

# SC Teachers' Tour: Teaching Sustainable Forestry in Environmental Education

June 14<sup>th</sup> to 16<sup>th</sup>, 2006

Environmental Education Advanced Workshop  
Harbison State Forest, Columbia, SC

## Day 1 – “A look at Forestry – Past, Present and Future”

One of the most enjoyable and rewarding parts of the S.C. Teachers' Tour is the introductory 3-day Advanced Environmental Education Workshop that teachers have the option of taking to enhance their knowledge and teaching skills. Those teachers taking the Tour for graduate credit or 45 certificate renewal credits (CRC's) gathered at Harbison State Forest in Columbia to learn how they can enhance their curriculum using environmental education materials such as Project Learning Tree (PLT). Although only 9 miles from downtown Columbia, this 2176 acre forest is the largest “greenspace” east of the Mississippi river that is within an incorporated city limits. Over the past several years, Harbison has become a recreation and education “Meca” for those seeking to escape the busy city life and learn more about forestry and the environment.



Teachers gather in front of the Environmental Education Center at Harbison State Forest for instruction on how to measure trees.

After a brief welcome by Bob Schowalter, State Forester for the S.C. Forestry Commission and an introduction to the Teachers' Tour by Jerry Shrum, Environmental Education Coordinator for the Forestry Commission, the educators quickly began learning how to use the materials they were given and the background information needed to teach about sustainable forestry. Beginning with a history lesson on forestry, the class watched and discussed the “*Southern Forests, Southern Heritage*” video and the books “*American Forests*” and “*Forest Sustainability – The History, the Challenge, the Promise*” (The Forest History Society, 2002). Project Learning Tree (PLT) activities such as “We All Need Trees” and “A Few of My Favorite Things” gave the teachers practice in lessons they could use to teach about our need for forest products, renewable versus non-renewable natural resources, and the values we put on natural resource management.

After lunch, Tim Adams discussed “Future forest trends in S.C. The afternoon was spent learning about tree physiology, using the PLT activities “Tree Cookies”, “Every Tree for

Itself” and “Tree Factory”. To end what was a great day of learning and fun, Guy Sabin, Environmental Forester with the S.C. Forestry Commission discussed Best Management Practices in forestry. Each teacher got a copy of his presentation to use in their classrooms. Before retreating to their hotel rooms, the teachers enjoyed a wonderful meal on the back deck of the Environmental Center. After all, food is an important part of our renewable resources!



Teachers learn about how to conduct activities and become a “Tree Factory”.

## Day 2 – “More Fun, Food, and Education”

Day 2 began with more fun activities teachers could use in their classrooms with additional materials and guest speakers. Secondary teachers were introduced to the PLT secondary modules “Focus on *Forest Issues*” and “Focus on *Forest Ecology*” in a separate workshop, while elementary teachers practiced lessons in how students can “Adopt a Tree”, write poetry from trees in the PLT activity “Poet-trees”, and a look at “Trees As Habitats” for wildlife and other species.

After lunch, teachers were treated to an entertaining yet educational presentation of “What is a forester” by Jimmy Walters, Piedmont Urban Forester for the S.C. Forestry Commission. Jimmy later presented several PLT activities on “How Big Is Your Tree”, incorporating math and forestry into the classroom.





Jimmy Walters instructs teachers on how to use a Biltmore stick.

Daryl Jones of the SC Forestry Commission gave an interesting discussion on endangered species of South Carolina and especially addressed the red-cockaded woodpecker, an endangered species of the long leaf pine ecosystem. At the end of the second day of the workshop, the teachers were given a walking tour of Harbison State Forest's "Learning Trail" and "Discovery Trail", examining how to construct interpretative nature trails, vernal ponds, butterfly gardens, and outdoor classrooms and signage along the trails. One of the major objectives of the workshop is to expose teachers to outdoor lessons and give the teachers ideas and resources that they can incorporate into their own curriculum and schools. Once trained in Project Learning Tree the teachers can apply for PLT's "Greenworks" service learning grants. The walk ended at the gazebo, where Dean Carson (retired S.C. Forestry Commission employee), with the help of the local Society of American Forester's chapter had prepared a cookout for the hungry and thirsty crowd.



Indoors and out-of-doors is used in educational activities.

### **Day 3 – “The Natural Role of Fire” in Forest Ecology**

Day three was dedicated to a single topic – FIRE! The teachers viewed the video “*The Two Sides of Fire*” that they received and discussed the natural role that fire has played

throughout the history of the Southern pine forest. Ken Cabe with the S.C. Forestry Commission then addressed the history of wildfire in South Carolina and the science behind wildfires. Forestry technicians were waiting nearby with their dozers and equipment to demonstrate how the Commission attacks wildfires. There are approximately 5000 to 6000 wildfires in South Carolina each year and our land and forests have been shaped by fire for thousands of years. The Southern pine forest is a fire dependent forest ecosystem, with many species of plants and animals (some endangered) dependent on frequent fires in the forestlands of the state.



Wildland firefighters demonstrate firefighting techniques and equipment.

The final lesson came with teachers being trained on the PLT “Burning Issues” interactive CD for their classes. Using this technology in the classroom, students can explore four different fire dependent ecosystems in the United States. In the Southern pine forest, students learn about the longleaf pine ecosystem, the fauna and flora of this ecosystem, and how to conduct prescribed fires. This is a great tool for teaching students the many aspects of prescribed fires, from meteorology to topography, students get to choose the parameters related to making decisions about using prescribed fire. Once chosen, the CD will then simulate an actual prescribed fire and give the results. If the wrong data is chosen, the students have the opportunity to go back and try again until the correct results are given. This is a great technological tool for the classroom. Each teacher was given a classroom set of the CD’s to use in their computer labs at school.

June 20<sup>th</sup> to 23<sup>rd</sup>, 2006  
**The “LOWCOUNTRY” Forestry Tour**  
**St. George, SC**

**Day 4 – “All Onboard the Magic School Bus”**

After a long weekend, the 25 teachers were joined by others on the Tour of the Lowcountry. For the next four days the teachers boarded a bus to tour forests, forest

products manufacturing facilities, nurseries and wildlife refuges. On Tuesday afternoon, Joe Young, President of Low Country Forest Products in Georgetown and Crad Jaynes, President of the Timber Producers Association gave a brief introduction into the business aspects of processing wood products, logging and other topics of turning timber into finished products. Bob Scott, President of the S.C. Forestry Association, gave an interesting discussion of forestry in South Carolina, especially the global economic aspects of forestry and it's impact on the local family landowner . The teachers then boarded a bus for our first excursion of the week, a visit to the Brosnian Forest, operated by Norfolk Southern Railroad. This visit to their forestlands was conducted during a summer prescribed fire, which was perfect follow-up to our learning about the use of controlled fire the following week. The Brosnian Forest is also the location of some of the best managed longleaf pine ecosystem and the largest colony of red-cockaded woodpeckers on private land in the nation. A good Bar-B-Q followed.



Joe Young and Bob Scott open the event with a discussion of forestry in South Carolina.



Summer burn in a longleaf pine ecosystem in the Brosnian Forest



Josh Raglin, forester for the Brosnian Forest, explains management techniques of the longleaf pine ecosystem (pictured on right)

## Day 5 – “Growing Trees, From the seed Up”

What a fantastic day this would turn out to be! Our group boarded the bus and took the first of a long day’s journey to the Francis Marion National Forest, where they were met by John Dupree, USDA-Forest Service forester. We visited several sites where John demonstrated the difficulty of restoring a lost ecosystem (longleaf pines) that is fire dependent, after a natural disaster (hurricane Hugo), in an area that is quickly being encroached by urban housing. An impossible task to say the least!



John Dupree of USDA Forest Service leads our group on a bus and walking tour of the Francis Marion National Forest to examine how urbanization has affected forest management decisions.

The next adventure would take us to a harvesting operation in the Francis Marion National Forest, where the forest was being thinned after being replanted from damage from hurricane Hugo. Joe Young and Crad Jaynes did a great job of explaining what their objective was in this operation, and the machinery and techniques used to make this thinning harvest. Trees were being harvested, chipped, and removed from the site in a manner that was both environmentally friendly and promoted a healthier forest. Joe

allowed the teachers to get up-close and personal with the machinery. And what could be better than a lunch out in the woods under a tent canopy and tree canopy.



Teachers visit a thinning operation with Joe Young in the Francis Marion National Forest

Our next adventure took us to Georgetown and a visit to International Paper's Georgetown's Paper mill. After an interesting talk about the history and significance of the mill to the town of Georgetown, the teachers were treated to a tour of the mill. The Georgetown paper mill generates its own electricity and sells the remainder of electricity generated from its waste to power the entire town. Now that is self sufficiency and community compatibility.

Now it was time to load the bus to head out for Santee Cooper's Sandy Beach area. This public land is managed in cooperation with the Department of Natural Resources for wildlife. After a brief bus tour it was on to the Francis Beidler Audubon Forest. This old growth cypress swamp with its long boardwalk was the ideal place to end the day and enjoy a supper straight from the lowcountry – a Lowcountry shrimp boil or frogmore stew.



Mike Dawson discusses management of Frances Beidler Audubon Forest.

## Day 6 – “The Wonders of Technology”

Thursday turned out to be a fascinating day for most all of the teachers. It was a day filled with technology, a good old fish fry, and visit to an industrial forest. Our first excursion was to Collum Lumber Products, where we did a walking tour of a modern day saw mill and a driving tour of a pole plant and post mill. Mickey Scott, President of Collum Lumber Products was one of our tour guides, where the teachers witnessed some of the most advanced use of computer and laser technology available. Logs go from the yard to finished products almost without passing through a single human hand. Lasers scan the logs after debarking and computers automatically turn the log to get the maximum amount of lumber from the log. Sawblades bend and turn with the curve of the log to get the maximum sustainable yield. Nothing is wasted, from the sawdust to the bark. Everything is utilized and resold or used to produce energy, either electricity or heat for the drying furnaces.



Teachers visit Collum Lumber Products



Our next visit was to Kronotex manufacturing, where again we witnessed some of the most modern computer generated automated manufacturing facility in the wood products industry. Kronotex manufactures laminated wood flooring for many labels. One of the main

discussions here was career development. Teachers are greatly concerned that they are properly preparing their students to work in modern facilities such as Kronotex. What better way to learn what it takes than to experience it and discuss the requirements with the people who do the hiring and firing.

Leaving the mills we next visited a working “Tree Farm”. Johney Haralson was our host as we visited his award winning Tree Farm. Always a great host, Johney had prepared a great meal and the teachers sat under the equipment shed feasting on a meal of grits, fried fish, fresh tomatoes and cucumbers among other things. After the meal we all piled into the wagon for an old fashioned “hay ride” around the farm. Mr. Haralson’s primary objective on his tree farm is game management; especially turkey, deer and quail. Using thinning techniques, herbicide applications, along with food plots and prescribed fire, it was evident that his management objectives were working as we spotted evidence of many turkey and deer along our hay ride.



Visiting Johney Haralson’s Tree Farm is always an enjoyable event. Grits and fried fish, talk about trees and wildlife, and ending with a hay ride.

The next stop would be a visit to an industry forest owned by Plum Creek. Industrial forests are sometimes managed more intensely than private or public forest because of the need to feed their mills. However, Plum Creek has no mills and simply is a forest based company growing timber. This allows more flexibility in their management objectives. What was so fascinating at this stop was that we were able to see 40 years of

management in one spot, from a recent clear-cut site prep to a 40 year old mixed pine-hardwood forest and all the phases in between.



Brian Fox of Plum Creek discusses management objectives for their forests

Finally it was back where we began, the Brosnian Forest for our sponsors reception and dinner. Here, the teachers, dressed in their new Teachers' Tour T-shirts, got to relax and mingle with many of the people who sponsored and worked so hard to make this Tour happen

### **Day 7 – Learning More About Sustainable Forestry**

One of the major accomplishments of the Sustainable Forestry Initiative is its reliance on and development of new technologies that help stretch the resource and make the wood products industry more efficient in using wood. On Friday morning, Dean Carson led a great discussion of new engineered wood products and discussed the process of creating jobs through value added products. Teachers passed around many of the new engineered wood products and even some future products that come from trees. Using every part of the tree and utilizing existing and new technology to grow, harvest, and manufacture products that we depend on to support our quality of life is a major goal of keeping our forests in South Carolina healthy, productive, and sustainable. This way future generations may also enjoy the social, economic and ecological benefits of this great natural resource.



Dean Carson talks about engineered wood products and special ways to add value to the natural resource and create jobs.

Afterwards, the teachers had a chance to evaluate the Tour, ask questions about anything they experienced, and describe any new perceptions about forestry that they had gained from their experience. Then it was time to depart for summer vacation and say good-bye to all our new found friends and memories. And what did they learn? It can be summed up from the video we saw at the end of the tour:

**“TREES ARE THE ANSWER!”**

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### Group Photo of the 2006 S.C. Teachers' Tour



## TEACHER COMMENTS

**Teachers were asked what new perceptions they have about forests, forestry, foresters, public lands, and the forest products industry. Here is what they said:**

*“ I enjoyed learning specific information about forestry before we went on the Tour. I found the information combined with and during the field visits particularly useful to aid me to completely understand this information. The forest industry is sustainable and renewable and ethical in their practices. Each forest is/should be managed for the specific criteria and goals of the owner.”*

- Gail Wilkinson, 3<sup>rd</sup> grade teacher at Oakwood-Windsor Elementary

*“I enjoyed actually going into the forests and industries that use timber as a renewable resource. The industry is actually protecting forests and they use every part of the tree that can be used for some type of product.”*

- Kim Kochany, 8<sup>th</sup> grade teacher at Epworth Children’s Home

*“ The course was very well organized, lots of opportunities to learn, now wasted time, and good and knowledgeable people who are in the industry. We are not actually depleting our forestlands!” Forest industry is very efficient at utilizing this natural resource.”*

- Carolyn Baird, High school teacher at D.W. Daniel High School, Central, SC

*“ Everything was great! The tour was well planned with expert speakers at each site. I was amazed by the sawmill we visited and the addition of technology to an age old process was fascinating. My new perception would be how each forest is managed for certain outcomes; state and federal management versus private and industrial, game management.”*

- Terry Holmes, High School teacher at Cherokee Technology Center in Gaffney, SC.

*“I enjoyed the first class speakers and information that was provided. I learned that forestry plays a big factor in jobs in South Carolina. Foresters have to be an outstanding business person.”*

- Bob Lail, High School teacher at Cherokee Technology Center in Gaffney, SC

*“ The visits to different sites and the variety of sites we visited. Nothing beats the reality of actually seeing what’s going on in the ‘real world’. My ideas have completely changed. I realize now that timber is the only renewable resource we have and that some of the forest’s greatest protectors are foresters!”*

- Kimette Witt, 9<sup>th</sup> grade teachers at Hartsville High School.

*“ I most enjoyed the lumber mill tour, as this related to my teaching area directly. I was fascinated at the computerization of the trade and manufacturing process, the mechanization of the industry, expenses and profit margins and efficiency of the industry.”*

-Mark Phillips, Adult education at Midlands Technical College, Walden Corrections.

*“You have reinforced my perceptions rather than give me new perceptions. Teaching environmental science has given me a good knowledge and background of the issues but I lacked the field and hands-on experience which adds so much to a classroom discussion.”*

- Michele Powell, High School teacher at Wando High School in Mt. Pleasant.

*“ The trips to the mills, woods working sites gave me first hand what is involved in the industry. This industry is or can be sustainable if managed properly.”*

- Reggie Titmas, High School Teacher from Greenville, SC

*“ I have an appreciation of the forestry supply chain from the landowner to harvester to manufacturer to consumer, and also the high quality industry attracted to S.C. due to the availability of timber. The people in the industry are professional and have a vision for the future. We clearly need to steer more young people into the profession. Overall, the level of openness and enthusiasm by all participants and presenters was tremendous. I have never participated in a professional development opportunity where so much effort was put into how teachers can relate what they have learned to their students.”*

- John Steinberger, 8<sup>th</sup> & 9<sup>th</sup> grade teacher at Palmetto Christian Academy.

*“I enjoyed seeing the logging equipment at work on the job sites. I learned a lot about the forestry practices and all my negative thoughts are all positive now.”*

- Tony Bettencourt, Adult educator for Palmetto Unified School District.

*“I understand now all the aspects, views, and sides of the story. I have gained invaluable knowledge as well as interest in forestry practices. The importance of educating our future leaders about these topics is crucial!”*

- Michele Avera, 4<sup>th</sup> grade teacher at First Baptist Church School

*“ I enjoyed talking to professionals from the entire range of the industry and seeing how little waste came off the lumber and paper mills. I now know that logging isn't bad, we will never run out of trees, and our forests are being managed by knowledgeable people.”*

- Stevie Shirey, High School teachers at Goose Creek High School.

*“ Forestry is good. The public does not know.”*

- Jeffery Mursier, 4<sup>th</sup> grade teachers in Columbia, SC

*“ The tour reinforced how very renewable trees are and helped me see how ‘trees really are the answer’. Forestry practices are goal driven, not merely good or bad techniques. I had always viewed the Georgetown paper mill negatively and was impressed how they generated their own power and reused the materials.”*

- Debbie Babb, High School teacher at Robert E Lee Academy in Bishopville, SC

*“ I have enjoyed this so much. PLT was one of the things I was most interested in and I had no idea the scope of the program was so large. I feel vastly more educated on our use of forests. I now understand the value of thinning and harvesting of the forests and the process of growing our forests. I now know forests are managed according to the use!”*

- Betsy Whitehouse, 4<sup>th</sup> grade teacher at Jackson School in Kershaw county.

*“ I really enjoyed meeting all the people in the forestry/timber industry. Their immense passion for sustaining the forests is inspiring. I have a new understanding and appreciation of the cycle and connection of the forests, industry, and people dependent upon our sustainable forests. I was unaware of the tremendous impact sustainable forests have on our S.C. economy. I was impressed by all the care and concern about endangered species and their protection.”*

- Cheryl Zanghi, 4<sup>th</sup> grade teachers at Summerville Catholic School.

*“I was amazed by the high tech tools used now in the forest products industry. I now know that effective forest management is essential for a healthy forest environment. Biodiversity, endangered species, and out trees depend upon Best Management Practices in order to survive and flourish.”*

- Susan DeBruhl, 5<sup>th</sup> grade teacher at Oakwood Windsor Elementary school.

*“ There is a very large industry dedicated to sustaining our forest through management practices. The industry is very proactive in protecting the environment.”*

- Bob Tiegs, 4<sup>th</sup> grade teachers at Forest Hills Elementary school in Colleton county.

*“ I enjoyed the ‘straight scoop’ from the industry professionals. I now understand more of the details rather than just a broad overview.”*

- Colette Reamer, high school teacher at Mid-Carolina High School in Prosperity, SC.

*“ It was neat to see the whole process from the trees in the forest to logging and harvesting into the products. I really didn’t understand why clear-cutting and prescribed burning was done but now I understand. I can really see the difference when forests aren’t managed and when they are. I understand now that forests are managed according to the goals the landowners want met.”*

- Nancy Boggs, Elementary teachers at AC Moore elementary school in Columbia.

## The 2006 S.C. Teachers' Tour Educators

Last Name	First Name	School	Grades Levels
Avera	Michele	First Baptist Church School	4th
Babb	Debbie	Robert E. Lee Academy	10-12
Baird	Carolyn	D.W. Daniel High School	9-12
Bettencourt	Tony	Palmetto Unified -SCDC	9-12
Boggs	Nancy	AC Moore Elementary	1 through 3
DeBruhl	Susan	Oakwood Windsor Elementary	5
Holmes	Terry	Cherokee Technology Center	10 - 12
Kochany	Kim	Barns Learning Center (Epworths Childrens Home)	8th
Lail	Bob	Cherokee Technology Center	10-12
Mursier	Jeffery	Horrell Hill Elementary School	4th
Phillips	T. Mark	Walden Correctional Institute	Adult Education
Powell	Michele	Wando High School	11 & 12
Reamer	Colette	Mid-Carolina High	9-12
Shirey	Stevie	Goose Creek High School	9th & 10th
Steinberger	John	Palmetto Christian Academy	8 & 9
Tiegs	Robert	Forest Hills Elementary	4th
Titmas	Reginald	Christ Chruch Episcopal School	9-12
Whitehouse	Betsy	Jackson School	4
Wilkinson	Gail	Oakwood Windsor Elementary	
Witt	Kimmette	Hartsville High School	9
Zanghi	Cheryl	Summerville Catholic School	4