

The Mountain is Our Home

A Special Issue of the Sewanee Herbarium *Plant Press*

Winter 2002

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Grundy County — a Special Place

Have you ever nibbled on elderberry bread? Brushed your teeth with a willow twig? Used pigments from wild plants to dye fabrics? Students in the environmental science class at Grundy County High School have enjoyed these experiences and more as they study the connections between this area's natural and cultural heritages.

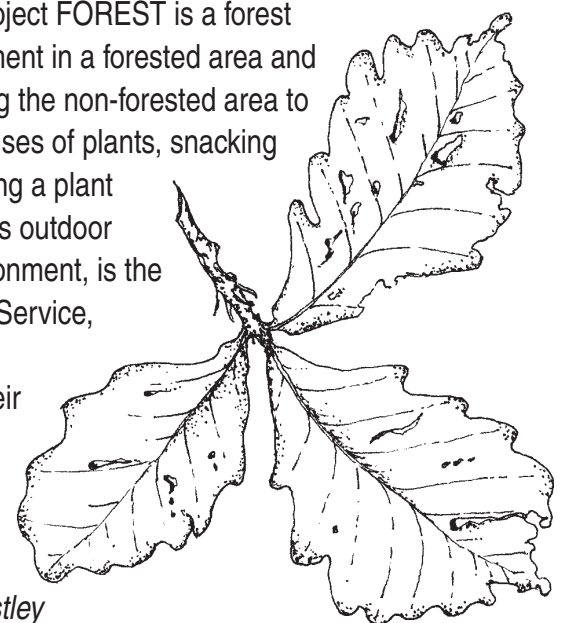
Under the leadership of GCHS teacher Wanda Bell, University of the South Landscape Analysis Lab Director Jon Evans, and Sewanee Herbarium curators Yolande Gottfried and Mary Priestley, the students have just completed a 10-week unit to explore some of the ways in which Grundy County is a special place. Located on the South Cumberland Plateau, Grundy County has long been known for its scenic beauty and wealth of natural resources. Once an important coal mining area, the county is now the location of the state's largest wilderness park, South Cumberland State Recreation Area.

This high school outreach program is part of Project FOREST, which is supported by a grant from the Howard Hughes Medical Institute to the Department of Biology at The University of the South. Project FOREST (Focus on Regional Ecology in Southeast Tennessee) includes educational programs at Tracy City and Sewanee Elementary Schools, as well as this one at GCHS.

The environmental science class has been engaged in a number of exercises to study the relationships between the people and the land here. As teacher Wanda Bell puts it, "We're getting students to be aware of the biological diversity of the area and trying to instill pride in where they live." One module of Project FOREST is a forest restoration exercise in which students study organisms and their environment in a forested area and on a nearby cleared area and consider what would be involved in restoring the non-forested area to forest. Other activities have included learning about traditional medicinal uses of plants, snacking on wild plants, hiking in the state park, gathering oral histories, and creating a plant collection that documents the trees, shrubs, and wildflowers in the school's outdoor classroom. The 16-acre outdoor classroom, an exceptional learning environment, is the result of a partnership between GCHS, the county Agricultural Extension Service, and others.

The experience of working with the environmental science class and their enthusiastic and devoted teacher has been a rewarding one for the team from The University of the South. This newsletter is the culmination of the students' efforts. Read on to see what they have learned about growing up in this beautiful corner of the world.

—Mary Priestley



The Sewanee Herbarium: Education — Research — Conservation

Edible Plants

The Environmental Science class at GCHS has been learning many things about our outdoor classroom and the native plants in it. Teachers from The University of the South have come to our school to teach us about native plants and how to use them. Some plants are very sweet, some are bitter. And some are poisonous. Some of the edible plants might surprise you—you can eat them like candy. They include . . .

Sumac — Grows at the edge of the woods. Little red berries at the top of the plant. Best time to pick is in the summer when the berries are ripe. You can make sumac tea with the ripe berries.

Elderberry — Grows on roadsides and edges of fields. Reddish-purple berries. Best time to eat is in the fall to early winter. Elderberry bread is good to make with the ripe berries.

Walnut — Grows on a tree. Green when unripe; turns black when ripe. Best time to eat them is fall to spring. Good in candy and pies.

Pokeweed — Grows in weedy-shady areas. Poisonous except in the early spring when the leaves are barely out of the ground. Only the young tender leaves are good to eat. They must be boiled several times before eating.

I hope you now have a different perspective on these plants I've told you about. You need to treat all of these plants in our beautiful county with respect so they will be here for many generations to come.

—*Felicia Cleek*

Using Plants for Dyes

We never thought that plants could be anything but hard to mow. We found out, though, that you can use them for dyes. We used five different types of native plants on a plant dye project: elderberries, goldenrod flowers, black walnuts, sumac berries, and pokeberries.

The steps we used were very simple. First you collect berries or plants. Then you place them in a Styrofoam cup. Pour a mixture of alum and hot water (be careful with the hot water) over your selection, and let set for 30 minutes. Then place two pieces of unbleached muslin rag in this dye bath. Let one piece set for 30 minutes and the other for 24 hours. Then look at the result to see which you like best.

The use of plants for dyes is unique. It gives you a better knowledge of the different species of plants. It also tells you one of the ways people in the past used plants.

—*Dustin Frisbee and Derek Rankin*



Drawing of elderberry by Derek Rankin

Mrs. Myers Visits GCHS

Mrs. Barbara Jean Mooney Myers visited our class to talk about herbs. She taught us that you can use mint leaves to flavor teas and foods. Rat's vein can be used for kidney infections, and a really sweet tea made from sassafras can reduce fever. You can make candy out of walnuts. Muscadines, a type of grape, can be dried like raisins or made into jelly. Catnip tea cures children's upset stomachs and really is good for treating cats.

Mrs. Myers helped us realize that plants are important, and you can use plants for different things. The most interesting thing about her visit was how you can use different plants for medicine and spices.

Walnut and sassafras trees, muscadine vines, and rat's vein are all part of the deciduous forest native to the Cumberland Plateau. The forest is important because back in the old days our ancestors wouldn't have been able to survive without it. It's good to know about uses of our forest plants because there might be a Great Depression someday, and we will have to rely on the forest for food and medicine.

—*Sheena Long and Laura Woodlee*

Useful Wild Plants on the South Cumberland Plateau

The Environmental Science class has used plants, such as elderberry and sumac, to make bread and tea. Because these plants are bitter they may need to be topped with sugar. Here are some of the recipes:

Elderberry Bread

2 cups self-rising flour, 1/2 cup wheat germ, 1/4 cup sugar, 1/4 cup cooking oil, 1 cup water, and 1/2 cup elderberries (no stems). Mix flour and wheat germ. Add other ingredients. Pour into greased pan and bake at 375° for 20-25 minutes or until it tests done.

Sumac Tea

All you need is to gather heads of ripe red-berried sumac and place them in a paper bag. When ready to use, remove the berries with fork. Cover them with cold water and let stand overnight. For fast brew, bring water just to a boil and turn off heat. Let stand 2 hours. Strain through cheesecloth and sweeten. (This can also be used for sore throat gargle.)

The Herbarium



at Grundy County High School

Our herbarium is a collection of mounted and identified plants that are from the Outdoor Classroom and the forest restoration area on campus. There are several different collection areas for plants surrounding GCHS. There are open field, forest, and swamp. Some plants may prefer to live in an area such as a swamp and can't survive in an open field due to the dramatic increase in sunlight or the smaller amount of water available.

Collecting, identifying, pressing, and mounting all may take a long time to do, but in the long run the outcome is well worth it. Organization and detailed information add to the

capability of quick and accurate accessing of the information.

We are going to use the information about the plants that has been gathered by students in a database, created in a computer spreadsheet program. The database will contain the following information about each specimen: date, location, who collected it, its common and scientific names, and native or non-native status. There will also be an area where additional information may be entered if it appears to be of significance.

Example partial database entry for winged sumac:

| | |
|------------------|-------------------|
| Common name | Winged sumac |
| Scientific name | Rhus copallina |
| Date collected | 9/22/01 |
| Collector's name | JR Mangrum |
| Location | Outdoor classroom |
| Habitat | Field |
| Uses | Edible - tea |

The whole purpose of the database is to make the information easier and faster to access. It will be an excellent way to know which plants are native, edible, medicinal, etc., and it will also describe other detailed and specified information about each plant. This will definitely be one of the more time-consuming factors of the forest restoration project, but it will prove to be one of the most vital.

It's important for a school to have a collection of plants because it is definitely a great aid in the teaching of environmental science. There's much more to nature than a book alone could ever teach a student. A herbarium would give the students a chance for a hands-on experience, which often proves to be much more interesting and fun.

—Adam Tate



Students with plant press

October Maple

Men pass
By, seeking
Wealth. But somehow,
(So strange and sad)
They fail to see
The gold heaped
Under this
Maple

—Leonard Tate,
lifelong resident of Beersheba Springs

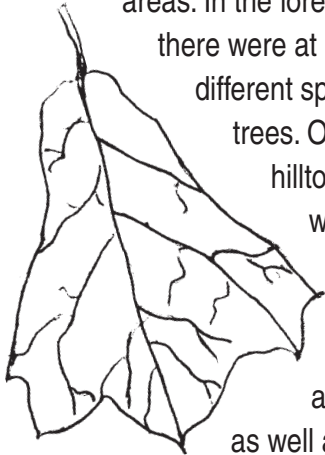


Using field guides to identify plants

Forest Restoration Project

The purpose of the forest restoration project is to restore trees and the other elements of a forest to an area from which they were removed. The project was located right on campus, between the school and the baseball field. A perfect spot!

First, we identified the plants in both areas. In the forest area, there were at least nine different species of trees. On the hilltop, there were trees, including maple, white oak, and hickory, as well as briar patches. At the bottom of the hill, there were small ferns and shrubs, different briars, and fewer species of trees. Blackgum, sourwood, and redbud are a few species of trees found in the lower area.



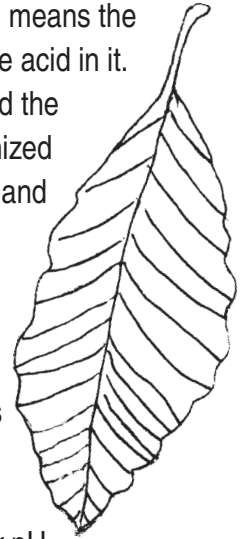
In the area where we are trying to restore the forest, there were only a few kinds of trees: pine, willow, sassafras and sourwood. There were also small grasses and shrubs.

We measured the pH and moisture of the soil and the amount of light in each area. Dr. Evans brought instruments for us to use. We used the light tester to measure the amount of light that is absorbed by the forest floor. There was nine times as much light on the non-forested area as in the forest. The extra light made it a wonderful habitat for grasses and shrubs.

Then we used a moisture meter. This instrument sends electricity through the ground to measure the amount of moisture in that area. The forest soil had two to three times more moisture than the non-forest. Last but not least, we gathered soil samples to test the pH levels. The pH of the forest ridge soil was 5.0, and the non-forest

soil was 7.0, which means the forest soil had more acid in it.

After we gathered the samples, we organized our data in graphs and charts. The main differences between conditions in the forested and non-forested areas are that the forest soil had more moisture and lower pH level. The forest also had more species of plants and animals. In this project we learned that it takes more than just planting seeds and letting them grow to have a successful forest. That is as far as we got with the forest restoration project, but we are looking forward to starting up the project again!



—Darren Nunley and Mike Jones

Drawings of oak leaves by Darren Nunley

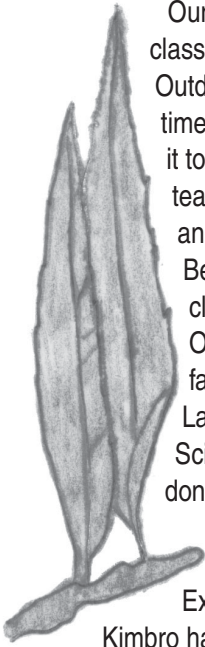
Did you know . . .

- . . . that there's a fork and spoon inside every persimmon seed? Look inside!
- . . . that Tennessee's state tree is the yellow-poplar? It's also the tallest tree east of the Mississippi.
- . . . that Native Americans steeped hemlock needles in water for a vitamin C-rich tea?
- . . . that sassafras root once formed the primary ingredient in root beer, and it was used in chewing gums, toothpaste, moutwashes, and soaps?
- . . . that Native Indians ground and cooked hickory nuts with cornmeal and baked the mixture in small cakes?

“Once my husband and I were talking about how we would cope if for some reason we had to leave our home. Herman said, ‘We’d take a coffee pot, a frying pan, and a machete, and we’d go to the woods. We could live off of the forest.’”

—Mary Elizabeth Baggenstoss,
lifelong resident of Tracy City

Interview with Creig Kimbro



Our Environmental Science class has visited the GCHS Outdoor Classroom about 12 times this fall. We have used it to identify plants and to teach visiting first, fourth, and seventh graders.

Besides us, four other classes have used the Outdoor Classroom this fall: English, Visual Arts, Landscaping, and Life Science. A lot of schools don't have an outdoor classroom to enjoy!

Grundy County Extension Agent Creig

Kimbro has been helping with our outdoor classroom for several years. We interviewed him about it this fall.

GCHS: Exactly where is the Outdoor Classroom located?

Kimbro: It goes all the way from the softball field to the back of the Co-op.

GCHS: Who is helping with the Outdoor Classroom project?

Kimbro: All state agencies located in Grundy County are involved: Tennessee Wildlife Resources Agency, Tennessee Department of Forestry, The UT Agricultural Extension Service, Quail Unlimited, local businesses and organizations, and The University of the South.

GCHS: What role do you play?

Kimbro: Education, planning, and implementing. I helped plant a lot of the trees.

GCHS: What kinds of trees have you planted?

Kimbro: So far, we have planted about 50 different species of trees, including yellow-poplar, sassafras, Eastern white pine, white willow, black locust, and dogwood.

GCHS: What can we do to get another grant to help with the work?

Kimbro: Set long-range goals, have a good plan, have a budget, and look at all the options for funding.

GCHS: What are your long-range goals for the Outdoor Classroom?

Kimbro: Eventually, we want to have a place where every class at GCHS can use the Outdoor Classroom for some outdoor learning experience. A lot of things still need to be done, including building a road to the Outdoor Classroom and keeping up the trail.

GCHS: What animals have you seen in the outdoor classroom?

Kimbro: We've seen deer, coyote, bobcat tracks, rabbits, raccoons, opossums, and several others. We've seen all types of birds, including hawks, buzzards, and crows.

GCHS: What are some of your specific plans for the Outdoor Classroom?

Kimbro: We have lots of site enhancements in mind, including building birdhouses and planting native grasses. Big

bluestem is a native grass that has started growing in the outdoor classroom. Many years ago, when native grasses were more common, buffalo ate them.

We could have a weather station out there, and a sundial. We had plans for an amphitheater, but we didn't get the grant.

We would like to have birdfeeding stations for all kinds of birds. Different types of birdfeeders attract different birds.

We'd like to have different types of gardens for butterflies; wildflowers; vegetables like pumpkins, corn, and soybeans. We could show stages of forest succession and dig pits where you can see the layers of soil. We'd need a nice sign for the classroom, with a map showing the locations of the different areas.

—Joseph Batson and Nickie

Drawing of willow twig by Joseph Batson

Trip to Fiery Gizzard

I think the most interesting thing about the Environmental Science class this year was when we went hiking at Fiery Gizzard. We all gathered up and headed out one morning to go to the park. It was cold, but it was fun.

We didn't see many animals in the park. I guess we were making too much noise. The only animal we saw was a crow. Besides that, we saw many beautiful trees and plants. After the scenic hike, we went to the park Visitors Center and ate some pizza.

Fiery Gizzard is publicly owned, so no one pays taxes on it. But do we get any financial benefits from it? Yes. Sometimes after people get through hiking they want to find somewhere to eat. Other people have to buy gas. Still others have to buy supplies to go on camping trips in the park. If you work past the fact that we don't get any taxes out of it, you may realize we are getting more out of the park than just beautiful scenery.

The best part of our trip to Fiery Gizzard was the opportunity for people who have never had a chance to visit a park like that to get to enjoy the Great Outdoors and learn about their environment.

—Darren Nunley

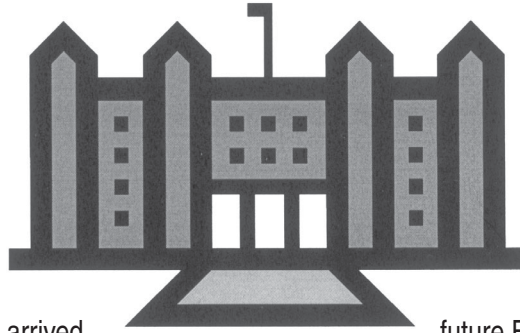


Students pause at Blue Hole Falls on the Fiery Gizzard Trail.

Grundy County High School Students Become Teachers

In the past few weeks, the students in Wanda Bell's Environmental Science class have been teaching students from Tracy City Elementary School. Students gathered their own lesson plans and took the students to the Outdoor Classroom where they taught them about different plant species.

The students brought to GCHS were first, fourth, and seventh graders. As they arrived we took them to the outdoor classroom and identified some plants. Also, we taught the kids about clearcutting, the life cycle of a tree, and the importance of the environment.



We believe this experience was a positive one. Not only did the elementary school students learn something, but we did as well. We all learned how difficult a teacher's job can be. We are proud to get to be the first students that got to experience teaching the children, but we hope we are not the last.

Current student Derek Rankin urges future Environmental Science students, "Always be prepared and be serious, because what the kids learn will always go with them." We all hope this becomes an on-going project.

—Ashley Layne and Crystal Goins

Visit from the Fourth Graders

On October 16, 2001, sixty fourth-graders from Tracy City Elementary School came to explore the Outdoor Classroom at GCHS. The high school students in the Environmental Science class conducted a tour and provided a lesson about forest ecology.

The experiment showed the effect of forest vs. non-forest on the growth of grass. We used two 2-liter bottles with the proper elements needed for plants to grow. Each bottle contained: a handful each of gravel, sand, and dirt; a small handful of grass seed; and a half cup of water. One bottle also contained five to six dried leaves.

The students took the bottles back to the Elementary School to observe the difference between how grass would grow in the forest (bottle with leaves) and non-forest (bottle without leaves).

This showed the importance of differences between the two environments. This was an exciting adventure for the TCES students because they learned the importance of an ecosystem and the effects of different surroundings. Plus they got to hang out with high school students for 1 1/2 hours. It was fun for us because we got to be teachers and leaders for that time!

—Lydia Sargent and Kathy Scott

Working with the CDC Group

Working with the students in the Comprehensive Development Classroom was much easier than we thought it would be. They were very thoughtful and were interested in smaller things. I think everyone could learn something from spending a few days with them. They are grateful, patient people, and we thoroughly enjoyed presenting our outdoor classroom to them.

This October, we chose to create a lesson plan for the CDC group at Grundy County High School. The lesson plan included demonstrating and explaining the names and uses of plants. The students are so accepting and easily entertained that all we really had to do was explain the different colors and shapes of plant species.

After we had collected enough plant specimens, on the fourth day with the students we pressed plants. They were very helpful in that also. We let the plants stay in the press for a few days, and then we mounted them and decorated their classroom with them.

I hope the CDC students had as much fun exploring the outdoor classroom as we did.

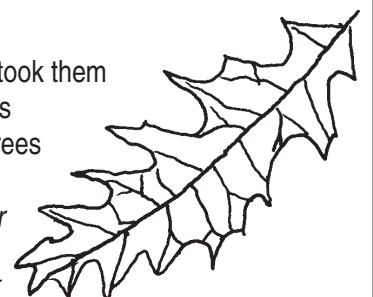
—Lydia Sargent and Kathy Scott

GCHS Hosts Seventh Graders

The seventh grade from Tracy City Elementary School came to visit our outdoor classroom. We took them outside to gather up leaves and identify them by their arrangements and margins. They will use this information in their classroom to identify the types of trees using dichotomous keys. Some of the trees in the outdoor classroom are red maple, white oak, and white pine.

—Michael Hoosier

Black oak drawn from GCHS herbarium specimen by Michael Hoosier



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A Project of the Sewanee Herbarium and the Landscape Analysis Lab of The University of the South through a grant from the Howard Hughes Medical Institute

Web Page:

www.sewanee.edu/biology/mountainhome

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The Plant Press is the quarterly newsletter of the Friends of the Sewanee Herbarium. Regular issues contain items of regional botanical and ecological interest, news of Sewanee alumni who have careers in botany, and the schedule of wildflower walks and other programs offered by the Herbarium. This special issue is being made available to a wider group of people who are interested in the future of the South Cumberland Plateau.

Sewanee Herbarium Winter Calendar of Events

Winter Botany

Sat., Feb. 2, 1:00 p.m. • George Ramseur

Join us for a pleasant walk in the winter woods to seek out some Big Trees and learn more about them. George will introduce tree anatomy and overwintering strategies and give tips for identifying some of the more common woody plants. Meet at Morgan's Steep for an easy walk along the Bridal Veil Falls trail.

Search for the First Hepatica

Sat., Feb. 16, 1:00 p.m. • Yolande Gottfried

It's Valentine's Weekend, and our hearts turn to wildflowers! Join us to look for the earliest bloomers. We may find Hepatica, Bloodroot, Violets, or others. Meet at Green's View for a two-mile moderate hike through Shakerag Hollow. In the event of snow, ice, or extreme temperatures, the hike will be canceled.

Botanical Drawing—a Bug's Eye View

Sat., Feb. 23, 9:30–11:30 a.m. • Ann Seiters

Beginning and experienced artists are encouraged to enjoy this morning with Ann, who for years has nurtured the creative

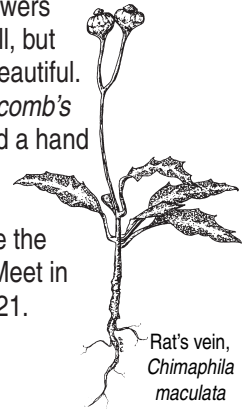
talents of adults and children. For your subjects, choose from winter flora and woody plants, greenhouse plants, or some that you bring in. Come with supplies for your chosen medium, or use the pencils and paper provided. Meet in Woods Labs room 121.

Wildflower Identification

Sat, March 2, 10:00-11:30 a.m.

Mary Priestley

Get a jump on learning to identify wildflowers in this early spring workshop. Become familiar with some of the basic plant identification terminology and the use of simple keys to identify whatever is blooming right now. The flowers will probably be small, but they promise to be beautiful. Bring a copy of *Newcomb's Wildflower Guide* and a hand lens (both available at the University Supply Store), or use the materials provided. Meet in Woods Labs room 121.



Membership Application/Renewal

The Friends of the Sewanee Herbarium support the work of the Herbarium: education, research, and conservation. A \$10.00 annual contribution would be very much appreciated. The date of your most recent contribution is printed on your address label.

Name and Address (if different from that on the mailing label on the back):

Amount Enclosed: \$10.00 Other: \$ _____

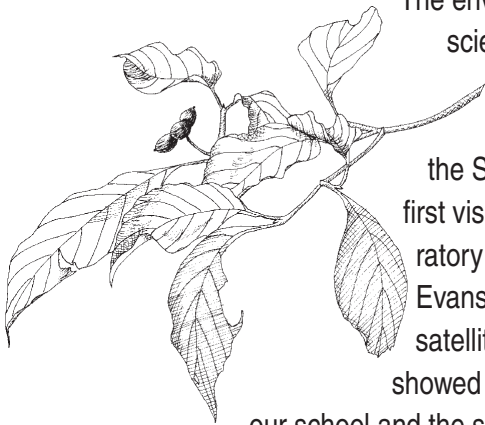
Please make check payable to The University of the South. Gifts are fully tax deductible. Send to:

Sewanee Herbarium
c/o Mary Priestley
735 University Avenue
Sewanee, TN 37383



Others who might like to receive *The Plant Press*: _____

Trip to The University of the South



The environmental science class at GCHS went to The University of the South this fall. We first visited Woods Laboratory where Dr. Jon Evans talked to us about satellite photos. He showed us photographs of our school and the surrounding environment. We learned about different types of trees and how many of them we have.

Dr. Evans showed us how satellites can be used for environmental observation by taking pictures of a certain area year after year. That allows them to see what kinds of trees grow in that area and how the population of trees changes over time.

We left the university and went to Dick Cove where the class had a short hike in an old-growth forest. Dr. Evans explained to us why some plants live at certain elevations and why some live at others. We talked about certain trees, such as the dogwood and why it is having trouble growing in crowded forest areas because of diseases. He explained to us that the forest in Dick Cove has been changed by man very little.

I think that in the end it was an overall good field trip and the students really enjoyed it.

—JR Mangrum

“My childhood spent prowling the woods was a wonderful one. . . . This is God’s country.”

—Barbara Jean Mooney Myers,
resident of Tracy City

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