

Sustainability and Chimney Rock State Park Fall 2009



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Chimney Rock State Park, a natural scenic attraction located in the mountains 25 miles southeast of Asheville, North Carolina, has always embraced stewardship as part of its mission. Recycling was first adopted in the late 1990's when an environmental team was formed to primarily focus on recycling in the Park. By 2003, that team and the recycling efforts were abandoned because, while employees were being paid to work on the sorting of materials needed to engage in recycling, items were not necessarily recycled after they left the Park. A "Green Team" was established in 2006, not only to renew the focus on recycling, but also to promote stewardship and sustainable business practices throughout the Park.

There were many reasons for reintroducing the "green efforts" of the company. One was the recognition by the park associates of the need to conserve, recycle, and manage resources. Another reason was that the public has grown increasingly concerned with the environmental practices of places they visit. The Park's General Manager and Education Specialist were instrumental in the creation of the Green Team and continue to be involved in its activities. This brief overview offers background information about Chimney Rock State Park and its efforts to promote and apply sustainable practices with a special focus on combating invasive species and recycling at the park. A description of the Park's history reemphasizes why sustainability is so important to its operation.

Park History

Dr. Lucius Morse, a physician from Missouri who contracted tuberculosis and moved to western North Carolina for health reasons, first saw the view from Chimney Rock in the year 1900 and envisioned a place where natural beauty could be preserved and everyone could be

invited to enjoy panoramic views. Chimney Rock is the main attraction in the Lake Lure area and is a monolith of rock composed of Henderson Gneiss that sits above the rest of the region's cliffs like a chimney. It provides visitors with an extraordinary view of the land, river, and Lake Lure below; the more subtle attractions include abundant and varied plant and animal life. The Park boasts over 600 species of plants, some of which are rare, such as the Deerhair Bulrush usually found in the Canadian tundra rather than southeastern United States as well as trees that are 350 years old (Priestly, 2008).

Birdlife in Chimney Rock State Park has only been studied in recent years and many more species are expected to be added to the inventory in the future. To date, over 100 species of birds have been recorded, 40 of which have been confirmed breeding. The high cliffs on top of the steep, north-facing wooded slopes have an unusually cool climate considering the low altitude of the Park (1100-2800 ft.), making it attractive to several high-elevation species such as the Dark-eyed Junco and the Common Raven, both of which breed in the Park at a much lower elevation than anywhere else in North Carolina. Birds of prey are also an integral part of the area. The most exciting is a pair of Peregrine Falcons that has been present for several years. In 1990, this pair successfully fledged three chicks within the Park. According to ornithologist Simon Thompson, who compiled the original bird inventory and continues to update it, the Park is very rich in warbler species with at least seven species being easy to see and hear along the Hickory Nut Falls Trail (S. Thompson, S. July, 2009, ornithologist, Chimney Rock Management, LLC, personal communication, July, 2009).

In 1902, Dr. Morse and his brothers Hiram and Asahel, bought the first 64 acres which included the Chimney and Hickory Nut Falls (404 feet high) to create an attraction. People had been exploring the mountain for decades using rickety ladders and other structures on site. The Morse brothers' goal was to make the area accessible to everyone and therefore developed a series of more stable structures to provide visitor access. The brothers built a bridge across the river and a road to the top of the mountain, graded a parking lot, and added numerous other facilities. By the late 1940's, further improvements included the construction of an elevator and its access tunnel inside the mountain.

Special events were soon developed at the Park. From 1956 to 1995, Chimney Rock was the site of a sports car road race called the Chimney Rock Hillclimb. Even though the race became a tradition, a car race did not fit the Park's mission of conservation and education; therefore it was discontinued in 1995 (M. Jaeger-Gale, General Manager, Chimney Rock Management, LLC, personal communication, November 18, 2008). The views, outdoor recreation, and being close to nature are what bring most visitors to Chimney Rock. Hikers can enjoy several miles of hiking trails, birders can see rare species, and wildflower enthusiasts can enjoy an array of spring and fall blooms.

Additional facilities currently operated by the Park include a ticket plaza, two gift shops, and a deli-style eatery at the top of the mountain. At the foot of the mountain in Chimney Rock Village, is the Old Rock Café, operated by Chimney Rock Management, LLC, which overlooks the Rocky Broad River. The village provides visitors with dining and shopping options, as well

as access to the lovely Rocky Broad River via the Rocky Broad Riverwalk. The Park also offers environmental education programs for families, school groups, scouts, and summer camps.

In May of 2007, a new chapter for the Park began when the Morse family sold the property to the State of North Carolina to become a part of the North Carolina State Park system. The sale provided a mutually beneficial solution for the Morse family, the Park, the community, and the Park associates who had worked with the Morse family for so many years. Under the new arrangement, the Morse family legacy will be protected and the Park may continue to be shared with future generations. The former 1000-acre tourist attraction is now the focus of the still-developing and much larger Chimney Rock State Park (M. Jaeger-Gale, General Manager, CRM, LLC, personal communication, March 17, 2009). Chimney Rock Management, LLC, the company created by former employees of the Morse family, has the contract to operate the attraction portion of the Park for the State. This private-public partnership is a new concept for North Carolina State Parks.¹

Currently, Chimney Rock Management, LLC, employs 30 to 60 people depending on the season. These include a general manager, an education specialist, a controller, human resources and retail manager, trail building team, and several associates in guest services and maintenance. A team of five North Carolina State Park staff members, including a superintendent, two rangers, and maintenance and administrative personnel, operate the other 3000 plus acres.

As noted, a Green Team was established in 2006 due the efforts of the Park's General Manager, Mary Jaeger-Gale, and its Education Specialist, Emily Walker. Members of the Green Team come from all departments and include the General Manager, Education Specialist, and representatives from the trails, maintenance, retail, and restaurant sectors of the company. Membership on the team varies between five and seven associates. The purpose of the Green Team is to foster stewardship and sustainable practices in the Park. Efforts include implementing a successful recycling program, general waste reduction, education, wise water usage, utilization of energy efficient lighting, increasing the use of local foods in the Park's foodservice, along with the promotion of these sustainable practices with visitors and the residents of the local community. Employees of the company strive to make the Park a model for other North Carolina State Parks by encouraging sustainable practices and educating guests and residents about how they can make such practices part of their own lives.

Sustainability Challenges Facing the Park

Chimney Rock plans to recycle all of its plastic bottles, cardboard, office paper, and glass (used at the Old Rock Café), and to operate in a sustainable fashion so as to preserve the resources, operate an economically-viable business, and offer guests a high quality experience. While it is important that those operating the Park itself are involved in these endeavors, to fully actualize this goal, business people, residents, and guests of the adjacent towns of Chimney Rock

¹ The Morton family, owners of another North Carolina mountain icon, Grandfather Mountain, also recently sold land to the state (2008) and became a part of the State Park system although that agreement was somewhat different. The Morton family only sold conservation easements on the core attraction and retained ownership of the part of the mountain best known as a tourist attraction.

and Lake Lure will need to become partners in the effort. Access to facilities, parking limitations, capacity issues, invasive species, awareness, and current lack of involvement by some, are all challenges to be overcome.

Recycling

Chimney Rock State Park is in the extreme western portion of Rutherford County, far from a county recycling site, so transporting the recyclables to the closest county collection center has been an issue. The Park had not been able to find a commercial recycling hauler at an affordable fee and did not find it economical to use Park employees to transport collected recyclables. The recent partnership with the local garbage disposal service, which is discussed in a later section of this report, has helped the Park to find an affordable solution to its recycling challenges. In 2008, the North Carolina Alcohol Beverage Commission (ABC) began requiring the recycling of glass bottles by anyone possessing an ABC permit. While the Park does not serve alcohol except at the restaurant in the Village, the law helped to promote recycling efforts in the area. In October of 2009, North Carolina law will also ban rigid plastic bottles from landfills which will increase the need to continue efforts to develop a successful recycling program.

Traffic

Capacity and parking issues are under constant study and some solutions are being found. As visitor counts fluctuate the importance of both of these issues seems to vary. To be economically solvent the Park needs visitors, yet high levels of traffic in the village of Chimney Rock detract from a high-quality experience that should be focused on the natural surroundings and charm of a small village. Photos of Chimney Rock show that even today it looks much like it did in the 1950's, retaining its small tourist village charm (Priestley, 2008). However, gridlocked traffic does not offer that timeless small-town experience in the village nor will it allow visitors to the Park to enjoy the tranquility and majesty of the natural surroundings.

Invasive Species

Chimney Rock also suffers from the invasive species Kudzu (*Pueraria lobata*) and Princess Trees (*Paulownia tomentosa*). North Carolina State Park's Western Region Biologist, Marshall Ellis, suggests that Princess Trees and Kudzu were inadvertently transported to the Park with fill material when the parking lot, road, or other facilities were constructed. The combination of Kudzu and Princess Trees, according to Ellis, makes for an ecological "kiss-of-death" in areas of high biodiversity and abundant rare species, such as Chimney Rock (M. Ellis, North Carolina State Park's Western Region Biologist, personal communication, March 31, 2009).

Eventually, this combination could effectively kill off the all native trees and ground cover, so the entire Park will be completely transformed and dominated by only two species. A combination of Princess Tree and Kudzu currently covers some pretty expansive areas of the Park. This has led to concerns over the vitality of both common and rare native species at the Park, including Granite Dome Goldenrod (*Solidago simulans*) and Biltmore Sedge (*Carex biltmoreana*), both of which are listed as a Federal Species of Concern and have limited ranges in North Carolina. Although these and other cliff-dwelling rare species are locally abundant throughout the Park, there is no way that the populations on the slopes and cliffs above the parking area will survive the Kudzu continues to spread. The Kudzu and Princess Tree

combination also damages the natural aesthetic of the area, which presents another reason to eradicate both species from the Park. (M. Ellis, North Carolina State Park's Western Region Biologist).

Environmental Education and Community Engagement

Education for all stakeholders in sustainability is also a challenge for the Park's management team. Sustainability practices are not always obvious or economical. Education is needed to share the sustainability goals with all parties and this requires planning, personnel and other resources. Ways to educate stakeholders about the need for sustainability continue to be investigated. Several educational programs have been offered to local school children and other interested parties in the community. Others programs are in the planning stages with the hope to reach a broader audience and to engage all visitors as learners of these practices.

The Park does not exist in isolation. In fact, an integral part of its success depends on the local community. This is a unique opportunity for the Park although it is a challenge to figure out how to include business operators and citizens in the sustainability efforts promoted by the Park. Methods to incorporate these stakeholders continue to be explored by state parks personnel, invested conservancy groups, and Chimney Rock Management, LLC.

Elements of the Park's Sustainability Plan

Recycling

Current efforts to recycle have resulted in waste the Park sends to the landfill to be cut dramatically. In the 2008 season alone the Park recycled an estimated 1.5 tons of plastic and between 6 and 7 tons of cardboard and office paper. The Park's plastic bottle recycling program alone cut the amount of trash to the landfill by at least 30 percent in 2008. The staff at the Park is working with the adjacent villages of Chimney Rock and Lake Lure to promote recycling throughout the region. Access to recycling centers has been one of the biggest obstacles to overcome due to the Park's location being far from urban centers or major roads. To address this problem, the Village of Chimney Rock had made available a dumpster for aluminum cans and for community recycling and trash disposal, but the dumpster was often used inappropriately as a depository for home garbage instead of recyclables and the cans were subject to vandalism. Going into the future, the Village and Park will work more closely together to try to make sure that recycling happens properly throughout the area.

To encourage recycling behavior, receptacles will be placed in the Village to encourage visitors and townspeople to recycle their containers. There are only about half a dozen business owners in each of the communities so communication is relatively easy and there is buy-in throughout the region. At the present time, the Park's Education Specialist and General Manager are working with the Mayor of Chimney Rock, Chimney Rock Village Community Association, Lake Lure Town Manager, and Rutherford County's Solid Waste Environmental Education Panel to discuss participation, placement of receptacles, possible funding sources, and paper pick-up from the Chimney Rock Post Office.

The current recycling program in Chimney Rock Park involves the following:

1. All associates at Chimney Rock are expected to recycle;
2. Recycling bins are strategically located throughout the Park to encourage visitors to properly dispose of their recyclables
3. Dumpster for cardboard (20 yards) --with a rental cost of \$90 and a dumping cost of \$140 (six times a year for approximately six tons);
4. Dumpster for plastic (40 yards)-- with a rental cost of \$90 and a dumping cost of \$140 (two times for approximately two tons);
5. Paper container (96 gallons) --with a rental cost of \$30 and a currently unknown dumping cost
6. Dumpster for garbage (during the season—two dumpsters are used)—with a rental cost of \$330 and a dumping cost of \$140 each time—with two pick-ups per week during the summer.

Invasive Species

Several attempts to control the Kudzu and Princess Trees have been made over the years by Chimney Rock staff, but both species require tremendous diligence to eradicate. Unfortunately, much of what has been previously cut has resprouted and recovered its full vitality. However, there do not appear to be many new seedlings, so it appears that the population is more or less static. The North Carolina Department of Transportation sprayed the lower reaches of the Kudzu in 2008. In 2009, a new two-tiered approach was adopted. It appears that the Princess Tree allows the Kudzu to climb very aggressively so the current approach is that if the Princess Trees can be eliminated on the ground, then that will make the Kudzu much easier to treat. Consequently, the first step is to eliminate the Princess Trees and the next step is to spray the Kudzu once it greens up in the spring.

Princess Trees are being treated with several techniques, depending on their location. Trees that are well out of the way are either being cut or are girdled with a chainsaw and left to fall on their own. Trees that are in or near the parking area will be cut and then chipped. Regardless of the treatment, all of the trees are being treated on the cut surfaces with a chemical called *Garlon 4*. This is an oil-based herbicide that is specific to broad-leaved species such as Princess Tree and this treatment has shown excellent results in other parks. Princess Trees are large, robust trees, so it is difficult to know if all can be killed with a single treatment. Part of the plan is to hit them early in the growing season, when the trees are translocating resources from the roots to the leaves, which should leave them less able to respond to the herbicide since their nutritional reserves will be depleted. Regardless, all of the above-ground portions of the trees will be killed outright, which will permanently stop the flowering, fruiting, and seeding, leaving only stump sprouts to address.

The Kudzu will be sprayed with a chemical called Clopyralid, which is specific for species in the pea family (which includes Kudzu). The plan is to spray in the spring after the Princess Trees are cut and, depending on how the Kudzu in the park reacts, to spray again in the fall. Having all of the Princess Trees on the ground will make the Kudzu much easier to treat since it will require much less of the herbicide and alleviate concerns about spray drift. Kudzu eradication will be a multi-year project, but the first phase is to get it out of the Princess Trees

and on the ground so that it is easier to treat. Marshall Ellis, North Carolina State Park's Western Region Biologist, hopes that many of the Princess Trees will be killed completely so that they will not re-sprout, and any re-sprouted trees will be retreated as they occur. The Kudzu should show significant stress and die-off after treatment. The Park staff anticipates that if the Kudzu is reduced, then year-by-year the native plant species that are already growing adjacent to the area will reestablish and take the site back over (M. Ellis, North Carolina State Park's Western Region Biologist, personal communication, March 31, 2009).

Additional Sustainable Practices

1. The use of local foods in the restaurant is being emphasized even more, aided by the manager of the Old Rock Café. The group is presently working with the Appalachian Sustainable Agriculture Project to make connections with local farmers;
2. A "green" purchasing initiative is underway throughout the Park with the goal being to reduce waste. At this time, the managers are replacing food service items with earth-friendly products. Currently they are using compostable cups, flatware, and to-go boxes made from recycled materials;
3. Both the Old Rock Café and the small deli located at the top of the mountain have stopped using individually- packaged condiments for customers that dine in those establishments;
4. Styrofoam has been almost completely eliminated from the food and beverage department and now take- out orders come in boxes made from recycled materials;
5. A lighting replacement project is underway to replace old incandescent bulbs with LED or compact fluorescent bulbs when replacements are needed;
6. A lighting and heating conservation project is also in operation. Staff members are attempting to ensure that all lights are out when they leave buildings and that the heat is turned down in rooms and buildings when they are not in use. Timers are being used in places such as restrooms to help with this effort;
7. The Park is working to eliminate the Woolly Adelgid from hemlock trees. They also contract with Landmark Landscapes, a landscaping company that strives to use native plants in its landscaping and implements organic practices;
8. Careful use of energy and resources is becoming a common practice in the Park. Attention is now paid to the miles driven in Park vehicles and employees are more likely to ride together to save gas and reduce emissions.
9. New educational programs are constantly being written and delivered giving people knowledge to take home with them. Through August of 2009, over 1,500 students had already attended the Park's outdoor and environmental education programs. Grady's Animal Discovery Den, a small building with native reptiles and small, non-releasable mammals, offers additional environmental educational opportunities;
10. A monthly e-newsletter sent to the company's entire database details the progress being made at the Park to go "green." Each newsletter will also have a column "Growing Green" to help keep guests aware of on-going efforts;
11. The staff has also started to use Green Seal certified glass cleaner and hand soap with hopes of expanding its use of more eco-friendly cleaners in the near future;

12. All of the flood lights that illuminate the iconic tunnel which leads to the elevator have been replaced with compact fluorescent bulbs, saving an estimated \$55 per month;
13. Rain barrels have been placed on two of the Park's buildings to capture water for landscaping as well as use in environmental education programs;

Relevance to the Traveler and the Travel Industry

Recycling was the initial aim of the Green Team; however, its mission has grown beyond that to focus on a more global concern for stewardship and sustainability. Chimney Rock Management, LLC, in conjunction with the North Carolina State Parks system, is working to be a responsible partner in sustainability and hopes to lead others by example, taking responsibility for its operations, working with its local community stakeholders, and teaching its visitors best practices.

These sustainable efforts provide visitors with live examples of green practices in action. Travel decisions are now often centered on green practices. Market research indicates that customers desire or demand "green" products and services and therefore, "going green" is an intelligent and necessary business strategy.

One of the major goals of Chimney Rock is environmental education and the efforts of the Green Team provide visitors with visible signs of the team's philosophy in action. Every organization can develop such a team. Developing a dialogue about being "green" and sustainability is the first step. While talking is only the beginning, without discussion, the organization of a team with management support and then implementation of green practices and other sustainability efforts are not likely to happen.

Once a team is formed, taking small steps towards becoming green can offer an organization a way to celebrate small successes and move forward incrementally towards changing the way business is conducted and the way visitors experience a venue, including a tourist attraction. Chimney Rock Management, L.L.C. and the North Carolina State Parks system have a mutual responsibility to educate the public about these efforts. Projects underway at the Park show by example how visitors can put sustainable practices to work on a daily basis.

References

Priestley, K. (2008). *Chimney Rock: More Than You Imagined*. Greensboro, NC: Our State Custom Publishing.