



Jocassee Journal

Information and News about the Jocassee Gorges

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Jocassee Gorges ecosystem classification project continues

By Scott R. Abella and Victor B. Shelburne
Clemson University

Interrelationships among plants, animals, and their environment are keys to the function and organization of natural ecosystems. Because of its large size, Jocassee Gorges is a unique forum for broad-scale ecological interrelationships and ecosystem processes.

We have been researching the interrelationships and ecosystem diversity of late-successional forests of Jocassee Gorges for the past two years in an ongoing ecosystem classification project. Results from the first two years of this project have provided the first detailed documentation of the soil and geomorphic characteristics of Jocassee Gorges, and is the first study to relate the distribution of plant communities to environmental gradients in this portion of South Carolina.

We studied the ecosystems of Jocassee Gorges by sampling the vegetation, topography, and soils on 48 plots distributed throughout Jocassee Gorges. We then grouped plots having similar ecological characteristics into ecosystem types using statistical programs by examining relationships among the vegetation and environmental components of the plots. Our research identified five different major ecosystem types in Jocassee Gorges: xeric oak/blueberry, xeric chestnut oak/mountain laurel, submesic oak/mixed flora, mesic hardwoods/bloodroot, and mesic hemlock/rhododendron ecosystems.

The distribution of ecosystems was patterned and closely followed gradients in topography and soils. This



Dr. Vic Shelburne (left) and Scott Abella work on the Jocassee Gorges ecosystem classification project, which will help land managers and scientists make future decisions about the property. (DNR photo by Greg Lucas)

patterned distribution of ecosystems allowed us to develop methods to predict and explain why different ecosystems occur where they do on the Jocassee Gorges landscape. There are logical reasons, such as differences in soil thickness, that explain why different parts of Jocassee Gorges support different ecosystems.

We presented the results of the first two years of this ecosystem project to DNR, and will continue work on the project to provide scientifically accurate ecological information that is critical for making informed, ecologically based management decisions for Jocassee Gorges. There is much more work to be done, and the first two years of this project have provided a solid knowledge base from which to make management decisions and to conduct future research.

(Editor's note: Scott Abella completed his M.S. degree in forest

resources at Clemson University and is now a doctoral student in applied forest and restoration ecology at Northern Arizona University. Vic Shelburne is an Associate Professor of Forest Resources at Clemson University and has advised several Clemson graduate students undertaking ecosystem classification projects in South and North Carolina. Clemson M.S. student Julia Camp is using the ecosystem framework developed by this project to examine the avian diversity of Jocassee Gorges, and Clemson doctoral student Forbes Boyle will work on mapping the ecosystems and classifying the early successional forests of Jocassee Gorges.)



The Jocassee Gorges forest management plan will focus on resource conservation first. (Photo by Tommy Wyche. Reprinted with permission from "Mosaic: 21 Special Places in the Carolinas.")

Jocassee forest management plan targeted for completion by fall 2003

A forest management plan is being prepared for the state's 32,000-acre Jim Timmerman Natural Resources Area at Jocassee Gorges, and officials say the plan is targeted for completion by fall 2003.

The S.C. Department of Natural Resources (DNR) started the forest planning process for Jocassee Gorges in fall 2001. A general plan for the property was prepared in 1998 by Dan Rankin, DNR district fisheries biologist based in Clemson, with input from the other biologists on the DNR management team, and it called for eventual development of a more specific forest management plan. The S.C. Natural Resources Board-approved plan described many conceptual uses of the property and also itemized hundreds of public comments about how the land could be managed.

Mark W. Hall, DNR forest planner, will coordinate and create the forest management plan. He consults with the Jocassee Gorges Management Team composed of DNR biologists Rankin, Mary Bunch and Sam Stokes Sr.. Those senior biologists offer a wide array of expertise and meet with Hall periodically to review plan segments. A cooperative working group made up of professionals from Clemson University and the DNR also contributes valuable information.

The Jocassee Gorges forest management plan will focus on the DNR's essential character statement (see DNR Web Site at www.dnr.state.sc.us), which defines the reasons the property was protected.

"The forest plan will focus on resource conservation

first, and the needs of people - in that order," Hall said. "The role of forest management on Jocassee is to support the needs of animals and plants with special needs, and any revenue generated will be incidental to carefully planned habitat management. It is expected that active forest management will occur on a small portion of the entire property."

An ad hoc committee of citizens is important to the Jocassee Gorges planning process, according to Hall. The committee helping to guide DNR on the forest plan is diverse and offers a good cross-section of the entities dedicated to the conservation of Jocassee. The Wilderness Society, S.C. Sportsmen's Coalition, Sierra Club, Trout Unlimited, S.C. Forest Watch, Pickens Soil and Water Conservation District, S.C. Native Plant Society, local interests and neighboring landowners are represented in the planning group. The group meets quarterly to review progress on the forest plan and discuss management issues.

"The committee is an excellent mechanism to keep people informed and to monitor the pulse of what the public wishes for the area," Hall said. "Divergent opinions about the property exist, and the discussion of issues allows DNR to find some middle ground among the different interests."

Hall is a Certified Wildlife Biologist and is registered to practice forestry in South Carolina and North Carolina. He is a veteran natural resource planner with hundreds of management plans to his credit.

Building the Palmetto Trail in Jocassee Gorges is both a dream and challenge

By Tom Savage
Palmetto Conservation Foundation

A trail builder's daydream: Spectacular mountain vistas, miles and miles of open country, meandering brooks and rushing waterfalls.

A trail builder's challenge: Steep gullies, exposed rock faces, delicate flowers and problematic water crossings. Where else but the Jocassee Gorges could one find both aspects of trail building? And what better project to connect both than the Palmetto Trail? Over two years have passed since the first tentative explorations into the heart of the Jocassee Gorges tract resulted in a rough proposal to connect Table Rock State Park and Keowee-Toxaway State Natural Area with a backcountry trail.

But dedicated trail crews are finally on the ground and working to build the first section of the Jocassee Gorges Passage of the Palmetto Trail, between Table Rock State Park and US 178.

Once completed, the Jocassee Gorges Passage of the Palmetto Trail will offer a southern route through Jocassee Gorges, while the Foothills Trail traverses the northern border.

The Palmetto Trail is South Carolina's Mountains to the Sea Trail. Once complete, it will run for more than 425 miles from the mountains to Awendaw on the coast just north of Charleston. More than half of the trail is already complete, and major sections are currently in progress in Spartanburg and north of Lake Marion. The trail is being built in a series of smaller, interconnected "passages"—one of which will become the trail in Jocassee Gorges, estimated to be about 33 miles.

Two years of planning and cooperation between the Palmetto Conservation Foundation (a statewide non-profit members' group that is building the trail), S.C. Department of Natural Resources and S.C. Department of Parks, Recreation and Tourism helped forge a route through the Jocassee Gorges.

"The Jocassee Gorges Passage may eventually prove to be the most popular segment on the entire Palmetto Trail," said S.C. House Speaker David Wilkins, who sits on the Palmetto Conservation Foundation board of trustees. "We still have an extraordinary amount of work to do, but the raw promise of the land is so inspiring. This passage will become a destination unto itself." The Jocassee Gorges Passage will eventually offer opportunities for overnight camping, long-distance



Hikers along the Jocassee Gorges Passage of the Palmetto Trail will be able to walk over creek crossings built with native materials such as rock and locust trees when the trail is completed. (Photo courtesy of Palmetto Conservation Foundation)

mountain bike treks and waterfall viewing. It will pass impressive boulder fields, climb steep mountains and amble along rushing creeks. Some sections of the Jocassee Gorges Passage will allow hiking and mountain biking, while others will offer only hiking.

The DNR required archaeological and botanical assessments of the proposed trail route in early 2002 that helped better define the corridor and allowed researchers to learn more about the natural and cultural history of the Jocassee area.

Crews began building trail in Table Rock State Park in the spring of 2002, but have recently pressed into the boundary of the Jocassee Gorges. At present, a professional trail crew hired by the Palmetto Conservation Foundation is doing most of the heavy lifting, although teams of AmeriCorps National Civilian Community Corps and American Hiking Society "volunteer vacation" crews are providing much-needed manpower.

Visit www.palmettoconservation.org to learn more about the Palmetto Trail or to become a member of the Palmetto Conservation Foundation.

(Tom Savage is the conservation planner for the Palmetto Conservation Foundation.)

Duke Power's involvement in Jocassee stretches back to 1913

By Tommy Wyche

(Editor's note: This is the second installment from Tommy Wyche's new book, "Mosaic: 21 Special Places in the Carolinas," published in 2002 by Westcliffe Publishers. In the last installment, New York capitalists formed the Appalachian Lumber Company to harvest timber in the Jocassee Gorges area. Thirty-eight pages of photos and text in the book are devoted to Jocassee Gorges. Text and photos reprinted with permission. To order the book, call Westcliffe Publishers at 1-800-523-3692.)

It didn't take long for the New Yorkers to learn about the basic religious nature of Southerners. At first, the Appalachian Lumber Company conducted its logging operations every day of the week in spite of the local custom to observe the Sabbath as a day of rest. One particular Sunday, an engine broke down, and the problems they met to restore it to service were so severe that the Company never again operated on Sundays.

Appalachian Lumber Company went bankrupt in June 1929 due, in part, to a torrential rainstorm that washed out many of the train trestles. Logging in the remote mountain areas came to an abrupt halt. Today, as you walk along the abandoned railroad beds, you frequently come upon rails, sometimes partly buried, sometimes partly spanning a creek here the rail is bent like a pretzel from the force of the rain-swollen stream. And, you can't help but be amazed at the engineering and construction feats of excavation, achieving a constant grade, building the trestles over deep ravines, and bringing in the rails themselves, all in extremely remote and mountainous terrain.

Many years after the rail logging operations were abandoned, the rails were salvaged, hauled out of the mountains, and sold for scrap. During World War II, George Bowie Jr., who grew up here, was serving as a soldier in the military occupation of a Japanese island and came upon a piece of rail which had "Pickens Railroad" molded on its side!

Duke Power Company's involvement in the area began in 1913 when Duke realized the hydroelectric potential of Lower Whitewater Falls. It purchased 400 acres along this stretch of the Whitewater River and made additional purchases over the decades until the Company had acquired some 65,000 acres in the area. Duke's subsidiary, Crest Land & Timber Corporation, as it was then known, took over management of the non-utility portion of these lands. Crescent produced forest products and also implemented reforestation; it set aside the first "natural area" for preservation and registered the lands into South Carolina's and North Carolina's Wildlife Management Area programs to provide public access for hunting and fishing.

In 1966 Duke began construction of Oconee Nuclear Station (2,600 megawatts), one of the most successful



The abundant forest resources of the Jocassee Gorges region have attracted the attention of a number of forest products companies since the early 1900s. (Reprinted from "Mosaic: 21 Special Places in the Carolinas," copyright 2002, by permission of Westcliffe Publishers Inc., Englewood, Colo., and Tommy Wyche, the photographer.)

nuclear energy plants in the nation. This required damming the Keowee River to create the 18,000-acre Lake Keowee. Above this lake, Duke developed a second lake, Lake Jocassee, to serve the 610-megawatt Jocassee Pumped Storage Hydro Station. The 1,200-megawatt Bad Creek Pumped Storage Station was completed at the upper end of Lake Jocassee in 1991. These are among the largest pumped storage operations in the country. Together, Jocassee and Bad Creek have the capacity to generate at any one time more than 1.8 million kilowatts! To put the magnitude of these facilities in some perspective, Duke's original hydroelectric plant, built in 1905, produced 6,600 kilowatts.

Duke's Internal Land Use Planning Committee continued to help shape not only Duke's business strategies, but its conservation programs as well. The Committee and Duke recognized the importance of the Jocassee Gorges and their unique physical and wildlife resources. The Company concluded that the lands were so outstanding and important that it would be appropriate to give the conservation community—both state and federal agencies—the first opportunity to acquire the property.

This decision was received with great excitement

throughout the region in both South Carolina and North Carolina. Even though there was broad support for the project, the acquisition of these lands was complicated and took several years to conclude. The purchase of the South Carolina lands would not have been possible without the very generous financial support of the Richard K. Mellon Foundation working closely with The Conservation Fund. Duke's generosity in selling the property at substantially less than its true value was also a critical factor.

Jim Timmerman Natural Resources Area

The Jim Timmerman Natural Resources Area (at Jocassee Gorges), managed by South Carolina's Department of Natural Resources, is one of the largest single properties held by a state agency in South Carolina. With 32,000 acres of forests, clear streams, waterfalls, and abundant wildlife, the property borders a considerable shoreline of Lake Jocassee. The tract, located in Pickens and Oconee counties, contains some of the highest mountain peaks and ridges in the state, with elevations rising to more than 3,000 feet, as well as some of the most forested and remote mountain coves.

Brown and rainbow trout thrive in the tract's streams, springtime wildflowers bloom in abundance, and rare ferns, lichens and mosses grow here. The endemic Oconee Bell is found along the lake's shoreline and within the property. Stands of mature forests provide habitat for songbirds, and the area contains the healthiest black bear population in the southern Appalachian Mountains.

There are many ways to enjoy this wonderland. You may launch your boat to explore Lake Jocassee at Devils Fork State Park. Several beautiful waterfalls—Laurel Fork and Mills Creek, for example—drop straight into the lake. You can beach your boat near the Foothills Trail Bridge that spans the Horsepasture River or at the suspension bridge over the Toxaway River. From these landings and at other designated locations, you can access the eighty-mile Foothills Trail built in 1980; Duke built approximately half of the trail which traverses much of the Gorges and can provide days of true wilderness hiking and camping.

The Horsepasture, Thompson, and other rivers, may be reached by boat or from the trail, and they are a fisherman's dream where brown and rainbow trout abound. The lucky angler may even catch a native brook trout. Deeper in the interior, beautiful waterfalls tumble into nearly every stream, and in many places the rugged ravines offer challenges for those who want to tread where no one else has dared to go. For biologists, Jocassee Gorges sustains a remarkable wildlife habitat, one of the most remarkable ecosystems in the United States. The high average rainfall, averaging ninety inches per year, and the high elevations and shaded ravines contribute to a complex assemblage of flora that includes plants from tropical and boreal types.

The Jim Timmerman Natural Resources Area is named for Dr. Jim Timmerman, retired Director of the South Carolina Department of Natural Resources, in recognition of his vital role in initiating and successfully pursuing the partnership with Duke Power and Crescent Resources Inc. that resulted in the successful acquisition of this large part of Jocassee Gorges for the State of South Carolina.

The State Department of Natural Resources manages the area. Call the Clemson office (864) 654-1671 for further information about the preserve. The preserve is on the west side of US 178. Travel north on US 178; 10 miles from SC 11, cross the bridge over Eastatoee Creek, and turn immediately left onto an unpaved road; continue to the parking area. Another way to reach the area is through the Duke Power Bad Creek Facility off SC 130, 10 miles north of SC 11. Boating access is from Devils Fork State Park.

(Next installment: Tommy Wyche describes Devils Fork State Park, Keowee-Toxaway State Natural Area, Eastatoee Creek and Laurel Fork heritage preserves, Howard Creek and Tater Hill areas in Sumter National Forest, and Gorges State Park and Toxaway Game Land in North Carolina.)



The Tater Hill Forestry and Wildlife Demonstration Area shows how it is possible to both harvest timber and create early successional growth that will benefit wildlife. (DNR photo by Mike Creel)

Tater hill project reads like a forestry-wildlife textbook

By Mike Creel
South Carolina DNR

A visit to the Tater Hill demonstration project on SC 130 northwest of Salem in Oconee County is like walking into a virtual forestry and wildlife management textbook where words, the good earth, greenery and critters meet you at arm's length, all to say something is working here.

Signs stating "linear wildlife strips," "shrub-tree planting," "wildlife opening," and other management practices appear as captions under real-life illustrations on the 275-acre Tater Hill project as a visitor travels the main trail. Examining the growth and blooms on young crabapples and rabbiteye blueberries you can see the benefits of this permanent orchard. The results of clearing parallel strips along woodland access roads become evident, as you eye-witness how it allows more sunlight to reach the road bed, thereby providing for wildlife and keeping the road drier.

Dedicated in a ceremony for cooperators and the public at nearby Piedmont Tree Nursery, the Tater Hill Forest and Wildlife Enhancement Demonstration Area was initiated in December 1995 as an ongoing project to show the compatibility of wildlife and forest management. The project area—which is part of the state Wildlife Management Area public hunting lands—is open to the general public for self-guided tours. Educational signs are posted along the project's access road.

The innovative Tater Hill demonstrates how it is possible to both harvest timber and initiate practices that

can benefit wildlife. Wildlife openings are mowed, disced or burned to continuously provide nesting, brood-rearing and feeding sites. These openings were integrated with forest management techniques, such as clear-cutting, selection cutting, prescribed burning and reforestation, to create an environment which complements both wildlife and forestry.

The Tater Hill project has received two distinguished awards: The 1997 S.C. Wildlife Federation Forest Award and the S.C. Chapter of the National Wild Turkey Federation's 1997 Project of the Year Award.

Tater Hill project cooperators include the S.C. Department of Natural Resources; Duke Electric Transmission; Duke Power Pumped Storage; Crescent Resources; National Resources Conservation Service; Oconee County Soil and Water Conservation District; Oconee County Forest Landowners Association; S.C. Chapter of the National Wildlife Turkey Federation; S.C. Forestry Commission; and the USDA Forest Service.

"This project is the successful result of partnerships between the private and public sector," said Skip Still, wildlife biologist with the S.C. Department of Natural Resources in Clemson. "As government shrinks these partnerships will become even more important to the protection and enhancement of our natural resources."

(Mike Creel is the DNR News Section Chief.) 



The Shooting Tree Ridge forest management plan calls for thinning white pine plantations to diversify habitat for wildlife. (DNR photo by John Lucas)

Shooting Tree Ridge forest management plan completed

The Shooting Tree Ridge property contains 571 acres on the south-central side of the Jim Timmerman Natural Resources Area at Jocassee Gorges. It was purchased about a year after the initial purchase of the Jocassee lands with financial support from the Forest Legacy Program and the National Wild Turkey Federation. Other cooperators included Duke Energy, S.C. Forestry Commission and the U.S. Forest Service.


Most of the land supports loblolly or white pine plantations 10 to 25 years old. The Shooting Tree Ridge forest management plan calls for commercial or pre-commercial thinning in all pine plantations as soon as practical to diversify habitat, reduce fire hazard and Southern pine beetle threat. Small clearcuts would be limited to sites to control pine beetle-related losses or to restore hardwood or mixed pine-hardwood. Two active pine beetle sites are present. Pines not native to the area will not be replanted. Minimal management will occur in hardwood areas or riparian zones. Soil protection, water quality and plant or animal species with special needs will guide management of the property. Fire will be used to diversify habitat and reduce fuel.

Management of Shooting Tree Ridge will support the traditional recreational uses of fishing, hiking, hunting and nature observation. About 10 percent of the area will be managed as open areas with either native

vegetation or non-invasives such as wheat or clover to provide habitat for a diversity of resident and migratory birds as well as other wildlife.

Primary access to Jocassee land will eventually be established through the property on the existing Shooting Tree Ridge Road. The present access road is on land not owned by DNR, and it crosses many streams, where maintenance costs are higher and environmental impacts could result.

South Carolina Department of Natural Resources biologist and forester Mark Hall prepared the Shooting Tree Ridge Forest Management Plan in cooperation with the Jocassee Gorges Management Team of Mary Bunch, Dan Rankin and Sam Stokes Sr. The S.C. Forestry Commission prepared the initial stand map, forest inventory and management considerations.

The plan was also presented to the Jocassee Gorges Forest Management Planning Committee, a diverse group with representatives from several conservation organizations. The final proposed plan was made available to the public in the Columbia and Clemson DNR offices and via the DNR Web site. The forest management plan was submitted to and approved by the S.C. Natural Resources Board during its August 2002 monthly meeting. 



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Devils Fork State Park offers backpacking, Oconee bells trips

Devils Fork State Park is offering two exciting trips in spring 2003. One of the trips is a three-day trek that will backpack deeply into the heart of Jocassee Gorges, and the other will showcase Jocassee's hallmark flowering plant species, the Oconee bell.

The "Oconee Bell Nature Walk," scheduled for Thursday, March 13, 2003, will take a close look at the early-blooming Oconee bell as participants walk a mile-long trail through the pre-spring forest. This walk is designed for ages 12 and older, and participants are advised to wear comfortable shoes. The fee for the walk is \$5 per participant, and registration is not required. Meet at Devils Fork State Park by 10 a.m.

The "Foothills Backpacking" trip is scheduled for May 2-4, 2003 (Friday-Sunday), and will take participants on the Foothills Trail across the rugged Jocassee Gorges. The two-night, three-day hike will start at Bad Creek Hydro Project and head east over the Whitewater, Thompson, Horsepasture and Toxaway river valley, ending at Laurel Fork Falls. While hiking, participants will learn about ecosystem preservation.

This is a moderate to strenuous 24-mile hike designed for ages 15 and older. An adult must accompany those 15 to 17 years old. Participants should bring food, water and all camping gear.



Oconee bells in all their glory can be seen during a March 13, 2003, hike at Devils Fork State Park. (DNR photo by John Lucas)

The fee for the Foothills Backpacking trip is \$30 per person. Participants should register by April 26, 2003, and will meet at Devils Fork State Park store by 10 a.m. on Friday, May 2, 2003, returning on Sunday, May 4, 2003, by 3 p.m.

For more information or to register for either of these trips, call Devils Fork State Park at (864) 944-2639 or write Devils Fork State Park, 161 Holcombe Circle, Salem, SC 29676 or send an e-mail to devils_fork_sp@scprt.com.