



CHICKAMAUGA AND CHATTANOOGA NATIONAL MILITARY PARK



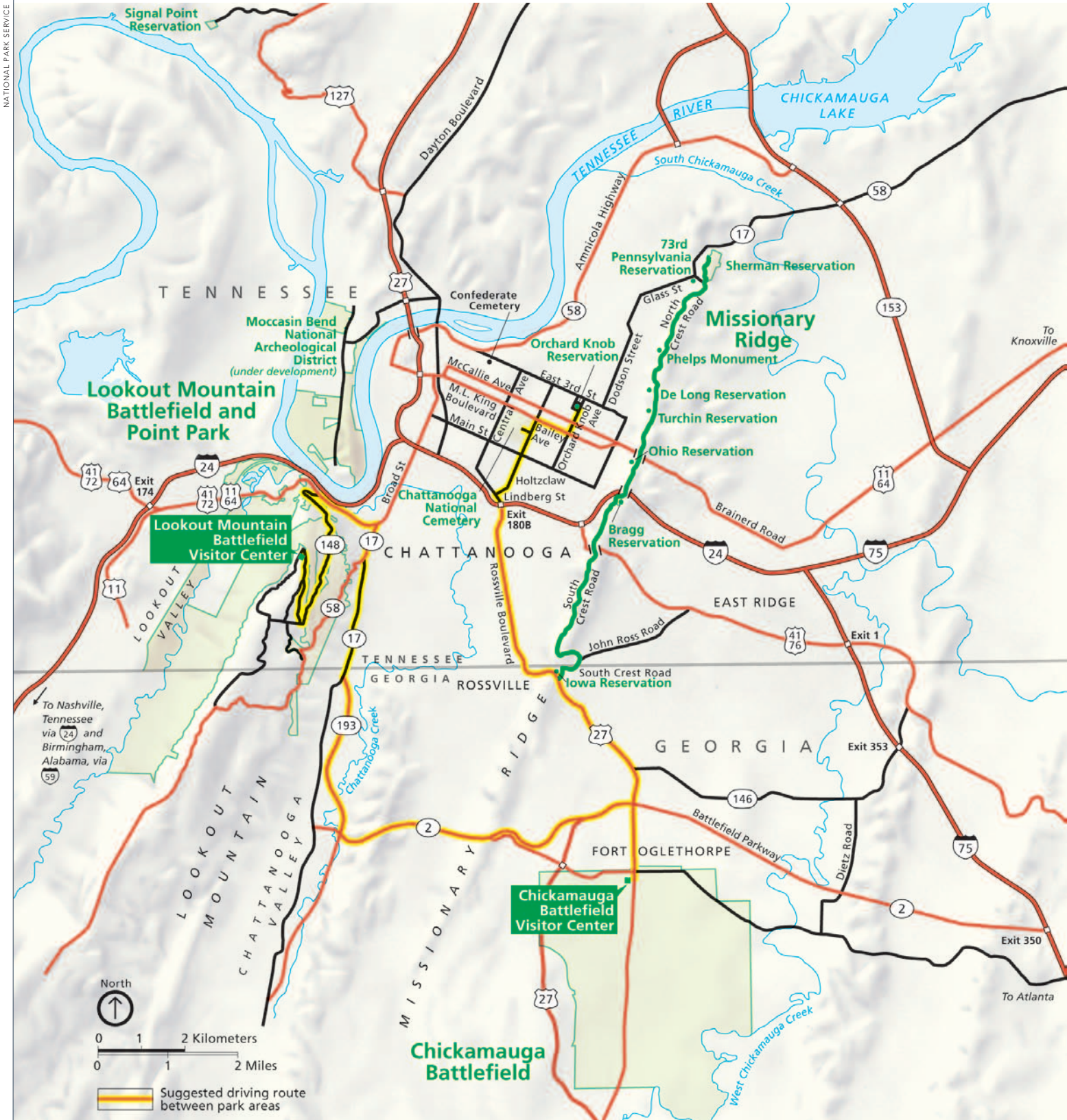
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REPORT SUMMARY

For two days in September 1863, a formidable piece of Georgia woodland became the site of the second-bloodiest battle of the American Civil War—the Battle of Chickamauga. Here, along Chickamauga Creek, Union and Confederate armies clashed over the possession of Chattanooga, a key rail center in nearby Tennessee and the gateway into the heart of the Confederacy. Thirty-four thousand men were

either killed or injured at Chickamauga, less than three months after the 43,000 casualties suffered at Gettysburg. Unlike the Gettysburg battle, the South claimed victory here and forced the retreat of Union soldiers. Just two months after the Battle of Chickamauga, however, Union forces claimed victories at nearby Missionary Ridge and Lookout Mountain in the Battles for Chattanooga, November 23–25, 1863. By successfully pushing the Confederates back into

Confederate forces prevailed at the Battle of Chickamauga, but Union forces claimed victories in the Battles for Chattanooga. Cannon tubes are on permanent display in the park to mark the locations of artillery batteries during the battles.



Georgia, Federals ultimately won control of Chattanooga and nearly all of Tennessee. In the spring of 1864, Union General William Tecumseh Sherman used Chattanooga for his base as he set out on his famous march to Atlanta and the sea.

Chickamauga and Chattanooga National Military Park—established in 1890 and straddling two states, Georgia and Tennessee—is the nation’s oldest and largest military park. Among towering oaks, more than 600 monuments and markers invite visitors to pause and reflect on the costly battles waged here. In addition to cannons, monuments, and markers, the park’s historic cabins, living history program, and extensive museum collection all serve to transport visitors back in time.

The park also encompasses about 755 acres at Moccasin Bend National Archeological District. Located just across the Tennessee River from the Lookout Mountain section of the park, Moccasin Bend has been inhabited by people for at least 10,000 years.

Located in the lowest ranges of the Appalachian Valley, Chickamauga and Chattanooga National Military Park contains special biological and geological features, including rare cedar glades harboring sensitive ecosystems and karst geology that is responsible for the extensive cave system in the park—seen in the rock outcroppings of Lookout Mountain. Hundreds of animal species make their home in this park, from tiny salamanders to songbirds to deer. In spite of these rare and interesting natural resources, the park does not have any staff specifically dedicated to their care.

Managers are working to integrate the newly acquired landscape at Moccasin Bend, which was added in 2003, into the existing park. While interpretation on the battlefields is largely focused on the Civil War, new interpretive themes—those of aboriginal peoples and their lifeways—will need to be developed for Moccasin Bend. This area is replete with archaeological sites, but the park does not currently



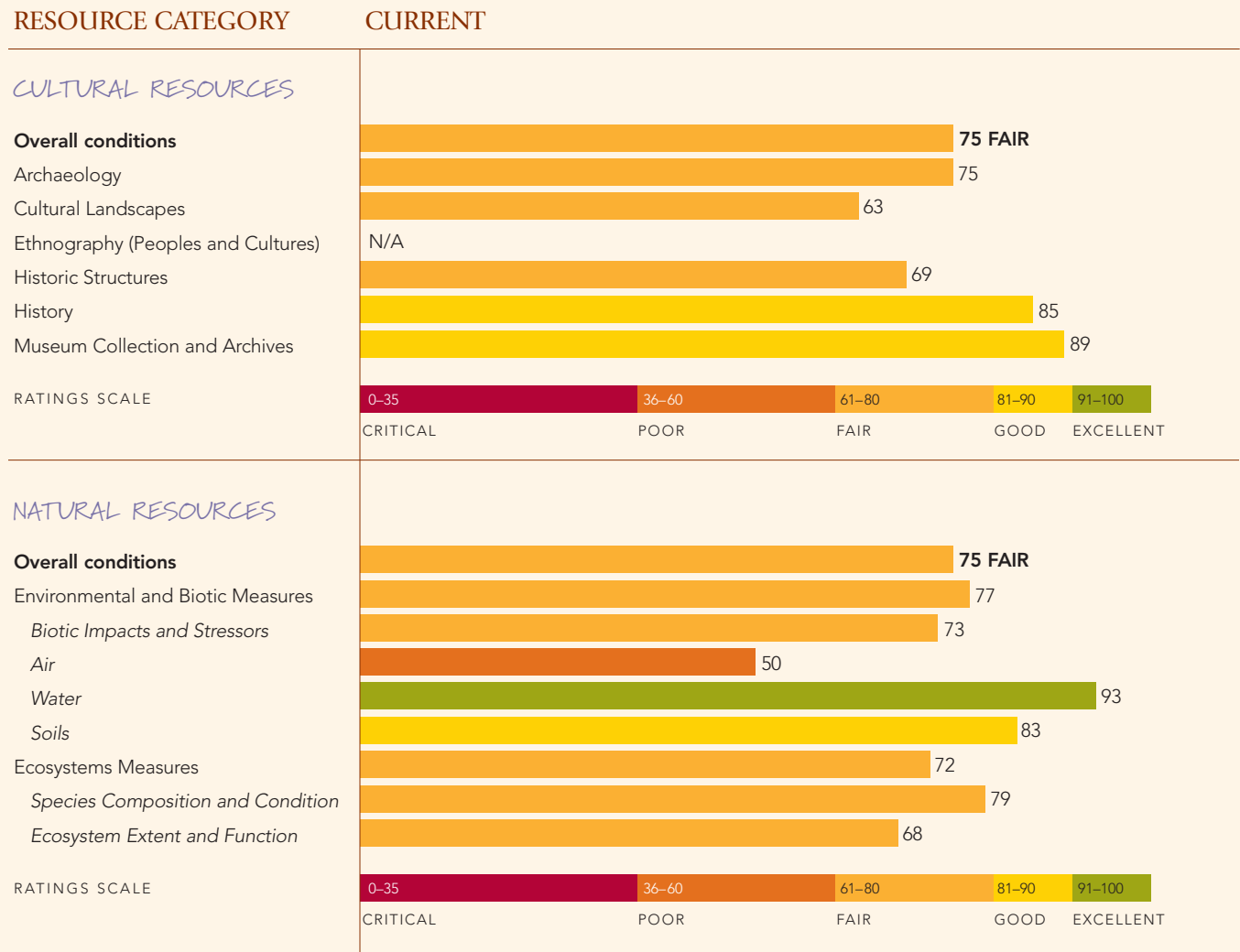
Monuments throughout the park commemorate the soldiers from various states who fought at the Battles of Chickamauga and Chattanooga. These historic structures are vulnerable to damage from exposure to the elements, as well as damage from vandals. A few monuments have even been involved in motor vehicle accidents.

have an archaeologist on staff. Acquiring funding to support a full-time archaeologist is necessary to ensure these resources receive the care they require.

Both human and natural forces threaten the resources of Chickamauga and Chattanooga National Military Park: vandals deface monuments; monuments and historic structures are vulnerable to weather and overgrown vegetation; and non-native plants quickly spread at the expense of native species.

Nearly a million people visit Chickamauga and Chattanooga every year, making it one of the most popular parks in the National Park System. Current funding for the park is not sufficient for the protection and management of its resources. Additional staff are needed, especially for resource management, law enforcement, and interpretation at Moccasin Bend.

Note: When interpreting the scores for resource conditions, recognize that critical information upon which the ratings are based is not always available. This limits data interpretation to some extent. For Chickamauga and Chattanooga, 100 percent of the cultural resources information was available and 61 percent of the natural resources information was available.



The findings in this report do not necessarily reflect past or current park management. Many factors that affect resource conditions are a result of both human and natural influences over long periods of time, in many cases before a park was established. The intent of the Center for State of the Parks is not to evaluate Park Service staff performance, but to document the present status of park resources and determine which actions can be taken to protect them into the future.

RATINGS

Overall conditions of the park's known **cultural resources** rated 75 out of a possible 100, indicating "fair" conditions. The scores for cultural resources are based on the results of indicator questions that reflect the National Park Service's own *Cultural Resource Management Guideline* and other policies related to cultural and historical resources. Chickamauga and Chattanooga's cultural resources warrant further documentation, including a cultural landscape report and a historic resource study for Moccasin Bend, and cultural landscape reports for Lookout Mountain and Missionary Ridge.

Current overall conditions of the known **natural resources** in Chickamauga and Chattanooga National Military Park also rated a "fair" score of 75 out of 100. Ratings were assigned through an evaluation of park research and monitoring data using NPCA's Center for State of the Parks comprehensive assessment methodology (see "Appendix"). Non-native plant species are a significant threat to ecosystems in the park, as they compete with native species for resources. In addition, air quality is poor—sensitive plant species are vulnerable to high ozone levels and scenic views are often obscured by haze.

LAND USE HISTORY AND PARK ESTABLISHMENT

For at least 10,000 years, human beings have lived on and farmed the fertile land known as the Tennessee Valley. Two American Indian tribes, the Koasati and the Tuskegee, once inhabited areas now included within Chickamauga and Chattanooga National Military Park. Eventually, some members of the Koasati migrated south; still others joined the Creek tribe and moved west when France ceded its lands to Great Britain in 1763. Little is known about the Tuskegee, who are thought to have been absorbed into the predominant tribe of the region, the Cherokees.

Cherokee tribesmen played a major role in

early Indian-European regional trade. One group of Cherokees—who called themselves Chickamauga—fought on the side of the British during the Revolutionary War. The Chickamauga settled on Lookout Mountain as they fought against colonial Americans and, at times, their own people. After the Revolutionary War, the Chickamauga were forced out of the area and their villages were destroyed.

Euro-American expansion into the Tennessee-Georgia hinterland grew rapidly following the War of 1812. An influx of farmers, who claimed lands formerly held by native peoples, settled along the Tennessee River. Corn, cotton, and other cash crops were cultivated, as were peach, pear, and apple orchards. Immigration increased during the 1820s and '30s, as demand for farm products grew. In the late 1830s, under Andrew Jackson's administration, the remaining Cherokee in the southeastern United States were forcibly relocated by the government under the Indian Removal Act of 1830. The Trail of Tears refers to the forced relocation of the Cherokee Nation from their lands in Georgia to the Indian Territory (present-day Oklahoma) in the Western United States. Thousands perished during the journey and as a result of the relocation.

With Indians forcibly removed, more Euro-Americans settled the region. By 1860, Chattanooga and Atlanta had become thriving cities with significant commercial influence. At the onset of the Civil War, Chattanooga—with a modest population of only 2,500—served as the principal Southern rail hub.

In September and November of 1863, the region became important in the Civil War's Western Theater. The Battle of Chickamauga and the Battles for Chattanooga were fought on the lands that now are partially encompassed by Chickamauga and Chattanooga National Military Park. Immediately after establishment of the park in 1890, efforts were begun to restore the landscape to 1863 conditions.

Until 1933, when it was transferred to the

RESOURCE MANAGEMENT HIGHLIGHTS

- **Battlefield landscapes rehabilitated.** In 2007, five acres of woods between the Kelly Farm and Battle Line Road were rehabilitated. Crews removed non-native plants, dead trees, and other unwanted vegetation.
- **Minnesota Monuments restored.** Four monuments commemorating Minnesota soldiers, erected on the Chickamauga Battlefield in 1893 and 1894, were restored in 2007. Bronze state seals had been stolen from the monuments. The seals were recast and installed.
- **"March for the Park" a continued success.** March for the Park, an annual 3-mile walk through Chickamauga and Chattanooga National Military Park, raises money to recast missing historic tablets that serve as interpretive markers on the battlefields. Students from Graysville and West Side Elementary Schools raised about \$3,000 for tablet restoration in 2008.
- **New general management plan in progress.** To guide natural and cultural resource protection at Chickamauga and Chattanooga, the park is in the process of developing a new general management plan. This plan is especially necessary

Elementary school students participating in the annual "March for the Parks" raised about \$3,000 for the park in 2008.

given the addition of Moccasin Bend in 2003, which brings unique archaeological and ethnographical needs. An archaeological overview and assessment for Moccasin Bend was recently completed.

- **Historic battlefield acquired.** In April 2008, 382 acres of historic battlefield near Lookout Mountain were added to Chickamauga and Chattanooga National Military Park. The land, acquired from the CSX Railroad Company, is the site of Union advancement to drive out Confederates from the mountain on November 24, 1863. Federal funding for the acquisition was secured through the efforts of Sen. Lamar Alexander (R-TN) and Rep. Zachary Wamp (R-TN). Assistance from The Trust for Public Land, a national private nonprofit conservation organization, was instrumental in the land acquisition and transfer process.
- **Natural resources inventories and monitoring completed.** Chickamauga and Chattanooga National Military Park does not have any staff specifically dedicated to the care of natural resources, but the park has worked with the Cumberland Piedmont Network of the National Park Service's Inventory and Monitoring Program to complete park species inventories for fish, reptiles, amphibians, birds, mammals and vascular plants. In addition, baseline water-quality monitoring and air-quality monitoring have also been completed, and so have an inventory of wetlands and a vegetation map. Future monitoring through the network is expected to provide additional information on vegetation communities, as well as information on non-native plants, forest pests, and landscape dynamics.

NATIONAL PARK SERVICE





Costumed re-enactors present a program as part of a ceremony celebrating the recent acquisition of 382 acres near Lookout Mountain. The importance of permanently protecting additional historic battlegrounds as part of the park is underscored by the views of encroaching development that can be seen in the background.

Department of the Interior (under the National Park Service), the park was administered by the War Department, which used the Chickamauga Battlefield as an encampment and training ground from the onset of the Spanish-American War in 1898 through World War I. More than 72,000 troops camped and trained on the Chickamauga Battlefield during the Spanish-American War. Trees were cut for firewood, grassy areas were denuded by grazing horses, and landscapes were altered for building construction. Even after its transfer into Park Service hands, the Chickamauga Battlefield was used for military purposes up to and during World War II, when 50,000 Women's Army Corps (WAC) soldiers were trained there, marking the first time women were officially allowed to join the ranks of the U.S. Army. In 1947, all military activity in the park was suspended.

Today, areas surrounding most of Chickamauga and Chattanooga National Military Park compose the bedroom communities of Chattanooga and possibly even Atlanta

(though it is more than 100 miles away). To the southeast of Chickamauga Battlefield, agricultural lands create a buffer zone along the park border. To the west, the Route 27 Bypass skirts the battlefield; previously Route 27 had bisected it. Directly north is historic Fort Oglethorpe, formerly an army post. It was closed after World War II, and the lands were sold and are now a residential area.

Suburban sprawl is encroaching on the Chickamauga Battlefield area where buffers do not exist—strip malls and housing developments have sprung up just outside the park. The Lookout Mountain unit is located in a mix of tourist attractions and single-family homes, minimally buffered by the Reflection Riding Botanical Area, Chattanooga Nature Center, and Lookout Creek to the west. The small units on Missionary Ridge and at Orchard Knob exist as tiny islands of protected land within populated neighborhoods, while Moccasin Bend shares its peninsula with a mental hospital, a golf course, and a water treatment plant.

FOUR PARK AREAS ENCOMPASS IMPORTANT HISTORIC AND PREHISTORIC FEATURES

Like the campaigns whose battles are commemorated there, Chickamauga and Chattanooga National Military Park covers land in two states—southeastern Tennessee and northern Georgia. The 8,932-acre park comprises 18 units in four distinct areas, separated from one another by urban and suburban development: Chickamauga Battlefield (Georgia); Lookout Mountain Battlefield and Point Park (Tennessee); Missionary Ridge, Crest Road, and Reservations (primarily Tennessee); and Moccasin Bend National Archeological District (Tennessee) (see the map on page 92).

Chickamauga Battlefield. The Chickamauga Battlefield includes the Union and Confederate battle lines of September 19–20, 1863. A visitor center located at the northern part of the battlefield houses a museum, interpretive exhibits, and an extensive Civil War library. There is a 7-mile auto tour loop with eight stops that help interpret the battle.

Lookout Mountain Battlefield and Point Park. Located to the northwest of the Chickamauga Battlefield, this part of the park, along with the rest of the portion of the park located in Tennessee, lies in what is now the Chattanooga metropolitan area.

At 2,100 feet in elevation, Point Park features expansive views of the Tennessee River Valley below and includes the newly renovated Lookout Mountain Battlefield Visitor Center, the Ochs Museum, and a bookstore. The main hiking trail leading to Cravens House begins near the museum. Cravens House was used by Confederate forces as headquarters for their fortifications on Lookout Mountain until they were pushed out on November 24 during The Battle Above The Clouds. Private homes and tourist attractions unrelated to the battle bring additional traffic to the mountain.

In April 2008, 382 acres of historic battlefield acquired from the CSX Railroad Company were added to Chickamauga and Chattanooga National Military Park. The

In 2008 the Lookout Mountain Visitor Center was renovated with new and improved exhibits.



land, located in Lookout Valley west of Lookout Mountain, is the site of Union troop advancement to drive Confederates from Lookout Mountain.

Missionary Ridge, Crest Road, and Reservations. Areas related to the first and third parts of the Chattanooga battle—the Union capture of Orchard Knob (November 23, 1863) and the subsequent charge up Missionary Ridge (November 25, 1863)—are more difficult to visit than the Chickamauga Battlefield and Lookout Mountain; no large areas have been preserved. Missionary Ridge is essentially a 20-mile, 400-foot high land barrier situated to the east of the city of Chattanooga. What remains of the Missionary Ridge battlefield are nine “reservations”—small parcels of parkland surrounded by residential neighborhoods. The seven-mile battle line can be visited via the two-lane Crest Road, which begins in the south at the Iowa Reservation and ends at the Sherman Reservation. Crest Road is heavily trafficked and some city driving is necessary to reach the area. Monuments and historical markers dot both sides of Crest Road, and in some cases, monuments and cannons are located in residential front yards.

Moccasin Bend. While most of Moccasin Bend holds no Civil War significance (though it does contain Union earthworks used during the siege of Chattanooga), the area has a 10,000-year history of human habitation and contains tribal burial grounds and archaeological ruins. The acquisition of Moccasin Bend represents an exciting new addition to the park, but its significance lies well outside of the Civil War-related interpretive themes currently in place. Moccasin Bend will need a visitor center and additional staff before it can be fully opened to the public; funds are needed for both the visitor center and staff.



The park preserves 256 historic cannon tubes.

CHICKAMAUGA AND CHATTANOOGA NATIONAL MILITARY PARK AT A GLANCE

- **Moccasin Bend National Archeological District:** Located across the Tennessee River just north of Lookout Mountain, Moccasin Bend contains traces of settlements from 10,000 years of human habitation. This 755-acre expanse also includes part of the Trail of Tears National Historic Trail and Union earthworks (soil fortification) used during the Battles for Chattanooga.
- **Karst geology:** The Chickamauga and Chattanooga area is famous for its karst geology, which accounts for unique and beautiful cave systems in and around Lookout Mountain. The process of karst—mineral dissolution and deposition—creates stalagmites and stalactites in these caves.
- **Rare firearm collection:** The park houses the Claud E. and Zenada O. Fuller Collection of American Military Shoulder Arms—an extensive array of antique firearms spanning the American colonial period to the Spanish-American War. Highlights of the collection include several rare and unique items, such as the Harpers Ferry Blunderbuss, manufactured in 1808, and the Texas Rifle (ca. 1844).

KEY FINDINGS

- Considering the historical importance of the grounds within Chickamauga and Chattanooga National Military Park, more cultural resource studies are warranted. Important work needed includes a cultural landscape report and a historic resource study for Moccasin Bend, and cultural landscape reports for Lookout Mountain and Missionary Ridge.
- Historical interpretation at the park focuses on the significance of the battles of Chickamauga and Chattanooga; the scope must now be expanded to include Moccasin Bend National Archeological District. This will require the park to train permanent and seasonal rangers in American Indian culture and history. In addition, the park may need to hire a full-time archaeologist or anthropologist to document and interpret archaeological sites, which have increased with the addition of Moccasin Bend.
- The park contains hundreds of historic structures, including monuments, markers, plaques, and buildings, yet it lacks a preservation crew to maintain

Currently, the park does not have a professional preservation crew with the skills needed to care for hundreds of historic monuments and markers.

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these irreplaceable resources. Historic structures in the park are susceptible to threats such as bronze leaching, damage from dead trees, and overgrown vegetation.

- The Chickamauga and Chattanooga museum and archival collections contain original battle-era documents, fragile maps and photographs, and a historic firearms collection. Items are well protected in climate-controlled storage space at the Chickamauga Battlefield Visitor Center, where many are also displayed in interpretive exhibits at the visitor center museum. An updated physical inventory of the entire collection is warranted; the previous physical inventory was completed in 1992.
- Before the acquisition of Moccasin Bend, the park did not consider ethnography to be a significant aspect of its overall cultural resources program. Now that the park includes an area with significant importance to associated American Indian groups, ethnographic resources will figure more prominently in the cultural resources program. An ethnographic overview and assessment and an ethnographic landscape study are both needed to inform management of the park's ethnographic resources, but both are on hold until funding is secured.
- Although a historical park, Chickamauga and Chattanooga is also tasked with the protection of biological diversity and unique geology. Non-native plant species such as Chinese privet and kudzu threaten ecosystems as they aggressively compete with native plants for water, nutrients, sunlight, and space. Mowing of park fields has raised issues regarding ecosystem health—alternative mowing regimes must be considered to increase



Some parts of the park, such as the Orchard Knob reservation shown here, are tiny islands of protected land within neighborhoods.

habitat for wildlife and restore fields to a more natural condition. A vegetation management plan, which would address forest issues, mowing, and pasture/field practices, is needed for managers and maintenance staff, for the protection of both natural and cultural resources. In addition, the scattered nature of the park units makes management of ecosystems on a landscape level difficult.

- To gain a comprehensive understanding of park ecology, further study is needed. With the recent addition of Moccasin Bend, inventories, surveys, and monitoring are needed to provide initial data on natural resources. The majority of research conducted at the park so far has established baseline data for communities and populations of species. With baselines established, regular monitoring of Chickamauga and Chattanooga's

species and habitats (including caves) is vital to note ecological changes and allow the park to adjust its management practices accordingly.

- The areas surrounding the park are becoming more developed as they fill with bedroom communities for Chattanooga and possibly even Atlanta. The park is keenly interested in maintaining nonurbanized areas as buffers to their borders. Unfortunately, suburban sprawl is encroaching and there are strip malls and housing developments just outside the park. The Lookout Mountain portion of the park is near tourist attractions and single-family homes. Other portions of the park are considered parts of the Chattanooga urban area—small units such as those on Missionary Ridge and Orchard Knob are actually tiny islands of protected land within neighborhoods.



THE CHICKAMAUGA AND CHATTANOOGA NATIONAL MILITARY PARK ASSESSMENT



The Snodgrass Cabin, pictured here, was located in an area that saw some of the fiercest fighting of the Battle of Chickamauga. By the time the battle began, the Snodgrass family had abandoned their cabin and sought refuge elsewhere.

CULTURAL RESOURCES— ADDITIONAL STAFF AND FUNDING ESSENTIAL TO PROTECTION OF BATTLEFIELDS AND ARCHAEOLOGICAL SITES

Chickamauga and Chattanooga National Military Park scored an overall 75 out of 100 for the condition of cultural resources that include archaeology, cultural landscapes, history,

historic structures, and museum collection and archives. This score indicates that the resources are in “fair” condition.

Cultural resources at Chickamauga and Chattanooga include hundreds of monuments and markers on the battlefields, historic cannon tubes, an antique firearms collection, and reconstructed (post-war) cabins. The newly acquired Moccasin Bend section of the park is replete with archaeological sites.

Cultural landscape reports are needed for Moccasin Bend, Lookout Mountain, and Missionary Ridge; at this time, only the Chickamauga Battlefield unit has been assessed via a cultural landscape report, which is vital to directing park management and preventing the loss of significant landscape features. Weather, overgrown vegetation, and vandals threaten historic structures. Funding for a permanent preservation crew and a full-time archaeologist is needed.

HISTORY—CIVIL WAR CAMPAIGN AND COMMEMORATION PERIOD WELL DOCUMENTED

The history and significance of Chickamauga and Chattanooga National Military Park have been well documented. A historic resource study—intended to identify and evaluate cultural resources within a historic context—was completed in 1999 and encompasses the Chickamauga, Chattanooga, and Lookout Mountain areas of the park. This study was completed before the acquisition of Moccasin Bend, so a separate study for the district should be conducted to identify the need for any additional special history studies and make recommendations for resource management and interpretation.

The park's administrative history, completed in 1983, documents the establishment of the park in 1890 and its significance as the country's first national military park. It also covers the commemorative period of the park, when veteran groups from both the North and the South erected monuments on its grounds. Park staff recognize the need for an updated administrative history, especially to document the addition of Moccasin Bend National Archeological District, but this is considered a lower priority project and requests for additional funding have been denied.

In addition to the historic resource study and administrative history, interpretive rangers have access to an extensive research library at the

Chickamauga Battlefield, which they turn to frequently for reference.

Because the park is composed primarily of preserved battlefields, the military campaigns of 1863 at Chickamauga and Chattanooga have been the focus of historical interpretation. Themes include the role of Chattanooga as a strategic transportation hub and the political climate of the Chattanooga region as a microcosm of the United States in the mid-19th century. Interpretation begins with the individual battles and expands to illustrate how the battles fit into the larger picture of Civil War history. Major points in the Battle of Chickamauga are covered in a self-guided auto tour, and tours led by park rangers are also available. During the summer months, the park offers a living history program on the life of the common Civil War soldier. Independent living history groups are also invited to set up encampments and educate visitors on the lives of soldiers.

The commemorative period that began after the park was founded is interpreted through exhibits at the Chickamauga Battlefield Visitor Center. In addition, historical interpretation in the park was recently expanded with the acquisition of Moccasin Bend National Archeological District, which preserves nationally significant American Indian cultural features, including a portion of the Trail of Tears.

Chickamauga and Chattanooga National Military Park employs a full-time historian who conducts historical research, guides interpretation of historical themes, and oversees park tours led by seasonal and permanent rangers. In addition to Civil War themes, rangers are being trained in interpretive themes for Moccasin Bend. The park plans to begin offering some interpretive programs at Moccasin Bend in summer 2009.

ARCHAEOLOGY—MOCCASIN BEND ADDS SIGNIFICANTLY TO RESOURCES

Until recently, archaeology was not a primary focus for park managers at Chickamauga and Chattanooga National Military Park, but with the addition of Moccasin Bend National Archeological District, it has become one. The Battle of Chickamauga was fought on farmland in the area of Chickamauga Creek, on properties owned by various families whose names still denote parts of the battlefield: Dyer Field, Brotherton Cabin, Kelly House, Snodgrass Hill, and others. The entire battlefield at Chickamauga is listed as one archaeological site, and all the sites within it are listed in the National Register of Historic Places under this umbrella nomination. (The Cravens House on Lookout Mountain is the only historic structure at the Chattanooga Battlefield that could be considered an archaeological site and is included in the listing.)

Other significant sites within the Chickamauga unit include the Cave Spring rockshelter (a cave formed by a ledge of overhanging rock), which is the only prehistoric site (not including Moccasin Bend) within the park; the Horseshoe Ridge zone, one of the most bitterly contested areas of the battlefield; Hoods Trench, believed to be built by the Confederate troops of Colonel John H. Kelly and used as a shelter from military bombardment; other Civil War-era trenches; Bloody Pond, a significant battle site; and finally, all sites of historic houses, whether standing or destroyed. It is believed that these historic sites, and the sites of their associated outbuildings, wells, privies, cooking and work areas, trash disposal areas, and so on, are of archaeological value, as are unnamed sinkholes believed to contain items disposed of during the Spanish-American War.

According to a survey completed in 2006, 109 of the park's 115 identified archaeological sites (not including those in Moccasin Bend) are reported in "good" condition; the remainder are in "fair" or "unknown" condition. The park

has requested funding for updates to determine current site conditions.

The new centerpiece of archaeology at Chickamauga and Chattanooga National Military Park is Moccasin Bend, a natural oxbow formed by the curve of the Tennessee River at the base of the Cumberland Mountains. Designated as a national archeological district in 1986, Moccasin Bend contains valuable cultural resources pertaining to human history in the region, covering themes such as Woodland Period (300 B.C. to A.D. 900) settlement (sites and burial mounds); fortified proto-historic (just before recorded history) villages; Spanish exploration and settlement of the southeastern United States; and contact between native and non-native peoples. The area includes a part of the Trail of Tears National Historic Trail and Union earthworks (soil ramparts) used during the siege of Chattanooga.

Park management began to address Moccasin Bend's archaeological needs by completing an archaeological overview and assessment in late 2007. This document describes and evaluates known and potential archaeological resources at Moccasin Bend and identifies what additional work is needed to locate, evaluate, and document resources. (An archaeological overview and assessment for Chickamauga and Chattanooga was completed in 1987.)

Threats to archaeological resources at Moccasin Bend include unstable shorelines that result in erosion. Forest vegetation also jeopardizes archaeological sites: Tree roots have overgrown tribal burial mounds and could potentially penetrate and churn soil, compromising the integrity of the land as an archaeological resource. The park needs to complete a cultural landscape report before determining how to address the trees.

Prior to acquiring Moccasin Bend, interpretation of the park's historical (Civil War-era) significance did not include consideration of archaeological resources. As such, the park does



On September 20, 1863, Confederate soldiers marched past Brotherton Cabin on their way to exploit a gap in the Union line. Tom Brotherton served as a scout and helped the Confederates maneuver through the dense forest.

not employ a full-time archaeologist, but relies on the Park Service's Southeast Archeological Center for its archaeological needs. A full-time archaeologist, as well as additional managers, law enforcement officers, and interpretive staff would allow the park to adequately service Moccasin Bend. At current budget levels, however, there are no funds for these positions.

HISTORIC STRUCTURES—MONUMENTS, MARKERS, CABINS, AND CANNONS MEMORIALIZE BATTLES

Chickamauga and Chattanooga National Military Park is home to more than 750 historic structures. They include some buildings, but the majority are monuments and markers erected on the battlefields. The park is in the process of updating its list of classified structures—a database of all prehistoric and historic structures—to include all structures. None of the park's

historic structures have been documented through historic structure reports; however, a historic structure report is planned for Cravens House on Lookout Mountain, but it cannot be undertaken until funding is provided.

Four of the main historic buildings in the park are houses that were destroyed during the Battle of Chickamauga and the Battles for Chattanooga, but were rebuilt shortly thereafter, on their original locations and to their original specifications. These structures include the Kelly House, Snodgrass Cabin, and Brotherton Cabin on the Chickamauga Battlefield and the Cravens House on Lookout Mountain in Chattanooga. All three houses on the Chickamauga Battlefield are unfurnished and empty inside; Cravens House is furnished with period furniture and objects, and is open to the public from June through August.

The cabins and houses in the park are impor-

General Rosecrans used the Kelly House, pictured here, as a landmark as he moved his Union forces north to extend his line toward Chattanooga on September 18 and 19, 1863.



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tant to interpretation of the Battle of Chickamauga and the Battles for Chattanooga. When Lieutenant General James Longstreet launched his attack on September 20, Confederate soldiers marched past Brotherton Cabin, a simple log structure with a stone chimney and a wood shake roof, on their way to exploiting a gap in the Union line. The Brotherton family also played a role in the battle: Tom Brotherton, who had grown up on the farm and had left to enlist in the Confederate Army, was employed as a scout by Longstreet and served with distinction by helping the Confederates maneuver through the dense forest.

The Snodgrass Cabin was located in an area that saw some of the fiercest fighting of the Battle of Chickamauga. Once Longstreet had passed Brotherton Cabin and sent the Union army into full retreat, the last Union elements still on the field—under General George H.

Thomas—made their stand on Horseshoe Ridge at the Snodgrass farm, taking up positions on Snodgrass Hill and Snodgrass Ridge. By the time the battle began, the Snodgrass family, along with others in the region, had abandoned their cabin and sought refuge elsewhere.

The Kelly House, built by Elisha Kelly prior to the Civil War, was also an important location in the Battle of Chickamauga. General Rosecrans used this cabin as a landmark as he moved his Union forces north to extend his line toward Chattanooga on September 18 and 19, 1863.

The Cravens House was built as a summer retreat by leading industrialist Robert Cravens, who purchased the land for his home and orchard on Lookout Mountain in 1854. After the Battle of Chickamauga, Confederate troops occupied Lookout Mountain and built defenses on Cravens's land, yet the family remained in their house until mid-November before fleeing for safer ground. Although the

home sustained only minor damage during combat, it was later destroyed by Union soldiers in a drunken brawl. Finding only the stone foundation standing after the fighting, Cravens rebuilt the house and remained on the mountain until his death in 1886.

After the war ended, veterans from both sides of the conflict gathered at Chickamauga and Chattanooga to reflect on the 1863 battles and the actions of their regiments. After the park was established in 1890, the War Department urged governors of states whose troops served at Chickamauga and Chattanooga to appoint commissions to aid in the location of battle lines in the park, in order to erect monuments to the contributions of their soldiers. The monuments—some intricate and ornate, others more subdued—are considered historic structures and are part of the interpretation of the commemorative period of the military park.

Besides the monuments to troops that fought, numerous tablets were erected at Chickamauga and Chattanooga to inform visitors of military movements and mark the battle lines for further study. Two hundred iron tablets were commissioned after passage of park legislation, each measuring four feet by three feet and featuring raised white lettering on a black background. The tablets represented locations of army headquarters, corps, divisions, and brigades, and each bore either a “U” for Union, or a “C” for Confederate in the upper right corner. In addition to markers that interpreted the battle, distance markers and locality tablets were placed at crossroads and prominent battle-field landmarks, to further orient visitors. Today approximately 700 of these tablets exist throughout the park.

In addition to markers and tablets outlining battle positions, cannon tubes are on permanent display to mark the locations of artillery batteries during the Battle of Chickamauga and the siege of Chattanooga. All of the 256 cannon tubes are cataloged in the park’s museum collection.

Most monuments and markers in the park are in “fair” to “good” condition, though they are vulnerable to various natural and human-caused threats. Exposure to the elements wears away stone structures, while limestone monuments with bronze plaques are prone to staining: Bronze oxidizes and absorbs into the limestone, leaving a permanent mark. In some cases, tannic acid from overhanging trees stains monuments below. Falling trees can also damage monuments and markers. In addition to damage from natural sources, the park’s historic structures suffer from the actions of vandals who graffiti them or steal bronze portions of the structures. Some have also been hit and damaged by motorists traveling through the park.

Current high-priority historic structure projects include the preservation and rehabilitation of Cravens House, which would be facilitated by a historic structure report once funds are received to complete this work. The park would also like to implement a plan to preserve veteran-placed monuments, but funds are needed to do this work.

Although Chickamauga and Chattanooga National Military Park is entrusted with the care of hundreds of historic structures, the park lacks a preservation crew to regularly maintain, repair, and inspect these irreplaceable resources. Currently, monuments and markers are cleaned once every five years (or every three years, for markers and monuments located on tour routes), the park’s cultural resource manager annually inspects structures on the list of classified structures, and the park’s deferred maintenance—part of which is related to work on historic structures—tops \$12 million. Hiring a skilled preservation crew (ideally, a chief of operations, a mason, a welder/fabricator, a painter, and three laborers) would allow the park to provide enhanced care for historic structures and begin to address the backlog of deferred maintenance.

CULTURAL LANDSCAPES—IMPORTANT REPORTS NEEDED

Cultural landscapes encompass natural and human-made features, illustrating the ways people have altered and adapted to their surroundings through time. Park managers have identified 21 separate cultural landscapes at Chickamauga and Chattanooga; all are listed in the National Register of Historic Places under the umbrella nomination that encompasses the park as a whole. Of the 21 cultural landscapes in the park, only nine are listed in “good” condition, according to the Park Service’s Performance Measure Database System. One of the park’s main landscapes, the Chickamauga Battlefield, has been divided into several smaller component cultural landscapes, which are composed of the locations of farmsteads that existed in the area at the time of the battle. These component landscapes need to be added to the park’s cultural landscape inventory, as does the landscape at Moccasin Bend.

Up-to-date cultural landscape research includes a cultural landscape report for the Chickamauga Battlefield, completed in 2004, which park managers use to identify and develop specific projects to improve the battlefield’s component landscapes. Park staff have requested funds to complete a cultural landscape report for Moccasin Bend. Similar reports for the Chattanooga Battlefield units at Lookout Mountain and Missionary Ridge are also needed, but funding has not been allocated.

The integrity of the cultural landscapes at Chickamauga and Chattanooga is closely tied to management of the natural landscape. At the time of the siege of Chattanooga, Lookout Mountain was only lightly forested, but today the forests here are so dense that they obscure views from the summit at Point Park. In addition to dense forests, park managers must contend with non-native plants—primarily Chinese privet (*Ligustrum sinense*) and kudzu (*Pueraria montana*)—that overtake native vegeta-

Non-native Chinese privet has the capacity to overtake areas, changing the forest structure and obscuring important features. Here the park is removing privet from a section of forest. See the results on the next page.



NATIONAL PARK SERVICE



Removing non-native privet helps restore cultural landscapes to their battle-day appearance.

tion and obstruct monuments, buildings, and land features. The park needs a vegetation management plan that includes forest management, mowing, non-native species, and pasture/field management to preserve cultural landscapes in the park.

Because preserving the park's cultural landscapes is integral to communicating the historic events that transpired there, Chickamauga and Chattanooga would greatly benefit from the expertise of a cultural landscape architect. In an effort to economize, managers have suggested that a cultural landscape architect be hired to serve three parks: Stones River National Battlefield, Georgia's Kennesaw Mountain National Battlefield Park, and Chickamauga and Chattanooga.

ETHNOGRAPHY (PEOPLE AND CULTURES)—ADDITION OF MOCCASIN BEND DRIVES NEW PROGRAM

No ethnographic studies have been conducted at Chickamauga and Chattanooga National Military Park. The limited ethnographic scope of interpretation—soldiers from two armies that clashed here between September and November 1863—made ethnography a low priority. Because of the lack of ethnographic information, the National Parks Conservation Association did not determine a score for ethnographic resources. With the addition of Moccasin Bend in 2003, a significant site for a number of American Indian groups, the park will begin implementing an ethnography program. Funding for an ethnographic overview and assessment, necessary to help establish ethnographic themes for park interpretation



The park's visitor center includes the Claud E. and Zenada O. Fuller Collection of American Military Shoulder Arms, an extensive array of antique firearms spanning from the American colonial period to the Spanish-American War.

and to guide protection of resources, needs to be secured before the work can commence. An ethnographic landscape study is also planned and is a high priority for park management, but it is also on hold until funding is allocated.

Close working relationships with the land's associated peoples are essential for developing the fledgling ethnography program at the park. Seventeen different tribes—including Shawnee, Chickasaw, Choctaw, Cherokee, and Creek—are affiliated with Moccasin Bend. Park managers will consult tribal representatives regularly, through annual meetings and less formal consultations as needed. Because a significant portion of the archaeological district is a burial ground and is considered sacred to associated peoples, free-flowing communication between the Park Service and tribes—regarding management practices, upcoming projects, and administrative decisions—is essential.

Currently, there is no cultural anthropologist on staff at Chickamauga and Chattanooga National Military Park, but given the acquisition of Moccasin Bend, the park may eventually create and fill this position.

MUSEUM COLLECTION AND ARCHIVES—BATTLEFIELD MUSEUM A HIGH POINT FOR VISITORS

Nearly 100,000 items compose the museum and archival collections at Chickamauga and Chattanooga National Military Park, many of which are exhibited at the museum at the Chickamauga Battlefield Visitor Center. For many, the Claud E. and Zenada O. Fuller Collection of American Military Shoulder Arms—an extensive array of antique firearms spanning from the American colonial period to the Spanish-American War—is the highlight of the visitor center. The Fuller gun collection includes several rare and unique items, such as the Harpers Ferry Blunderbuss, manufactured in 1808, and the Texas Rifle (ca. 1844); the park's specimens are the only ones known to exist today. The Jenks Rifle, the pattern for the Model 1840 Musket, the pattern for the Model 1817 Rifle, and the Sharps Carbine—with coffee mill built into the stock—are extremely rare. Other exhibits at the Chickamauga Battlefield Visitor Center include one describing the park's history as well as one that features a timeline of the Civil War and descriptions of how the war affected the Chattanooga region and eastern Tennessee. An artillery display is located outside the museum, showcasing cannons of the Civil War, while 256 historic cannon tubes are displayed on the battlefield itself.

At the Lookout Mountain Battlefield Visitor Center and Ochs Museum, located at Point Park in the Lookout Mountain unit, visitors can view the historic James Walker painting "The Battle Above The Clouds," a stunning work of art measuring 13 by 33 feet. The Ochs Museum is currently closed for repairs. Period furniture and artifacts are on display at the Cravens House on Lookout Mountain, which serves as a seasonal interpretive facility.

In addition to museum items, the park is entrusted with a substantial archive and manuscript collection that includes irreplaceable battle-era and park-development documents.

Fragile maps and original photographs are also part of the collection, housed on the second floor of the Chickamauga Battlefield Visitor Center. Overall, the collection is properly stored, although minor repairs to the storage area are needed to address inadequate insulation and the potential for water to leak through a false chimney. Space is the biggest issue for the archives—the archive storage areas are almost filled to capacity. The addition of Moccasin Bend is not expected to impact storage at Chickamauga, however, as a separate visitor center is planned for the archaeological district and would be used to house relevant archival objects.

Chickamauga and Chattanooga National Military Park employs a full-time museum curator who oversees the park's museum collection. Archival materials are readily accessible to researchers, who contact the curator to obtain permission for their use.

Of the 99,674 items in the museum and

archival collections, only 13,238 (13 percent) are backlogged, awaiting inclusion in the Automated National Catalog System. According to the last collection survey, compiled in 1993, 1,058 items are in "excellent" condition, while 43,980 are considered "good." "Fair" condition was assigned to 34,836 items, and 13,104 received a "poor" condition rating. Park staff realize the need to conduct an updated and comprehensive collection condition survey, but this work has not yet been scheduled due to funding constraints.

The park's collections management plan was last updated in 1994; park staff are working on a revised plan. A collections management report and a scope of collection statement also guide management of the museum and archival objects. The museum curator keeps the *Checklist for the Preservation and Protection of Museum Collections* up-to-date. As of 2007, all items were accounted for and 82 percent of the checklist standards were met.



Preserving James Walker's historic painting "The Battle Above the Clouds" is an important and time-consuming responsibility. Walker witnessed the battle fought on the north slope of Lookout Mountain and completed a rendition of the battle that measures 13 by 33 feet. This photo shows a professional art conservator filling a small crack in the painting.



At the Chickamauga Battlefield, forests account for most of the landscape, and indeed the densely wooded nature of the terrain was daunting to soldiers fighting here.

**NATURAL RESOURCES—
METROPOLITAN GREEN SPACES
HARBOR RARE GLADES, CAVES, AND
FORESTS**

The assessment rated the overall condition of natural resources at Chickamauga and Chattanooga National Military Park a 75 out of 100, which ranks park resources in “fair” condition. Non-native plants are a major threat to ecosystem health, as these aggressive invaders outcompete native species for vital resources. Additionally, the park has never employed any natural resources staff. Air quality is poor; high ozone levels in the airshed of the park threaten

certain sensitive plant species and air pollution contributes to haze that often obscures panoramic views of the Tennessee River Valley at park overlooks.

**PLANT LIFE IN THE PARK—FOUR
DISTINCT AREAS HARBOR 33
COMMUNITIES**

Forests, fields, and glades compose the major habitat types at Chickamauga and Chattanooga National Military Park. Within these broad categories, 33 different vegetative communities have been identified throughout the park. Six are considered globally rare. The majority of the park’s vegetative communities are natural, but

some have been modified by humans, while others are in an active successional phase, meaning that dominant plants groups will be naturally replaced by others as time passes.

One federally listed plant species occurs at Chickamauga and Chattanooga: the threatened large-flowered skullcap (*Scutellaria montana*). One population of this plant exists on Lookout Mountain. The park also houses (or is suspected to contain) 24 state-listed protected plant species.

Chickamauga Battlefield. At Chickamauga, mixed hardwood (deciduous) and conifer (evergreen) forests account for most of the landscape, and indeed the densely wooded nature of the terrain was daunting to soldiers fighting here. Oak communities, which account for much of the canopy in the mixed forest, include ten different species of oak. Chinquapin oak (*Quercus muehlenbergii*)/Shumard oak (*Quercus shumardii*) communities, considered globally rare, are widespread within the cedar glade systems on the battlefield.

A special rare assemblage of plants at Chickamauga Battlefield, classified as the Cumberland Plateau Willow Oak Pond Community, is associated with ponds created by the natural subsidence (sinking) of limestone terrain. Seasonal rains flood the willow oak-associated pond at Chickamauga Battlefield, providing vital spring breeding grounds for amphibians; in the latter part of the growing season it dries up. Another wet area on the battlefield, formed by a natural limesink (sinkhole), is used extensively by beavers (*Castor canadensis*).

Cedar glade communities are by far the most biologically significant communities in the park, and three specific glade types are found at Chickamauga Battlefield (see "Park Protects Rare Cedar Glades at Chickamauga Battlefield" on page 116). A recent park survey identified a total of 23 individual glades.

Ten percent of the land in the Chickamauga

Battlefield unit is made up of field communities—cultivated grasslands maintained to replicate the historic 1863 landscape. This includes more than 500 acres of hay fields leased out to local farmers and cut in early summer and fall. Park staff regularly maintain (mow) 20 acres of fields on the battlefield.

Lookout Mountain. Mixed hardwood forests cover most of the Lookout Mountain unit of Chickamauga and Chattanooga National Military Park. Species composition in these wooded areas varies depending on soil type, elevation, aspect, and geology, and includes several species of oaks, maples, grasses, sedges, lichens, and mosses.

Missionary Ridge. Because the park units on Missionary Ridge are small, fragmented, and embedded in a residential neighborhood, few natural plant assemblages exist. Native trees and shrubs include black cherry (*Prunus serotina*), willow oak (*Quercus phellos*), and red mulberry (*Morus rubra*). Groundcover comprises non-native plants, such as Japanese honeysuckle (*Lonicera japonica*) and Chinese privet, and the native poison ivy (*Toxicodendron radicans*).

Non-native Chinese privet has invaded much of the park. It is difficult to control, and it is regularly reintroduced into the park because neighboring landowners plant the species in their landscapes.



NATIONAL PARK SERVICE

Japanese honeysuckle, an aggressive invasive non-native species, threatens the park's cultural landscape.



WOUTER HAGENS

Moccasin Bend. Two cultivated forest plantations exist at Moccasin Bend National Historic District. The first, a white pine plantation, has suffered mortality from disease and wind. Its canopy is primarily white pine (*Pinus strobus*), with lesser numbers of loblolly pine, tuliptree (*Liriodendron tulipifera*), and sweetgum (*Liquidambar styraciflua*). Non-native invasive plants are common here. The second cultivated forest is almost entirely dominated by Virginia pine (*Pinus virginiana*), with a sparse shrub layer. Non-native Japanese honeysuckle (*Lonicera japonica*) and Japanese stiltgrass (*Microstegium vimineum*) compose the meager herbaceous layer.

The forest community comprised largely of oaks and hickory is found where soils are sandy and well drained. A box elder (*Acer negundo*) floodplain forest exists on the historic floodplain of the Tennessee River at Moccasin Bend.

Canopy species are primarily box elder and sugarberry (*Celtis laevigata*).

Other areas are flooded on a regular basis at Moccasin Bend, allowing for the development of rich soils as water delivers nutrients via overflowing stream banks. Sycamore/silver maple forests are found in some floodplains in the archaeological district. These assemblages are dominated by silver maple (*Acer saccharinum*) and American sycamore (*Platanus occidentalis*), with a dense cover of spicebush (*Lindera benzoin*) dominating the shrub layer; non-native Chinese privet is also abundant.

VEGETATION MANAGEMENT—
COMPREHENSIVE PLAN NEEDED TO
ADDRESS RESOURCE PROTECTION

Historical accounts from the Civil War describe Chickamauga Battlefield primarily as woodlands interrupted by pastures, cultivated fields, and the home sites of 24 small farms. During the battle, heavy fighting damaged or destroyed much of the vegetation, and following the war, more land was cleared for farming, with cultivation continuing on present-day park lands until 1890. Today the park manages vegetation to replicate the historic conditions of 1863; thus, unlike most national military parks and battlefields, much of the park is kept forested. Parts of the park were reforested as early as 1901, when more than 1,000 trees and shrubs were planted primarily from seedlings grown in nurseries at the park. Again in 1905, 12,223 trees were planted, almost all of which were native species. Unfortunately, much of the forest restoration work was destroyed during Army occupation of the park, as described in the “Land Use History” section.

Various issues impact the health of ecosystems at Chickamauga and Chattanooga National Military Park and must be addressed in a comprehensive vegetation management plan. Following are challenges park staff face when managing vegetation:



The Park Service's Southeast Exotic Plant Management Team regularly visits the park to help control non-native plants.

Diseases and Non-Native Plants and Pests. Of the 966 plant species found at Chickamauga and Chattanooga today, 159 are non-native, and 23 of these species pose a severe or significant threat to native species in the park because of their ability to outcompete and displace native species. The most aggressive species are Japanese honeysuckle, Chinese privet, Japanese stiltgrass, kudzu, and English ivy (*Hedera helix*). In addition to displacing native species, these invasive plants also threaten to alter the cultural landscape of the Chickamauga Battlefield.

Chinese privet, an evergreen shrub intentionally introduced to the battlefield as a landscaping hedge, is pervasive in all parts of the park. Controlling this species is a challenge because it is not killed by fire, and a combination of deer browsing and cutting is not effective for suppressing this invasive species. In addition, surrounding landowners still use this shrub in landscaping, so it is regularly reintroduced to

the park. Park staff attempt to control privet by cutting it to ground level and applying an herbicide to the cut areas the following year. This process is repeated as necessary.

Invasive, non-native species in the meadow areas of the battlefield compete with native grasses for food, water, and space. Non-native species found in the grassland areas of the Chickamauga Battlefield include southern Johnsongrass (*Sorghum halepense*), dallisgrass (*Paspalum dilatatum*), crabgrass (*Digitaria sanguinalis*), and ox-eye daisy (*Leucanthemum vulgare*). The park has not yet begun targeting any of these species.

The park identifies and prioritizes areas that need to be treated for non-native plants and uses volunteer groups to assist with removal projects. The Park Service's Southeast Exotic Plant Management Team visits Chickamauga and Chattanooga National Military Park regularly to apply herbicide treatments to targeted species.

PARK PROTECTS CEDAR GLADES AT CHICKAMAUGA BATTLEFIELD

The term “cedar glades” applies to several different globally rare plant communities that occur on rocky, calcareous (chalky and containing calcium or limestone) soils in eastern North American woodlands. Cedar glades are found where limestone bedrock occurs at or near the ground’s surface. The weathering of limestone over time results in thin soils that do not support much tree growth, thus glades provide open areas in otherwise forested terrain.

Life is hard in the harsh cedar glade microenvironment. Sheets of water wash soil across the rocky ground and deposit it in sinkholes, making it unavailable to larger plant species. Drought kills saplings and shrubs around the limestone, allowing sun-loving glade plants to re-establish. Naturally caused fire plays an important role in the ecology of the glades by

preventing woody encroachment.

At one time glade communities accounted for 5 percent of the Central Basin of Middle Tennessee. It is estimated that less than half of the original glade habitat in the region survives intact, and most of what is remaining is ecologically compromised by non-native species encroachment, disturbance, and overbrowsing by herbivores.

Chickamauga and Chattanooga National Military Park includes examples of three different types of cedar glade communities. The Central Limestone Glade is the most globally rare plant community in the park and features exposed limestone and a few dwarfed trees and shrubs scattered throughout. Limestone Seep Glades at Chickamauga Battlefield are located in seepages, often where limestone is fractured. Southern Ridge and Valley Annual Grass Glades are characterized by shallow soils and groundcover dominated by annual grasses.

The cedar glades in the park represent the southeastern-most occurrence of this ecosystem type protected within the National Park System. A total of 23 glades occur on the Chickamauga Battlefield, harboring 24 plants listed as state (Georgia) species of concern, such as Tennessee gladecress (*Leavenworthia exigua*), flat-stemmed spikerush (*Eleocharis compressa*), and Gattinger prairie clover (*Dalea gattingeri*). Several of the threatened plants compose the only populations of these species found in Georgia. Threats to glades in and near Chickamauga and Chattanooga include invasion by non-native vegetation aided by fire suppression, deer browsing and trampling, timber harvesting, road building, and residential development.

Tennessee gladecress is one of the species of concern found in the park’s cedar glades and in cedar glades at Stones River National Battlefield, where this photograph was taken.



NATIONAL PARK SERVICE



Hemlock wooly adelgids are non-native insects that have infested trees near the park and are suspected to be present in hemlocks on Lookout Mountain. Combating the spread of these deadly insects is critical, but the park does not have funds to identify and treat the adelgid.

In addition to challenges posed by non-native plants, the park must contend with forest pests and diseases. An outbreak of southern pine beetles (*Dendroctonus frontalis*) in the early 2000s killed and weakened many pines within the park, especially at Chickamauga Battlefield and Moccasin Bend. Hemlock wooly adelgid (*Adelges tsugae*), a non-native insect species that has infested trees in areas near the park, is believed to be present in hemlocks on Lookout Mountain. This insect is capable of severely weakening and killing host plants, and the key to its management is early recognition and implementation of control strategies. Already, this insect is responsible for widespread hemlock mortality along parts of the Blue Ridge Parkway and in Shenandoah National Park. It has also harmed trees at Great Smoky Mountains National Park; combating its spread in Chickamauga and Chattanooga National Military Park is critical, but the park does not have funds to identify and treat the adelgid. The park is also dealing with cases of dogwood anthracnose (*Discula destructiva*), a fungal infection in flowering dogwood (*Cornus florida*) that

increases in severity during times of drought (recently experienced in the park).

Field Maintenance Procedures. Given the scattered nature of the park units, fragmentation is a significant challenge to park managers. Eighteen units—landscapes that lack natural corridor connections—must be considered holistically. Chickamauga Battlefield, the largest unit, is internally fragmented with at least two major roads (old Route 27 and Lafayette Road), a spider web of smaller roads, and several horse and foot trails. Most of the reservation units on Missionary Ridge are literally embedded in a residential setting. The Sherman Reservation is bordered by private homes. Both the Signal Point and Orchard Knob units are manicured lawn.

The park's current vegetation management strategy focuses on replicating historic conditions. In 1994 the park began a program to restore hay field and other field boundaries to their Civil War locations. Management activities include mowing fields to replicate the historic farmland conditions of 1863. The downside of

Mowing fields helps replicate the landscape witnessed by Civil War soldiers, but it can detrimentally affect ecosystems by removing habitat for small mammals and grassland birds. Altering the park's mowing practices could lead to increased species diversity.



KELLY COURKAMP

mowing is that it can have detrimental effects on ecosystems. Mowing areas associated with wetlands, for example, reduces habitat used by birds, amphibians, and reptiles. Grasses provide important shelter for small animals, especially in winter. Increasing mowing intervals and scheduling different fields for cutting at different times would allow for fields in different stages of more natural growth, a management strategy that would likely lead to increased species diversity overall. Researchers have also suggested that mowing be reduced at the field-forest edge, allowing for a more natural transition between the two communities by encouraging a scrub/shrub habitat at the edge. Natural edges increase biodiversity by increasing refuge and forage habitat for smaller vertebrates.

Fire Suppression. Fire has historically played a vital role in shaping vegetation in the area. Considerable evidence suggests American Indians used fire to modify their landscapes. For

the Chickamauga and Chattanooga area, it is estimated that American Indians probably set fires in the forest understories about every three years. For the past 150 years, all wildfires have been suppressed, resulting in forest canopies that have closed in on grasslands. Encroachment of woody species in the glades, which would normally be controlled by natural wildfires, is also a park concern. The lack of fire has also created a fuel complex that is likely difficult to ignite under natural conditions, were wildfires allowed to burn. Prescribed burning needs to be considered as a management strategy, though smoke dispersion is an anticipated problem of intentionally set fires.

Visitor Impacts. Off-trail hiking and rock climbing have damaged fragile rock ecosystems, especially at the Lookout Mountain unit. Mountain spleenwort (*Asplenium montanum*), a species that grows in the cracks and crevices of cliff faces, is absent from the popular climbing

routes, as the plant's habitat is one favored by climbers. Round-leaf catchfly (*Silene rotundifolia*), a plant that grows at the base of cliffs, is being trampled and crushed by climbers and their gear. Popular climbing routes are clearly visible due to the lack of lichens on the cliff faces.

WILDLIFE—OASIS OF GREEN HARBORS A MULTITUDE OF SPECIES

Embedded in a matrix of urban and suburban development, Chickamauga and Chattanooga National Military Park is the largest "green" open space in the region, providing refuge for a variety of animals. Inventories at Chickamauga and Chattanooga have documented 29 mammal, 175 bird, 36 amphibian and reptile, and 19 fish species. The park may harbor the federally listed endangered gray (*Myotis grisescens*) Indiana (*M. sodalis*) bats.

While some large carnivores do occur in the park—bobcats (*Lynx rufus*) are present and black bears (*Ursus americanus*) may travel through the Lookout Mountain unit—the most ubiquitous mammals seen at Chickamauga and Chattanooga are herbivorous white-tailed deer (*Odocoileus virginianus*). Although overpopulation of white-tailed deer is a management problem for much of the Eastern United States, deer overpopulation does not appear to be a problem for ecosystems at the park, as evidenced by the lack of an obvious deer browse line on vegetation. But adjacent suburban encroachment is reducing habitat outside park units, which may force more deer onto park lands in the future. According to managers, some poaching of deer does occur in the park. Staff estimate that five to ten deer are poached each year; additional law enforcement staff would help address this illegal activity. Additionally, approximately five to ten deer are killed each year by automobile collisions on park roads. Roads also act as a significant dispersal and recolonization barrier for many species, especially small mammals, reptiles, and amphibians.

Beaver activity alters water sources and vegetation at Chickamauga and Chattanooga, and undoubtedly beaver played a larger role in the historic 1863 ecosystem of the park than they do today. By pooling water, beaver dams create wetland habitats that increase numbers of certain bird species in the park. For example, a beaver dam located downstream in the Cave Spring drainage is directly responsible for a great blue heron (*Ardea herodias*) rookery there. Beaver activity is also credited with increasing the population of red-headed woodpeckers (*Melanerpes erythrocephalus*) in the park.

A bat survey conducted in the park in 2004 documented eight species, including the federally listed endangered gray bat. The West Chickamauga Creek riparian area is an important foraging and travel corridor for the gray bat, and several male bachelor colony caves have been located in the region. Protecting riparian

Beaver activity is credited with increasing the park's population of red-headed woodpeckers.



DAVE MENKE/USFWS

areas and maintaining high water-quality standards are important for bat conservation.

Bird-watchers are rewarded by a visit to Chickamauga and Chattanooga, where inventories have identified 175 species. Even so, raptors occurred less frequently than expected in field habitats, while northern harriers (*Circus cyaneus*) and short-eared owls (*Asio flammeus*) were absent altogether. Researchers have suggested that the park's mowing regime keeps grasses too short to support prey for these species. Species dependent on shrub/scrub habitat, such as the blue-winged warbler (*Vermivora pinus*), prairie warbler (*Dendroica discolor*), and field sparrow (*Spizella pusilla*), were scarce or absent on the survey as well, presumably due to lack of habitat.

A 2006 herpetofaunal survey documented 36 species of amphibians and reptiles in the park. Commonly seen species include American toad (*Bufo americanus*), eastern garter snake (*Thamnophis sirtalis*), and eastern box turtle (*Terrapene carolina*). Amphibian populations, because of their complex life cycles and permeable skin, are especially sensitive to environmental changes. Reptile populations, because they serve as top predators in the food chain, also signal alterations to the environment. Thus, amphibians and reptiles are exceptional indicators of environmental degradation and should be monitored in the park.

According records from the Cumberland Piedmont Network of the Park Service's Inventory and Monitoring Program, there are 19 fish species at Chickamauga and Chattanooga, a relatively low count. Five streams occur within the park—four intermittent streams at Chickamauga Battlefield (Black Branch, Jays Mill Creek, Glenn Viniard Creek, and Cave Spring) and one perennial stream (Skyuka Spring) at Lookout Mountain. The low count could be due to the low order and intermittent nature of the streams. There are no known concerns related to non-native fish populations in the park.

Cave inventories are needed to document species inhabiting the caves, determine how complicated the cave system below the park is, or and explore how the caves affect the hydrology of the park.

AIR AND WATER QUALITY—OZONE LEVELS THREATEN PLANT SPECIES

Air-quality monitoring is not conducted at Chickamauga and Chattanooga; the park relies on data gathered at external monitoring sites located in the surrounding region. Air quality in the region is monitored through the Clean Air Status and Trends Network (CASTNet) and through the Interagency Monitoring of Protected Visual Environments (IMPROVE) program, both of which are funded through the Environmental Protection Agency and other agencies. Pollutant deposition data from stations located 60 miles to the southwest show no clear overall trends; wet deposition of sulfate appears to have slightly decreased while nitrate and ammonium deposition have increased. A 2004 Park Service risk assessment of parks in the Cumberland Piedmont Network indicated that Chickamauga and Chattanooga may be exposed to ozone levels high enough to damage the leaves of sensitive plant species. The Cumberland Piedmont Network has plans to monitor leaf damage from ozone at the park.

Visitors can take advantage of a number of overlooks—such as the terraces in Point Park—to enjoy a panoramic view of the Tennessee River Valley below. However, air pollution from the Chattanooga metropolitan area contributes to haze that often reduces visibility at these overlooks. Data for the region note visibility as poor.

From November 2002 to September 2004, the Cumberland Piedmont Network conducted a water-quality inventory, as part of a long-term monitoring program. Sites sampled for the inventory included Cave Spring, Skyuka Spring, Jackson Spring, Rock Spring, and Gum Spring. West Chickamauga Creek and Lookout Creek, both along or just outside park boundaries,



were also sampled. Generally, water quality is good within the park. There is no evidence of nutrient loading in any park waters; nutrient levels were within expected ranges, except for higher than normal nitrate levels at Rock Spring, which are attributed to residential development directly above the spring. Fecal coliform levels at the park range from extremely low levels (Rock Spring), to low but slightly variable levels (Gum, Jackson, and Skyuka Springs), to highly variable levels (Cave Spring and Lookout and West Chickamauga Creeks). The three highly variable systems sometimes exceed the 200 colonies per 100 milliliter limit during the summer months, leading researchers to conclude that six of the seven water sources

sampled are in a degraded or potentially degraded condition.

In 1996, 70,000 gallons of fuel oil and kerosene accidentally spilled out of a pipeline a half mile from the Tennessee River on Lookout Mountain, seeping into underground caverns. The pipeline was operated by Colonial Pipeline Company, headquartered near Atlanta, a major pipeline network transporting gasoline and other fuels from Houston to New York. Only 2,000 gallons were recovered in the cleanup; the remaining oil is assumed to have been assimilated into the underground karst system. Little is known about this system as it relates to the park. Other data on soil conditions at Chickamauga and Chattanooga are unavailable.

According to data gathered from 2002 to 2004 as part of a long-term monitoring program, water quality is generally good within the park, though Cave Spring, Lookout Creek, and West Chickamauga Creek (shown here) sometimes exceed fecal coliform limits during summer months.



In 2007, an estimated 116,562 visitors received some type of interpretive program, such as a living history demonstration.

STEWARDSHIP CAPACITY

STAFFING AND FUNDING—MORE FUNDS AND STAFF NEEDED FOR PRESERVATION, INTERPRETATION, AND LAW ENFORCEMENT

The operational budget for Chickamauga and Chattanooga National Military Park was \$2.55 million in fiscal year 2007, an increase of \$43,000 from the previous year. While the park's budget has increased slightly each year, at least 50 unfunded projects totaling more than \$20 million have been identified, including cyclic maintenance of cultural landscapes and commemorative features. Several monuments

were vandalized (bronze plaques and artillery shells stolen) in 2007 and 2008 and require repairs estimated at \$30,000. However, maintenance of cultural landscapes and commemorative features in the park remains undone due to lack of staff and funding.

There are nine permanent positions vacant within the park affecting the administration, interpretation, law enforcement, and maintenance divisions. Current funding allows for only three or four of these positions to be filled. In addition to existing unfilled positions, the park requires further expertise in certain subject areas. A permanent archaeologist is necessary to oversee management and protection of

Moccasin Bend. Historic structures and monuments require a permanent preservation crew to address a backlog of repairs and to complete inspection, maintenance, and restoration in a timely fashion. More interpretive staff are needed at Chickamauga and Chattanooga, most urgently to service the Moccasin Bend unit of the park. The park would also greatly benefit from the addition of a cultural landscape architect to address deficiencies in the cultural landscapes program. Finally, for the past 20 years, the park has operated without a natural resources ranger or manager. To adequately protect natural systems—biotic and abiotic—this deficiency must be addressed.

PLANNING—NEW DOCUMENT WILL GUIDE THE FUTURE OF CHICKAMAUGA AND CHATTANOOGA

Chickamauga and Chattanooga National Military Park's general management plan, completed in 1987, was written to update and incorporate several previous plans and reports. The rerouting of U.S. Highway 27 to bypass the park and additions to the Chickamauga and Lookout Mountain visitor centers—projects that have been completed—were the main short-term goals discussed in the plan. When the general management plan was published, Moccasin Bend was not part of the park. Today, Moccasin Bend is part of the park, and management and public access there remains undetermined. These topics will be addressed in the park's new general management plan, which is under way.

The new general management plan will also examine all natural systems in the park, and with the benefit of the last 20 years of ecological research, will be better able to address issues of ecosystem health and protection.

The park's administrative history was completed in 1983 and outlines the history of Chickamauga and Chattanooga. The extensive document contains valuable information on the park's inception, management by different

agencies, use by the military, and changes over time to the surrounding area. It should be updated to reflect new administrative changes, such as the acquisition of Moccasin Bend to the park.

In 1994, the park completed a land protection plan to address adjacent land uses and their compatibility with the historic nature and image of the park. Today park staff feel that this plan is outdated and no longer correctly identifies opportunities or threats along park borders. Funds are needed to support an updated plan.

The 2004 fire management plan calls for suppression of all wildfires, and states that the park will not use prescribed burning as a management tool, citing Chattanooga air-quality issues. Mechanical methods are to be used to create firebreaks and defensible areas around park buildings.

The park's climbing management plan was written as part of a 2004 climbing management study that focused on rock climbing at Lookout Mountain. Because the study suggested that chalk used by climbers might be changing pH

The park's many historic buildings, monuments, and cannons require the services of a permanent preservation crew to address a backlog of repairs and to complete inspection, maintenance, and restoration in a timely fashion.



levels in crags and harming vegetation, some routes were closed. Park managers are also considering a user fee to reduce the number of climbers on the bluffs.

Additional plans are needed to address resource management issues at the park, including cultural landscape reports for Lookout Mountain, Missionary Ridge, and Moccasin Bend, as well as historic structure reports for Cravens House and the cabins/houses on the Chickamauga Battlefield. A vegetation management plan, which would address issues such as non-native species control, reforestation concerns in viewsheds, and mowing/field practices, is needed for managers and maintenance staff, for the protection of both natural and cultural resources. These reports remain unwritten due to funding and staffing shortfalls.

RESOURCE EDUCATION AND
OUTREACH—MORE STAFF, NEW
PROGRAMS NEEDED

At Chickamauga and Chattanooga National Military Park, interpretation focuses on Civil War themes, although new interpretation programs will eventually be developed to educate visitors of the significance of Moccasin Bend. Natural resource themes are not currently interpreted at the park and should be included in its educational program in the future, though there are currently no plans to do so.

In 2007, the park's four interpretive staff conducted 2,772 formal, on-site interpretive programs and 45 off-site programs. An estimated 116,562 visitors received some type of interpretive program, such as a living history demonstration. In the past ten years, the number of interpretive programs offered at Chickamauga and Chattanooga has remained steady; with new themes and area to cover at Moccasin Bend, staff levels and programs—and

Living history programs are a popular form of interpretation at the park. Additional interpretive staff are needed, particularly to serve the Moccasin Bend unit.



NATIONAL PARK SERVICE



Each spring, two local elementary schools participate in March for Parks—a three-mile walk that raises money for restoration of historic tablets at Chickamauga and Chattanooga.

associated funding—will have to be increased.

The park has two visitor centers, at the Chickamauga Battlefield and at Lookout Mountain, providing important and engaging information to the public. At the Chickamauga Battlefield Visitor Center, exhibits highlight the importance of resource stewardship; pieces of monuments that have been vandalized or damaged by wear are displayed. Other exhibits prepare visitors for their tours of the battlefield. One gallery features a timeline of the entire Civil War, highlighting the effects of the war on Chattanooga and eastern Tennessee. The themes of remembrance and commemoration are interpreted through exhibits that detail the establishment of the park and post-war reflection. The majority of exhibits at the Chickamauga Battlefield Visitor Center are up-to-date and in good condition.

In 2008 the Lookout Mountain Visitor

Center was renovated with new and improved exhibits. Additionally, a brand new visitor center is planned for the Moccasin Bend unit of the park in the next three to four years.

The park is involved in a number of outreach projects with the surrounding communities. Every April during National Park Week, two local elementary schools participate in “March for Parks”—a three-mile walk that raises money for restoration of historic tablets at Chickamauga and Chattanooga. The park also sponsors a Youth Public Land Corps with the Chattanooga-area YMCA. This program offers area young people opportunities to carry out needed repair and restoration projects in the park. Members of the Boy Scouts of America hike in the park. Special use permits at Chickamauga and Chattanooga allow for an annual marathon and an outdoor concert in the summer (see “External Support”).

In 2007, 623 individuals volunteered a total of 10,232 service hours to the park. Here they are building a fence using traditional methods.



NATIONAL PARK SERVICE

EXTERNAL SUPPORT—FRIENDS GROUP AND VOLUNTEERS PROVIDE ESSENTIAL SERVICES

Faced with limited funds and personnel, the park is fortunate to have dedicated volunteers and advocates working to meet management goals. Established in 1986, Friends of the Park is a nonprofit organization dedicated to providing support for Chickamauga and Chattanooga National Military Park. The group serves as an advocate for the park, promoting public care of its valuable resources and its protection from encroachment and misuse. Friends of the Park also acts as a community liaison group and coordinating agent for projects that promote and support the park and its founding ideals. Friends of the Park provides a permanent source of funds for worthy projects at the park. This extra support is extremely important because funds appropriated by Congress and the admin-

istration do not cover all expenses.

Examples of Friends of the Park projects at Chickamauga and Chattanooga are diverse. In 2005, with the help of external contributors, the group provided funding to upgrade the park's Junior Ranger enrichment program. The Junior Ranger program is available to all young visitors free of charge, and is part of a nationwide network of such programs designed to engage young people and encourage stewardship during national park visits. Friends' donation dollars have helped reopen the park to Memorial Day concerts, a popular area tradition. The Friends have also funded development of online educational materials for teachers and students.

The park also partners with the Friends of Moccasin Bend National Park to preserve, protect, and interpret resources at Moccasin Bend National Archeological District. The group

will be active in developing and operating a new visitor center to be built at the site. Since 2006, Friends of Moccasin Bend has organized a lecture series provided free to the public, featuring noted authors, former National Park Service staff, and other distinguished professionals.

Volunteers provide vital services to Chickamauga and Chattanooga, such as participating in living history demonstrations, assisting at information desks, or controlling non-native plants. In 2007, 623 individuals volunteered a total of 10,232 service hours to the park. Chickamauga and Chattanooga recently received funds that allowed the park to hire a volunteer coordinator to organize the many people interested in helping out at the park.

The park also benefits from the work of research collaborators at the University of Georgia who have studied the park's white-tailed deer.

In April 2008, Sen. Lamar Alexander (R-TN) and Rep. Zach Wamp (R-TN) joined the National Park Service, The Trust for Public Land, and more than 100 supporters at Point Park to celebrate the addition of 382 acres of historic battlefield to Chickamauga and Chattanooga National Military Park. The land, acquired from the CSX Railroad Company, is located in Lookout Valley west of Lookout Mountain. Federal funding for the acquisition was secured through the efforts of Sen. Alexander and Rep. Wamp. Assistance from The Trust for Public Land, a national private nonprofit conservation organization, was instrumental in the land acquisition and transfer process.

WHAT YOU CAN DO TO HELP:

- **Participate in park planning efforts.** The public is invited to provide input on all park plans and studies. Check individual park websites for information on park planning work and ways to participate.

Fort Donelson National Battlefield: www.nps.gov/fodo

Shiloh National Military Park: www.nps.gov/shil

Stones River National Battlefield: www.nps.gov/stri

Chickamauga and Chattanooga National Military Park:
www.nps.gov/chch

- **Support or become a member of a group helping to protect Tennessee's Civil War parks.** These groups include:

The Civil War Preservation Trust: www.civilwar.org

Eastern National: www.easternnational.org

Friends of Stones River: www.friendsofstonesriver.org

Friends of the Park (Chickamauga and Chattanooga National Military Park): www.chickchatt.org

Friends of Moccasin Bend National Park: www.moccasin-bendpark.org

Tennessee Civil War Preservation Association:
www.tcwpa.org

The Trust for Public Land: www.tpl.org

NPCA: www.npca.org/support_npca

- **Volunteer in the parks.** Many parks are looking for dedicated people who can lend a helping hand. To learn about opportunities for volunteering, contact respective park headquarters. Contact information is readily found on the park websites listed above.
- **Become an NPCA activist and learn about legislative initiatives and protection projects affecting parks.** When you join our activist network, you will receive Park Lines, a monthly electronic newsletter with the latest park news and ways you can help. Join by visiting www.npca.org/takeaction.