on the safety of visitors and park employees
- Park participates in the Student Conservation Association (SCA) NPS Academy program
- Study completed identifying improvements needed to increase accessibility for visitors with impairments
- Accessibility improvements made to the park picnic area trail and the picnic area
- New (2009) Visitor Center exhibits. Modifications are needed to meet accessibility standards for visitors with visual, hearing, or other impairments

## Park Infrastructure

- Implemented green infrastructure improvements to reduce energy and water consumption:
  - High efficiency HVAC system in Memorial Building
  - Energy-efficient roofing system installed on the visitor center
  - Replaced all incandescent and fluorescent bulbs with LED bulbs
  - Upgrades to park residences including installation of energy-efficient water heater and new cabinets, flooring, and carpet
  - Reduction in solid waste through aggressive recycling program
  - Maintain and encourage "green" solutions among park employees and visitors
- Installed new pavilion in park's picnic area with accessible tables and grills
- New trash and recycling cans placed on park grounds
- Accessibility
  - Completed Accessibility Assessment study by the National Center on Accessibility
  - Resurfacing of trail in picnic area to meet with current accessibility standards
  - Handrail placed on the visitor center boardwalk

## Partnerships

Partnerships with other agencies, organizations, and educational institutions are integral to park management goals. The park has over 30 partners who work with the National Park Service to accomplish common goals. Some examples of successful, ongoing partnerships include:

- Frequent collaboration with the Lincoln Museum including shared library space
- Lincoln Days Committee partnership to provide visitor services and children's activities during the annual Lincoln Days Festival
- Cumberland Piedmont Inventory and Monitoring Network monitors vegetation plots to determine the diversity and vital signs used to evaluate the health of the park natural resources
- Lincoln Heritage Scenic Byway and the Kentucky Lincoln Heritage Trail Alliance coordinate activities, programs, and marketing of the park and other tourism sites in much of central Kentucky. These organizations also serve as coordinating entities for tourism organizations and sites throughout north central Kentucky
- Kentucky Lincoln Heritage Trail Alliance works with the National Park Service on a feasibility study for the proposed Kentucky Lincoln National Heritage Area
- Kentucky Heritage Cabinet includes the State Historic Preservation Office who works closely with the park on historic preservation compliance issues
- Clemson University digitizing the park's historic lantern slide collection
- Eastern National worked with the park to provide sales services off site at the Nancy Lincoln Inn, contributing to the visitor experience and helping to preserve the viewshed from the Memorial Building
- Emergency services provided through agreements with the LaRue County Sheriff's Department, LaRue County Ambulance Service, the Buffalo Fire Department, and other emergency response agencies

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

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## **Boyhood Home Unit:**

The Boyhood Home Unit, also known as the Knob Creek Farm, was the second home of young Abraham Lincoln. Lincoln said that “...my first recollections are of the Knob Creek place.” While living at the Knob Creek Farm, young Abraham plants his first seeds in the ground of his family’s farm. Here seeds were planted in him as well—his first formal education, his first exposure to the hard work of survival on the frontier, and his first exposure to slavery and the anti-slavery messages he heard from his family and the pulpit of the family church. Lincoln later wrote “I am naturally anti-slavery. If slavery is not wrong, nothing is wrong. I cannot recall when I did not so think and feel.” The seeds sown in young Abraham while he lived at the Knob Creek Farm bore fruit in his work ethic, his love of learning, and in his efforts to end slavery.

The Knob Creek Farm was acquired by Preservation of Lincoln’s Kentucky Heritage, Inc. using funds raised primarily from the community and the Commonwealth of Kentucky. The property was donated to the National Park Service in 2001 and became the Boyhood Home Unit of ABLI. While visitor use counts are not collected, estimated visitation to the Boyhood Home Unit is over 100,000 visits annually.

The facilities at the Boyhood Home Unit have the poorest Facility Condition Index of any in the park. The 1930s era Lincoln Tavern, the water system, the septic system, the restrooms, and the parking lot pavement are all in serious condition. The Lincoln Tavern has significant rot in over 30% of the structural log walls and does not meet building code standards for public assembly spaces, and so is closed to the public. The septic system is failing. The restroom has severe rot in over 50% of the walls and the interior log and concrete surfaces are impossible to keep clean. The water system relies on a contaminated well, and the restrooms do not have working sinks.

In 2012 park staff working with contract designers and staff from the National Park Service Southeast Region completed design and construction plans to rehabilitate the Lincoln Tavern and improve or replace the visitor use facilities at the Boyhood Home Unit. This project would resolve all of the facility issues identified above. It is a high priority for the National Park Service. At the time of this report Phase 1 of the project has been funded. This will resolve the restroom, water, septic, and some of the electric code issues. It is hoped that the remaining components of the project will be funded in future years.

The bottomland field visible from the Boyhood Home Unit developed area is little changed from the early 1800s and is a very important element to that unit of the park. It is currently planted in grasses and is cut and baled twice a year. Plans for this area include the installation of a septic field in part of this field. This will force a change to the mowing regimen since heavy equipment such as tractors and bailers could damage the septic field pipes. A solution that retains the field’s appearance while allowing for maintenance that doesn’t require heavy machinery needs to be developed.

## **Birthplace Unit Viewshed, Adjacent Land Use and Development**

One of the foundational visitor experiences at the Birthplace Unit is walking up the 56 marble steps in front of the Memorial Building. Most visitors then stand at the front of the Memorial and view the cultural landscape that is the setting for the Memorial. One of the more prominent areas within that viewshed is the Nancy Lincoln Inn, a private facility owned by the Howell family. The buildings were built in the 1920s as a store, visitor facility, and an early motel to take advantage of the increasing numbers of visitors coming to the park.

National Park Service staff has used a variety of strategies to deal with the impact of the Nancy Lincoln Inn facility on the view from the Memorial Building. A major element of the treatment recommendations of the Cultural Landscape Report for the Birthplace Unit involves plantings to screen the view of the Nancy Lincoln Inn. Park staff has had success working with the Howell family to ensure the appearance of the buildings is consistently good. Recently, Eastern National, the park’s cooperating association, has rented the Inn building to continue the store operation previously run by the Howell family. All of these efforts have helped to preserve the view from the Memorial, but none of them may preserve that view for future generations. A long-term solution to the preservation of the view from the front of the memorial needs to be found.

Development continues to expand south on US 31E from the Hodgenville area. Park staff continues to monitor this development and work with local governments to ensure that adjacent development does not negatively impact the resources and values protected by ABLI.

## Exotic and Invasive Species

Most of the area of ABLI is wooded areas, glades, and fields. The park protects the most diverse plant communities of any of the parks within the Cumberland Piedmont Plateau Network. Important examples of Central Limestone Glades and a large Highland Rim Limestone Cliff/Talus Seep are significant natural resources in the park. These natural features are cultural resources as well. They reflect the natural condition of this part of Kentucky that existed when Abraham Lincoln was a child.

The park has widespread occurrence of exotic invasive plants. Most important is controlling those that impact pristine natural areas, such as the limestone glades, wetlands, and diverse forested slopes. Problem species include, Japanese Stiltgrass (*Microstegium vimineum*), Winter Creeper (*Euonymus fortunei*), Amur Honeysuckle (*Lonicera maackii*), and Oriental Bittersweet (*Celastrus orbiculatus*).

The diversity of the forested areas at the Boyhood Home Unit creates opportunities for development of interpretive trails, particularly along the Knob Creek Backcountry Access Trail. Any development or maintenance of these trails will be done in a manner that minimizes impacts such as trampling, poaching, and the introduction of non-native species.

Forest pests, particularly Emerald Ash Borer, have been discovered in Hardin County, nearby the park. Emerald Ash Borer bores beneath the bark of Ash trees, killing the tree. The park is working with other national parks in Kentucky and Tennessee to identify approved control measures for forest pests.

Management of the bottomland floodplains for pre-settlement conditions could involve the establishment of native grasses in open field areas and restoration of cane shrublands along portions of the creek. Management should consider re-introduction of fire to maintain openness and promote plant diversity on rare glade habitats. Prescribed fire and strip mowing could also be used to maintain native grasses in open fields.

## Community Relations and Partnerships

The local community within LaRue County and the town of Hodgenville takes pride in their identity as the birthplace of Abraham Lincoln. The community has long been supportive of the park. The park has developed and maintained long-term partnerships with the Lincoln Museum, Lincoln Days Inc., LaRue County, and the Town of Hodgenville.

Planning for the 2009 bicentennial of Abraham Lincoln's birth expanded those relationships and partnerships. The Lincoln Scenic Byway board and the Kentucky Lincoln Heritage Trail Alliance are organizations made up of representatives of tourism organizations and attractions within central Kentucky. The park works with these organizations to collaboratively market and raise the visibility of the Kentucky Lincoln story.

A feasibility study for the proposed Kentucky Lincoln National Heritage Area is being developed at the time this report is being written. The proposed National Heritage Area would focus on Lincoln's relationship with Kentucky, his experiences with frontier life and slavery, the formation of his political credo resulting from his exposure to the philosophy of Henry Clay, and his efforts to keep Kentucky a Union state during the Civil War. It would also address the unique relationship between Kentucky's postwar identity and the place of Abraham Lincoln in American memory. The proposed National Heritage area could include up to eleven counties in central Kentucky. The study should be complete by December 2014. The approval of this National Heritage Area could dramatically expand the partnership role of the park and park leadership.

There are challenges that have the potential to impact the relationship with the community. The delay of over ten years in developing visitor facilities at the Boyhood Home Unit of the park continues to be a serious concern to the community and its leaders. The delay of nearly two years in the Kentucky Lincoln National Heritage Area feasibility study caused similar concern within the community and among community leaders throughout central Kentucky.

## References

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See the [State of the Park Report for the Park website](#) for a more complete list of references to documents and data sets upon which the assessments in this State of the Park report are based. References for several of the key documents cited in this report are as follows:

[Adams J. J., P. Roby, and M. Gumbert. 2009.](#) Mist Net Survey and Biological Sampling of Bats. Unpublished report for the National Park Service. Copperhead Environmental Consulting, Inc. Richmond, Kentucky.

Bradley, A. David S. Wilcover and Michael Oppenheimer. 2010. Climate change increases risk of plant invasion in the Eastern United States. *Biological Invasions* (2010) 12:1855–1872. DOI 10.1007/s10530-009-9597-y

- [Cumberland Piedmont Network. 2013](#). Resource Brief: Forest Vegetation Abraham Lincoln Birthplace National Historical Park. Cumberland Piedmont Network, National Park Service.
- [Fischelli, N. 2013](#). Climate Change Trends for Planning at Abraham Lincoln Birthplace National Historical Park. NPS Climate Change Response Program. Fort Collins, Colorado. 13 pp.
- [Fischelli, N. A., S. R. Abella, M. P. Peters, and F. J. Krist Jr. 2014](#). Climate, trees, pests, and weeds: change, uncertainty, and biotic stressors in eastern U.S. national park forests. *Forest Ecology and Management*. In press.
- Frank, S. D. 2014. Bad neighbors: urban habitats increase cankerworm damage to non-host understory plants. *Urban Ecosystems*.
- [Gumbert, M. W., P. Roby-Thomas, and K. McDonald. 2006](#). Mammals of Abraham Lincoln Birthplace & Boyhood Home National Historic Sites, LaRue County, Kentucky. Unpublished report for the National Park Service. Copperhead Environmental Consulting, Inc. Richmond, Kentucky.
- [Hutchison, S. T., K. W. Kuehn, and N. Rinehart. 2011](#). Natural resource condition assessment for Abraham Lincoln Birthplace National Historical Park, Kentucky. Natural Resource Report NPS/CUPN/NRR—2011/445. National Park Service, Fort Collins, Colorado.
- [Ingram, K., K. Dow, L. Carter, J. Anderson, eds. 2013](#). Climate of the Southeast United States: Variability, Change, Impacts, and Vulnerability. Washington DC, Island Press.
- [Jernigan, J. W., B. Carson, and T. Leibfreid. 2009](#). Ozone and foliar injury report for Cumberland Piedmont Network parks: Annual report 2008. Natural Resource Data Series NPS/CUPN/NRDS—2009/012. National Park Service, Fort Collins, Colorado.
- [Jones, E. L. and M. Pyne. 2008](#). Vascular Plant Inventory and Plant Community Classification for Abraham Lincoln National Historic Site. Report for the National Park Service. NatureServe. Durham, North Carolina.
- [Kohut, R. J. 2007](#). Ozone risk assessment for Vital Signs Monitoring Networks, Appalachian National Scenic Trail, and Natchez Trace National Scenic Trail. NPS/NRPC/ARD/NRTR—2007/001. National Park Service, Fort Collins, Colorado.
- [Krist Jr., F. J., J. R. Ellenwood, M. E. Woods, A. J. McMahan, J. P. Cowardin, D. E. Ryerson, F. J. Sapio, M. O. Zweifler, and S. A. Romero. 2014](#). 2013–2027 National Insect and Disease Forest Risk Assessment. Fort Collins, CO: US Forest Service, Forest Health Technology Enterprise Team; 2014. Report nr FHTET-14-01.
- [Kunkel, K. E., L. E. Stevens, S. E. Stevens, L. Sun, E. Janssen, D. Wuebbles, M. C. Konrad II, C. E., Fuhrman, B. D. Keim, M. C. Kruk, A. Billet, H. Needham, M. Schafer, and J. G. Dobson. 2013](#). Regional Climate Trends and Scenarios for the U.S. National Climate Assessment: Part 2. Climate of the Southeast U.S. National Oceanic and Atmospheric Administration Technical Report NESDIS 142–2, Washington, DC.
- [MacGregor, J. 2007](#). Results of an Amphibian, Reptile, and Turtle Survey of Abraham Lincoln Birthplace and Boyhood Home National Park, Kentucky. Report for the National Park Service.
- [Meiman, J. 2012a](#). Water quality standards analysis for 2003–2012, Abraham Lincoln Birthplace National Historical Park. Monitoring report for the Cumberland Piedmont Network. See also [additional summaries and products](#) for water quality monitoring at ABLI.
- [Meiman, J. 2012b](#). Resource Brief: Abraham Lincoln Birthplace National Historical Park, Water quality summary fiscal year 2012. Cumberland Piedmont Network, National Park Service.
- [Meineke, E. K., Dunn, R. R., Sexton, J. and Frank, S. D. 2013](#). Urban warming drives insect pest abundance on street trees. *PLoS One*. 8(3):1–7.
- [Monroe, M. S. 2005](#). Bird inventory for Abraham Lincoln Historic Site. Report for the National Park Service.
- [Moore, B. J. 2009](#). An evaluation of biological inventory data collected at Abraham Lincoln Birthplace National Historic Site: Vertebrate and vascular plant inventories. Natural Resource Data Series NPS/CUPN/NRR—2009/135. National Park Service, Fort Collins, Colorado.
- [National Park Service, Air Resources Division. 2013](#). Air quality in national parks: Trends (2000–2009) and conditions (2005–2009). Natural Resource Report. NPS/NRSS/ARD/NRR—2013/683. National Park Service. Denver, Colorado. Available at: <http://nature.nps.gov/air/who/npsPerfMeasures.cfm>.
- Peters, G. P., R. M. Andrew, T. Boden, J. G. Canadell, P. Ciais, C. Le Quéré, G. Marland, M. R. Raupach, and C. Wilson. 2013. The challenge to keep global warming below 2 °C. *Nature Climate Change* 3:4–6.

State Agency Ozone Monitor via EPA Data Mart (<http://www.epa.gov/ttn/airs/aqsdatamart/access.htm>)

[Sullivan, T. J., G. T. McPherson, T. C. McDonnell, S. D. Mackey, and D. Moore. 2011a.](#) Evaluation of the sensitivity of inventory and monitoring national parks to acidification effects from atmospheric sulfur and nitrogen deposition: main report. Natural Resource Report NPS/NRPC/ARD/NRR—2011/349. National Park Service, Denver, Colorado.

[Sullivan, T. J., G. T. McPherson, T. C. McDonnell, S. D. Mackey, and D. Moore. 2011b.](#) Evaluation of the sensitivity of inventory and monitoring national parks to acidification effects from atmospheric sulfur and nitrogen deposition: Cumberland Piedmont Network (CUPN). Natural Resource Report NPS/NRPC/ARD/NRR—2011/354. National Park Service, Denver, Colorado.

[Sullivan, T. J., T. C. McDonnell, G. T. McPherson, S. D. Mackey, and D. Moore. 2011c.](#) Evaluation of the sensitivity of inventory and monitoring national parks to nutrient enrichment effects from atmospheric nitrogen deposition: main report. Natural Resource Report NPS/NRPC/ARD/NRR—2011/313. National Park Service, Denver, Colorado.

[Sullivan, T. J., T. C. McDonnell, G. T. McPherson, S. D. Mackey, and D. Moore. 2011d.](#) Evaluation of the sensitivity of inventory and monitoring national parks to nutrient enrichment effects from atmospheric nitrogen deposition: Cumberland Piedmont Network (CUPN). Natural Resource Report NPS/NRPC/ARD/NRR—2011/306. National Park Service, Denver, Colorado.

University of Kentucky. 2013. Emerald Ash Borer in Kentucky. Available at: <http://www.emeraldashborer.info> (accessed 20 June 2013). University of Kentucky, College of Agriculture, Department of Entomology. Lexington, Kentucky.

Wigley, T. M. 2005. The climate change commitment. *Science* 307(5716):1766–1769.

[Zimmerman, J. C. 2007.](#) Seasonal Variations in Fish Assemblages of Small Warmwater Streams in Four Southeastern National Parks. Thesis, University of Tennessee, Knoxville, Tennessee.

## 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 Landscape 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.
Cumberland Piedmont Network (CUPN)	One of 32 I&M networks established as part of the <a href="#">NPS Inventory and Monitoring Program</a> . The <a href="#">Cumberland Piedmont Network</a> provides scientific data and expertise for natural resources in 14 parks located in Alabama, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, and Tennessee.
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 Program. The program supports 16 Exotic Plant Management Teams working in over 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.
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.
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.
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.
Visitor and Resource Protection (VRP)	VRP includes, among other responsibilities, protecting and preserving park natural and cultural resources, enforcing laws that protect people and the parks, fire management, search and rescue, managing large-scale incidents, and on-the-ground customer service.