

case study

Environmental Sustainability Rewards and Challenges: The Case of Chimney Rock

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Introduction

Chimney Rock State Park is a natural scenic attraction located in the mountains 25 miles southeast of Asheville, North Carolina (NC). The views, outdoor recreation, and being close to nature are what bring most visitors to Chimney Rock (see Figure 1). 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. Chimney Rock has always embraced stewardship as part of its mission. Recycling was first adopted in the late 1990s when an environmental team was formed to focus primarily 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." One was the recognition by park associates of the need to conserve, recycle, and manage resources. Another reason was that the public has grown increasingly concerned about the environmental practices of places they visit (Huang, & Liu, 2017; Wurzinger & Johansson, 2006). 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.

In September of 2013, the park was granted NC Green Travel certification for its environmentally sound practices. Chimney Rock Management L.L.C., which operates the Chimney Rock attraction within the larger state park through a concession contract with the NC State Parks, attained its NC Green Travel designation by providing public recycling containers, using locally-sourced food products in the park's restaurant, decreasing water usage, putting in more energy-efficient lighting and appliances, eradicating invasive plants, and expanding public environmental educational activities (NC Department of Environmental Quality, 2018). According to Lewis Ledford, the former Director of the NC Division of Parks and Recreation, "Staff at Chimney Rock Management, L.L.C. and Chimney Rock State Park, as a whole, have made great strides in recent years when it comes to environmental sustainability" (Chimney Rock at Chimney Rock, n.d.a.).

This case offers background information about Chimney Rock State Park and its efforts to promote and apply sustainable practices with a special focus on waste reduction, recycling, and the reduction of invasive species at the park. A brief definition of triple bottom line sustainability and stakeholder theory are provided and a description of the park's history reemphasizes why sustainability is so important to its operation. In addition, challenges that still face the park are introduced.

Background

Sustainability

The sustainable development process takes into account natural ecology and the social values of local residents and global populations, current and prospective, and is often seen as a journey rather than a destination (Harrison, 2001). Sustainability itself has been defined by the triple bottom line of economic, ecological, and socio-cultural measures, sometimes referred to as people, profit, and planet in terms of the performance measures of an organization (Elkington, 1994; Slaper & Hall, 2011). Through the triple bottom line, an organization can see how it is performing in relation to economic, ecological, and socio-cultural measures and attempt to balance the three components of sustainability (Slaper & Hall, 2011).

Stakeholders

Stakeholders are seen as those parties with an interest in the management practices and outcomes involved in an entity (Freeman, 1984), and sustainable tourism can be viewed from the stakeholder approach (Freeman, 1984) and theory (Byrd, 2007; Freeman, 1994; Freeman, Wicks, & Parmar, 2004; Hurrell & Kingsberg, 1992; Reed, 1997; Vigor & Healy, 2002). The main principle of the stakeholder approach and theory, which started in the business realm with respect to the management of companies, is that the interests of all parties involved should be attended to with regard to the management of resources (Freeman, 1984). In relation to sustainable tourism, those parties consist of the present visitors, future visitors, present host community, and future host community (Byrd, 2007). To successfully manage, maintain, and enhance sustainable tourism, all stakeholders need to function together in a supportive way. Not surprisingly, the interests of the various concerned parties often compete with one other and thus, further issues may develop based on the diverse priorities and interests of the participating parties (Lawrence, Wickins, & Phillips, 1997).

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Figure 1

Chimney Rock



(Source: Chimney Rock at Chimney Rock State Park (n.d.).)

Natural areas, including parks, can attract many visitors and the sustainability practices of these parks and other natural areas can be improved by encouraging environmentally responsible practices among the stakeholders (Ballantyne, Packer & Hughes, 2009; Halpenny, 2010). Therefore, the future of these areas, including the park at Chimney Rock, relies on the interactions between the visitors, other stakeholders, and the natural areas (Lee, 2011; Ramkissoon, Weiler, & Smith, 2012; Raymond, Brown, & Robinson, 2011; Scannell & Gifford, 2010).

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 at Chimney Rock State Park (n.d.b.). Along with beautiful vistas, 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 the southeastern United States, as well as trees that are 350 years old (Priestly, 2008). In addition, over 100 species of birds have been recorded, 40 of which have been confirmed as breeding in the area. According to ornithologist Simon Thompson, who compiled the original bird inventory and continues to update it, the park is very rich in warbler species and at least seven species are easy to see and hear along the Hickory Nut Falls Trail (S. Thompson, ornithologist, Chimney Rock Management, L.L.C., personal communication).

In 1902, Dr. Morse and his brothers Hiram and Asahel bought the first 64 acres, which included the Chimney Rock 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, they 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 1940s, further improvements included the construction of an elevator and its access tunnel inside the mountain (Chimney Rock at Chimney Rock State Park (n.d.c.). 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 Hill Climb. 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, former General Manager, Chimney Rock Management, L.L.C., personal communication).

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 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 many years. The former 1000-acre tourist attraction is now the focus of the still developing and much larger Chimney Rock State Park. In addition to the purchase of the Morse family's land in 2007, the North Carolina Division of Parks and Recreation procured more than 5800 acres in the Hickory Nut Gorge for Chimney Rock State Park. A master plan for Chimney Rock State Park was created in July of 2011 by Greenways, Inc. (NC Department of Environment and Natural Resources Division of Parks and Recreation, 2011) that acts as a road map for development of recreational features and services. Subsequently, in December of 2011, the NC Council of State approved the purchase of an additional 1,222 acres

at Rumbling Bald Mountain that expanded Chimney Rock State Park by more than 20 percent. The purchase maintains a pre-arranged schedule of the expansion of the state park that was funded using dedicated sources approved by the NC General Assembly in 2007.

Chimney Rock Management, 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 was a new concept for the North Carolina State Parks when it began in 2007. The area formerly known as Chimney Rock Park is the major attraction of the larger Chimney Rock State Park and is presently one of two areas open to the public. The Chimney Rock section is an admission-based area because of its significant maintenance and capacity issues. Rumbling Bald Climbing Access, the second area open to the public, has free access. 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, 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 groups from summer camps.

Currently, Chimney Rock Management employs 30 to 60 people, depending on the season, to operate and manage the park. These positions include an upper management team consisting of a general manager, operations manager, education manager, controller, human resources manager, retail manager, and the teams that support them. A team of eight fulltime North Carolina State Park staff members, including a superintendent, four rangers, and maintenance and administrative personnel, manage the other acreage included in the state park.

As noted, a Green Team was established in 2006 due the efforts of the park's former General Manager, Mary Jaeger-Gale (she retired at the end of 2018), and then Education Specialist (currently the Group Sales and Education Manager), Emily Walker. Members of the Green Team come from all departments throughout the park. Membership on the team varies between seven and nine associates. The purpose of the Green Team is to foster stewardship and sustainable practices within the park. Efforts include implementing a successful recycling program, general waste reduction, and education programs; reducing water usage; using energy efficient lighting; increasing the use of local foods, and decreasing invasive plant species, along with the promotion of these sustainable practices to visitors and 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.

Elements of the Park's Environmental Sustainability Plan

As mentioned, the sustainability efforts of the park have helped the park to earn the NC Green Travel certification. In terms of waste reduction, in 2013 the park recycled 23,060 pounds of paper and cardboard and 13,720 pounds of comingled items consisting of aluminum, plastic, and glass (Chimney Rock, n.d.a.). To become more energy efficient, the park not only changed out its old incandescent light bulbs for LED or compact fluorescent lights (CFL), it also reduced the hours that the park is lighted and placed "no idling" signs in the parking areas to encourage the drivers of buses and cars to decrease the air pollution and save fuel (Chimney Rock, n.d.a.). To alleviate the invasive species problem, the park has implemented a landscape management plan, removed many invasive plants, and worked to protect native species (Chimney Rock, n.d.a.) Details about the park's sustainability plan regarding recycling, waste reduction, invasive species, and additional sustainable practices such as energy efficiency are described in the following paragraphs.

Recycling

Recycling efforts have resulted in a dramatic decline in the waste being sent to the landfill. In the 2017 season alone the Park recycled an estimated 9.5 tons of paper products, primarily cardboard, and 3.75 tons of comingled plastic, aluminum, and glass. The Park's plastic bottle recycling program alone reduced the amount of trash sent to the landfill by at least 30 percent in its first year. The staff at the park worked with the adjacent municipalities of Chimney Rock and Lake Lure to promote recycling throughout the area and implement public recycling opportunities. Originally, access to recycling centers was one of the biggest obstacles to overcome due to the park's location far from urban centers or major roads. To address this problem, the village of Chimney Rock had made a dumpster available 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. The local municipalities plan to find haulers that pick up recyclable items at businesses and homes, making it much easier to engage in recycling efforts. However, costs still prohibit certain business owners from participating in the program, as residential property owners have it included in their city taxes and therefore, have a higher rate of involvement.

To encourage recycling, receptacles were placed in the village to encourage visitors and residents to recycle. There are only a dozen or so business owners in the community and thus, communication is relatively easy and there is buy-in throughout the area. Some of Chimney Rock Management's staff worked closely with the local government entities to discuss participation, appropriate receptacles and their placement, possible funding sources, and other hurdles that have faced the community.

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

1. All associates at Chimney Rock are expected to recycle both in their offices and out in the park.
2. Recycling bins are strategically located throughout the park to encourage visitors to properly dispose of their recyclable items, including trail maps.
3. A cardboard and paper dumpster is used that holds 8 cubic yards of materials; items in the dumpster are picked up once a week at a cost of \$80 per week for hauling and an annual rental fee of \$80.
4. A comingled (aluminum, tin, plastic and glass) dumpster is used that holds 8 cubic yards of material is; items in the dumpster are picked up once a week at a cost of \$80 per week for hauling and an annual rental fee of \$80.
5. Four dumpsters that can hold 8 cubic yards for garbage are used at a rental cost of \$80 a year per dumpster and a weekly hauling and dumping fee of \$80 a week per dumpster.

Waste Reduction

Chimney Rock Management strives to reduce the amount of waste created by the company. However, one major issue has always been food waste. Due to the set-up of the restaurant, post-consumer composting is not possible at this time, but in 2012 Chimney Rock began pre-consumer food waste composting, which greatly reduces waste that comes directly from the kitchen. The compost created, in part by the kitchen waste, is then used throughout the park in landscape beds.

The company has also taken great strides to reduce water waste, including both rain water and well water, in the park. Rain water is collected at suitable buildings to be used later for landscaping efforts. The public restrooms have gone back to manual on/off faucets on all sinks to prevent the water waste that was created by the automatic faucets running non-stop.

One last hurdle regarding waste involved how to deal with the plastic bags that were used to pack purchases in the gift shops and to-go orders in the Old Rock Café. Plastic bags were by far the most cost-effective, but the environmental impact was negative. In 2017, the company set the goal of not using plastic bags in any cash outlet by the end of 2018. The gift shops already give reusable souvenir bags to guests who spend over \$75. For all other purchases, guests now receive paper or compostable bags instead of those made of plastic. The restaurant is still working to find a suitable, cost-effective replacement bag that is strong enough to hold food.

Invasive Species

The park has been plagued by several invasive plant species that crowd out native plants. These include Kudzu and the Princess Tree that were brought to the United States (U.S.) from Asia in the 1800s as ornamental plants; plus, Kudzu was imported to control erosion (U.S.

Department of Agriculture, n.d.). Several attempts to regulate these invasive plants have been made over the years by Chimney Rock staff, but both species require tremendous diligence to eradicate. A two-tiered approach has been used recently. It appears that the Princess Tree allows the Kudzu to climb very aggressively so if the Princess Trees can be eliminated on the ground, then it is much easier to eliminate the Kudzu. 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. The Park staff anticipates that once these invasive species are reduced, then year-by-year the native plant species that are already growing adjacent to the area will reestablish themselves and take the site back over (M. Ellis, North Carolina State Park's Western Region Biologist, personal communication).

Additional Sustainable Practices

The company engages in several additional sustainable practices. These include the following:

1. The use of local foods in the restaurant is being emphasized even more, aided by the manager of the Old Rock Café. Local foods will also be used, when possible, in the Sky Lounge Deli.
2. A "green" purchasing initiative has been implemented throughout the park in food service areas. More eco-friendly products have been put into use for cups, plates, utensils, etc.
3. Both the Old Rock Café and the delicatessen have stopped using individually- packaged condiments for customers that dine in those establishments.
4. Styrofoam has been completely eliminated from the food and beverage department and now take-out orders come in boxes made from recycled materials.
5. Chimney Rock Management continues to replace old incandescent bulbs with LED or CFL bulbs.
6. A lighting and heating conservation program has also been implemented. All buildings are set to 72 degrees in the summer and 68 degrees during the winter.
7. Chimney Rock Management continues to support NC State Park and local conservation groups with regard to invasive species treatment and eradication.
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 to reduce the carbon footprint.
9. New educational programs are constantly being developed and delivered, giving people knowledge to take home with them. For example, in 2017, over 15,000 people attended programs taught by Chimney Rock Management staff.
10. A quarterly e-newsletter is sent to the company's database and it often includes updates on new practices within the park.
11. Guest Services staff members continue to order Green Seal

certified, or comparable, cleaners for use throughout the park.

12. In 2018, the company installed portable water fountains at the public restrooms to reduce the need for people to purchase bottled water and encourage guests to reuse water bottles.

The Dilemma: Environmental 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 as 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 and Lake Lure will need to become partners in the effort. Access to facilities, parking limitations, capacity issues, invasive species, lack of 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. A recent partnership with the local garbage disposal service 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 banned rigid plastic bottles from landfills, which increases 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. Typically, the park receives over 200,000 visitors annually, but visitor counts fluctuate so the importance of both of these issues varies. 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 195'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 an abundance of invasive species of plants. These include Kudzu (*Pueraria lobata*) and Princess Trees (*Paulownia tomentosa*). The North Carolina State Parks' Western Region Biologist, Marshall Ellis, has suggested that Princess Trees and Kudzu were inadvertently transported to the park with fill material when the parking lot, road, and other facilities were constructed. (M. Ellis, North Carolina State Park's Western Region Biologist, personal communication). Eventually, this combination could effectively kill off all of the native trees and ground cover, so the entire park will be completely transformed and dominated by only two non-native species. This situation also damages the natural aesthetic of the area, which presents another reason for eradicating both species from the park (M. Ellis, North Carolina State Park's Western Region Biologist).

Environmental Education and Community Engagement

Education about sustainability for all stakeholders is also a challenge for the park's management team. Plus, 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. Additional programs are in the planning stages, with the goals of reaching a broader audience and engaging 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 further involve these stakeholders in the sustainability efforts continue to be explored by State Park personnel, invested conservancy groups, and Chimney Rock Management staff.

Relevance to the Tourist and the Tourism 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, L.L.C., 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 to engage in best practices.

These efforts toward environmental sustainability 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

(Chafe, 2005; Kim, Lee, & Fairhurst, A. 2017).

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 toward becoming green can offer an organization a way to celebrate small successes and move forward incrementally toward 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.

Discussion Questions

- What are the major sustainability initiatives and projects taking place at Chimney Rock?
- What are the major challenges to sustainability practices at Chimney Rock?
- Who are the stakeholders with regard to sustainability efforts at the park and how can they work together?
- Is there any additional information that you would like to have to better understand the sustainability activities at the park and, if so, what further information would be helpful and why?
- What additional steps could Chimney Rock take to increase recycling practices in the park?
- What steps have other attractions taken to alleviate traffic problems and what kinds of additional steps could Chimney Rock take to decrease traffic issues in the park?
- What suggestions do you have for Chimney Rock in terms of furthering its environmental education efforts? For example, what types of programs do you think would be useful and for whom and how could these be presented/delivered to various groups?
- What additional steps could Chimney Rock take to increase sustainability practices with regard to the three spheres of sustainability (people, planet, profit) in the park related to visitor behaviors and marketing efforts?
- How and why are sustainable practices relevant for the hospitality and tourism industry?
- How do the sustainability practices compare to those of other parks and natural attractions?
- Is sustainable tourism really possible? Why or why not?

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