FOREST STEWARDS GUILD

Journal of the Forest Stewards Guild
Issue Fifteen/Spring 2003

Distant Thunder

Working With All the Parts

IN THIS ISSUE:

Richard Hart

The Worm's Eye: Soil on Your Toes

During my travels about our Earth I am very conscious of what is under foot when I am walking or surveying a vegetated landscape. I think that Native Americans had the right gear when they wore soft-bottom moccasins because feeling the Earth is a very important tactile connection. Our feet have important sensing areas that are connected to important functions in our body. Pavement pounding or wearing spiked boots generally shuts these connections down. If you have the fortitude, remove your boots and socks and walk about a forest, meadow or prairie for a while. The experience will tenderize both your soul and soles, opening you to a sense of well being and connectedness.

By going barefoot you will come into immediate contact with millions of life forms. Depending on the health of the soil, you are in the very near vicinity of possibly billions of individual lives, each performing a critical function in building or restoring the thin crust that supports all of terrestrial life and much of the aquatic. This huge population has had ages of deep time to work out their relationships whereby they share 100% of their space and nutrients for the betterment of all above and below them. As a species, we are still (re-) learning the rudiments of sharing and nurturing without necessarily owning, which is the core of stewardship.

"The crush and displacement of soil habitat from a crawler tractor make Godzilla's antics look very small."

Put your boots on again and experience the difference. Hop onto a D5 or similar crawler tractor, walk about, and again experience the difference. The crush and displacement of the soil habitat and its residents is quite beyond our comprehension. It makes Godzilla's antics look very small. Almost none of the microbes, arthropods, other soil animals and fungi can escape

continued on page 2

Distant Thunder

Issue Fifteen Spring 2003

Forest Stewards Guild
PO Box 8309
Santa Fe, NM 87504-8309
p 505-983-3887
f 505-986-0798
info@foreststewardsguild.org
www.foreststewardsguild.org

The mission of the Guild is to promote ecologically and economically responsible resource management that sustains the entire forest across the landscape. The Guild provides a forum and support system for practicing foresters and other resource management professionals working to advance this vision.

Cover Photos:

Jody Stoddard (left) and Zayne Turner inspecting fungal hyphae in an old growth sugar pine stand, Fremont National Forest. (Photo by Richard Hart)
A forester's boots. (Photo by Melinda Marrs)

Soil on Your Toes, continued from page 1

this huge disturbance. Their only chance is that enough undisturbed habitat remains to re-colonize and rebuild, which is a long-term process.

There are so many places on Earth that have lost their precious soil mantle. This condition has led to human, animal and plant abandonment of now degraded and non-productive regions. Restoring them takes generations. It takes centuries to build one inch of soil in the temperate and boreal forests. It all starts with reestablishing an effective ground cover. Nature provides three types: mosses and lichens, grasses and forbs, and cohesive duff and herbaceous shade plants. Each is dependent upon the site's micro-climate, soil type and condition, and the remnant vegetative composition and structure. I have worked in watersheds in the Peoples Republic of China where soil had to be imported because the original material had dried up and blown away hundreds of years ago. Hundreds of people worked hard to establish a toehold of small vegetative islands, hoping that they would grow and expand across the barren landscape.

I have spent recent summers working in watersheds in the West where once forested areas have been slicked off and the topsoil blown away. Sage and rabbit brush deserts now grow as the stumps of mighty Ponderosa pines decay. As Simon and Garfunkel sang, "Where have all the flowers gone, long time ago...When will we ever learn?" It is in these areas that my team is assessing and monitoring Nature's struggle to repair the damage. We are looking for ways to help her out. We are measuring soil compaction, moisture and temperature down to eighteen inches. We measure soil texture and chemistry, as well as the species and populations of vegetation. We do stand exams in remnant blocks and plantations. We have two sets of data loggers continuously recording near-ground and ground temperatures, relative moisture, and light intensity in different treatments adjoining one another. We are able to measure and record up to 35 indicators within tenth-acre permanent plots strewn across a 267 square mile watershed, most of which is owned by the public. We establish and assess between five and eight plots daily. Just think what you can monitor on 40 acres.

The information we gather is placed in a relational database system that allows us to perform all kinds of queries. For example, a query might start by asking for those locations where the soil pH is between 6.4 and 5.8. This can be followed by asking for the aspect and slope of these plots, the vegetation cover, the canopy structure, rates of growth of each conifer species present, and even what these places look like. This last query is answered with digital imagery that includes transect and quadrat images as well as a panoramic of the plot and immediate area. The panoramic image is dynamic in that you can move around within it to view what is to the side, behind,

continued on page 4

A FORESTER'S PERSPECTIVE

Managing for the Whole

Clint Trammel

My job as a forester is to maintain a productive, healthy forest structure, and this requires attention to all attributes of the forest. (Photo courtesy Pioneer Forest Archive)

The first tract of land that would become Pioneer Forest was purchased in 1952. I walked across that same tract in 1970 on my first day at work on the forest as a District Forester. Now, 33 years later, I often look back and reflect on events that have happened during that time. Standing volumes have increased by 225% and growth rate has increased by 147%. Species composition is gradually shifting to what might have been found in the region in the late 1800s. Several million board feet are harvested every year and, except for the first few years, the forest has made a profit each year as well. Our policy from the beginning has been to harvest the poorest quality trees each time a tract is logged. That policy continues today, and it is notable that the "poor quality" trees we now harvest are usually better than the "best quality" trees we left in the beginning. As I walk through the forest today I notice, with some satisfaction, the number of high quality sawlog trees that have become a part of our inventory. As a forester assigned the responsibility of running a business, I look at all of the numbers and feel satisfaction, but if managing a forest only boiled down to numbers, I might as well have been an accountant.

It is all too easy to walk through the forest and see only the trees that grow there. Our society generally attaches value only to those things that have monetary worth, but many species that go unseen and that have little or no economic value are critical indicators of forest health. Microbes, for example, are a part of forest habitat and can usually only be viewed in a laboratory, yet microbial activity is the keystone for the development of a forest. Management activity on Pioneer Forest has been designed to cause as little change in site and soil conditions as possible, and the result has certainly justified the means.

"The poorest quality trees harvested today are usually better than the highest quality trees that went uncut in the beginning."

After working the same land for nearly my entire career, I have found a few favorite spots on the forest where I can go and reflect. One of these spots is far down on a north-facing slope just at the edge of a rocky outcrop. On a hot summer day I can walk down that slope, sit on the outcrop and look out over a portion of the forest that has never been harvested. The area below me is one that we have designated as a natural area, one of the first in Missouri. I can see wild ginger, Christmas ferns, large white oaks nearly 250 years old, red oaks and hickories, Ozark witch hazel, and young seedlings of a wide range of species typically found in undisturbed forests in the Ozarks. As I turn and climb over a fallen tree trunk to walk back up the slope, it is hard to tell when I have left the natural area and entered the managed forest. Except for a few stumps where trees have been harvested, there is little difference between the two.

Another site I like to visit is a broad, flat ridge top. The forest here is predominately scarlet oak, and has resulted from intensive harvesting by previous owners. Scarlet oak is an early successional species in our area. Much of the Missouri Ozarks was reforested by scarlet oak following the shortleaf pine and white oak harvests in the late 1800s through the 1940s. It is also a species that is relatively short-lived and is more susceptible to insects and disease as it gets older. Scarlet oak is currently much more prevalent in the regional forests than was common prior to the onslaught of harvesting, and I am forced to wonder about the outbreak of red oak borer over the past couple of years.

continued on page 6

Soil on Your Toes, continued from page 2

Richard Hart
(Photo by Caitlyn McCann)

above and below, as well as zoom in to view objects of interest. Just imagine the value of this data when you add to it in the succeeding years. You will certainly have an honest idea of what treatments work and how well, allowing you to adapt your stewardship to fit the needs of the site and surrounding area. It doesn't have to cost an arm and a leg to do this kind of assessment and monitoring, nor do you have to measure and record a huge passel of indicators. You can also involve the landowner, organize a coop of foresters and restorationists, or work with a local high school science program to help with the work. One thing you do have to be careful with is the awakening of discovery as the monitoring participants begin to realize how everything is connected and want to know more and more. It can become a feeding frenzy.

In our pursuit of nature's working relationships and site conditions we have discovered remarkable, little things and activities. We have also found reasons to be disconcerted, such as a site with sufficient moisture and nutrient levels for a forest just a few inches below the soil surface but with a surface that is too hot and hard to allow for a primary regenerative stage to establish. Global warming trends are exacerbating the situation as plants and animals are beginning to head for the Poles. Will their needs be met on their way North through all the fragmentation and broken linkages? Is the soil carpet healthy and sufficient enough to support this migration?

"Go barefoot and you will come into contact with millions and perhaps billions of life forms, each performing a critical function that supports all of terrestrial life and much of the aquatic."

When you walk on your land, please be mindful that the life under foot that is working for you is very precious. Treat it with respect. It is durable, but up to a point. Pay attention to where that point is, then back off a tad. A good benchmark is to disturb no more than 10% of the land area with roads, landings, and skid trails. Build a road system that incorporates as much of the old system while staying within the 10%, and there will then be millions of happy inhabitants who are more than willing to grow beautiful forests, meadows and prairies. And give your boots a rest every once in awhile.

Richard Hart is an ecologist who lives in Ashland, OR and travels about the US giving monitoring workshops organized by the Guild. Richard spends his summers in the field working with the next generation of forest stewards.

BIODIVERSITY AND FORESTRY

What the Guild is Doing About It

Over the past year, Guild staff and members have initiated dialogue between foresters, ecologists and conservation biologists to try and spark more effective collaboration across professions. Substantial communication gaps separate these fields despite what should be a wealth of common concerns. In particular, the Guild is promoting forestry that explicitly supports conservation goals rather than simply mitigating impacts to biodiversity. The Guild's 2003 annual meeting, Conservation Forestry: Sustaining Biodiversity in Working Forests, May 28-31 at the University of the South in Sewanee, TN, is a critical step in the process. We hope to raise awareness concerning the potential roles of working forests that are really managed as forests in promoting biodiversity. For details please visit www.foreststewardsguild.org. All interested individuals are invited to participate.

The dedication of ENTS' documenters has changed the fortunes of the big tree forests and parks.
(Photo by John Knuerr)

EASTERN NATIVE TREE SOCIETY

Ghosts of Forest's Future?

Robert T. Leverett

Popular accounts of the pre-settlement forest of the United States paint a picture of huge trees stretching in an unbroken swath from the Atlantic to the Mississippi River. We now know these accounts to be fanciful. The forested landscape was broken up due to the presence of Native Americans who managed large areas of forest habitat for game and nut-bearing trees. As a consequence, bison and elk ranged as far northeast as Pennsylvania and southeast as western North Carolina. The use of fire was prolific along river corridors and onto the sides of ridges bordering streams. The interior of mountainous regions were far less impacted and the cold climates of places like New York's Adirondacks, New Hampshire's White Mountains, and the mountains of Maine were hardly touched.

It is tempting to romanticize about big trees of the pre-settlement period and indeed there were many more big trees dotting the landscape then than now. American sycamores, American chestnuts, bald cypresses, and tulip trees were all recorded to diameters of over 10 feet and in the case of the first three, diameters of 15 feet or more were recorded for at least a few individuals. Heights of eastern trees of the past are legendary for the white pine. Heights for white pines in New Hampshire and New York have been quoted at over 250 feet. At least one New Hampshire tree was said to be 264 feet tall. Other big tree/tall tree stories cite black walnuts in Pennsylvania producing over 8,000 board feet of lumber and at least one tulip tree in North Carolina producing over 20,000 board feet. A few old photographs confirm the existence and authenticity of past giants, but it is by no means clear how prevalent they were. Photographs of the famous sycamores at Worthington, IN and Mt Carmel,IL prove that exceptional trees existed up into the mid-1800s, but rapacious land clearing made even those great trees mere memories.

Given our cut-over, uninspiring forests of today, could forest giants of yesteryear have been fairly common? Well, for the most part we will never know, but a surprising treasure of big trees remain today to tempt speculation. The National Register of Big Trees put out by American Forests lists a wealth of very large trees that can be seen today. These are more often than not individual trees growing in isolation, such as in the middle of a field. American Forests has been documenting individual trees since the 1940s. Surprisingly, despite American Forests' laudable efforts, most parks and forests famous for old growth or clusters of large trees are poorly described–at least in terms of their big trees. Where data exist, they are often incomplete and inaccurate. Many examples could be given, but suffice it to say that until recently, a treasure of superlative trees across the East were in danger of passing undocumented into the pages of history. However, in 1996, a group of scientists and naturalists formed an organization called the Eastern Native Tree Society. Its acronym ENTS immediately caught the attention of Tolkien fans, and the dedication of its tree documenters has changed the fortunes of the big tree forests and parks.

By pioneering methods of accurately measuring tree dimensions, especially heights and spreads, ENTS documenters have opened the door to a series of interesting species and park to park comparisons that place them on a par with accounts of past giants. Foremost of the East's big tree havens is the Great Smoky Mountains National Park of eastern Tennessee and western North Carolina. Close behind is South Carolina's Congaree Swamp National Monument and North Carolina's Joyce Kilmer Memorial Forest. More distantly, there are Maryland's Belt Woods, Virginia's Madison Estate at Montpelier, and Cook Forest in western Pennsylvania. However, there are dozens of other big tree parks begging to be documented, and the ENTS crew is singularly qualified to do it.

continued on page 6

Managing for the Whole, continued from page 3

Harvests on this ridge top have focused on reducing, but not eliminating, scarlet oak in favor of red, black, or white oaks as well as post oak, hickory, and black-gum. All of these species were common in the upland Ozark forest. On this same ridge top I dig down into the thick layers of leaves and organic matter on the surface and find a web of mycorrhizal strands, beetles, and earthworms in the warm, moist soil. I cover the hole and walk to the bottom of the slope where it ends on the banks of a small, clear Ozark stream flowing through the forest. Logging in this area has been modified or eliminated to maintain bank stability and habitat for plants found almost exclusively in these narrow Ozark valleys. This riparian habitat supports plant and animal species not generally found in upland portions of the forest, and the vegetation helps protect the aquatic habitat.

A healthy forest depends upon many components. Healthy, living trees provide marketable products and act as the heart and lungs of our own habitat. Standing dead and downed trees serve as homes or pantries for a wide variety of species. Favorable soil conditions support the unseen denizens of the forest, and the sum of these parts maintains a broad mix of non-timber species both common and rare to the region. My job as a forester is to maintain a healthy forest structure that will be productive far beyond my tenure on that land, and this requires attention to all attributes of the forest.

Several million board feet are harvested every year and, except for the first few years, the forest has never failed to make a profit.
(Photo by Clint Trammel)

I can't guarantee what will happen on the forest once I move on, but if I do my job right, I can leave it in better health than the day I arrived.

Clint Trammel is a graduate of the University of Missouri School of Natural Resources with an undergraduate degree in Forest Science and a graduate degree in Resource Economics. He has worked on Pioneer Forest for 33 years and served as the Forest Manager for the past 28.

Ghosts of Forest's Future, continued from page 5

What makes ENTS so important in the documentation of big tree forests and parks? Why hasn't the job been done by forests and parks people? In a very few cases, it has, but for the most part, the sheer number of trees in forest-grown stands deters all but the most superficial efforts. There is no perceived need to document tree sizes beyond perhaps the largest and most conspicuous that would be noticed by visitors. There have been no scientifically motivated reasons for tree size documentation beyond what little has already been accomplished.

ENTS took on the assignment to document the big tree sites for two basic reasons: (1) because ENTS felt that historical documentation was needed and a sufficient reason on which to proceed, and (2) techniques used to measure tree heights and spreads of all but the most compliant trees are presently highly inaccurate so that current site documentations by others, however limited, is often in considerable error. High error rates led ENTS to develop laser-based measurement techniques that produce accuracies to within +/- 1.0 feet in about 67% of measurements and to ±1.5 feet in over 90% of the measurements. With sufficient time taken, measurement error can be reduced to ± 0.5 feet.

The future direction of ENTS is: (1) big tree site documentation, (2) revision of a publication written by Will Blozan, Robert Leverett, and Jack Sobon entitled 'Stalking The Forest Monarchs–A Guide To Measuring Champion Trees', and (3) maintenance of a tall tree database for eastern tree species. Presently ENTS conducts annual tree measuring workshops at Cook Forest State Park, PA. ENTS maintains a website at www.uark.edu/misc/ents and operates an e-mail list that can be joined by sending an e-mail to: ENTSTrees-subscribe@topica.com.

Bob Leverett is cofounder of the Eastern Native Tree Society and Executive Director of Friends of Mohawk Trail State Forest.

EXECUTIVE DIRECTOR – MARY CHAPMAN

Conservation Forestry

The Forest Stewards Guild wants to see the forestry profession reclaim its larger place in the conservation movement. In that vein, we promote forestry that serves biodiversity goals rather than simply mitigating damage, or worse, demonstrating no concern at all. The Guild is seeking a more effective cross-fertilization between the field of forestry and other disciplines such as conservation biology – to make sure that "working forests" remain forests.

In this issue, we explore biodiversity issues critical to successful forestry. Ecologist Richard Hart illuminates the importance of life in the soil, big tree guru Bob Leverett showcases an effort to conserve what we know of trees that were so we can visualize the forests that may be, and veteran forester Clint Trammel reflects on a time-tested management approach based on keeping rather than extirpating the many parts of a forest. Below, Guild chair Barbara "Barrie" Brusila describes a philosophical approach to working forests that respects ecological and biological richness, as well as the importance of the connection between people and the land.

CHAIR OF THE BOARD

A Forestry Philosophy

Barrie Brusila

The mission of the Guild succinctly expresses the sense of purpose for my work, as well as for many other Guild members. We are "managing" a forested landscape to meet our human needs, but do so with respect and humility. We are teachers as well as students of our chosen profession, and we place the forest first. The financial goals of employers or clients are respected without letting them override the forest. Our vision extends beyond immediate harvest goals and visualizes the forest decades into the future and beyond. Utilizing time-tested techniques and pioneering new methods are both parts of our work.

A Guild member's first duty is to the forest and its future. This principle is a foundation for our work, and a source of impassioned debate. As I step into the woods, this principle guides my perception of the forest and likely management outcomes, as well as my advice to the landowner. I bring a humble approach into the woods, along with a hand lens for looking at minutia and a topographic map to get the big picture. I try to use the "natural" forest as a model for my work and realize that the more I know of what this means, the more I have to learn. Soils, land management history, wildlife, owner objectives, regeneration, structure, age, slope, special or unique features or habitats, locations of water bodies (of all sizes), and the surrounding landscape are all considerations. The maturity (biological and financial), health (ecological and economic), growth potential, volumes, and financial values of all tree species are assessed.

I evaluate how the landowners' objectives and financial needs can be met while maintaining the integrity of the forest and its systems. It can usually be done. If it is not possible, the landowners are told so. I design timber harvests to mimic natural processes by cutting some trees that have reached their biological maturity while saving others for the future, and strive for the delicate balance between the landowner's objectives, the logger's need for an economically viable harvest, and my silvicultural desires. All is done while protecting the soil and water, upon which everything depends.

I consider a sense of place integral to a forester's work, regardless of ownership. As a concept, "sense of place" makes an important contribution to forest management because it embraces qualities that people value in land that are not easily captured by conventional forestry terminology such as "use" and "yield." Implicit in the concept is an attachment to the land. When people have a sense of place, they will typically act as though they intend to stay, and will account for the long-term consequences of their decisions. As a forestry consultant, I feel it is my responsibility to encourage my clients' love of the land.

Neither a forester's work nor the forest itself is linear. Both are cyclical: the changing of the seasons; the growth, death, and rebirth of trees and other living creatures; the cycling of water; our repeated mistakes and attempts at learning; even the wood markets. Accordingly, it is essential to look back as we move forward. Executed thoughtfully, forestry requires alertness,science-based analytical and observational skills, an aesthetic sensibility and intuition. We are remembered by what we leave in the forest, not what we take.

Barrie Brusila is the Chair of the Forest Stewards Guild. She and her husband Mitch Kihn are FSC certified resource managers who operate their business, Mid-Maine Forestry, out of Warren, Maine.

FOREST STEWARDS GUILD

P.O. Box 8309
Santa Fe, NM
87504

Non-Profit Org
US Postage Paid
Santa Fe,NM
Permit No. 276

FOREST STEWARDS GUILD

What's New...

NEW BOARD MEMBERS FOR 2003-2006

Bill Wilkinson - with the Forest Stewardship Council in northern California
Kaarsten Turner - with The Forestland Group in North Carolina
Dennis Desmond - with the Little Tennessee Land Trust in North Carolina

MODIFICATION OF GUILD MISSION STATEMENT

By nearly unanimous consent, the Guild's mission statement has been modified to address economic sustainability in addition to ecological concerns. The essence of the statement is that good ecology equates to good economics in the long-term. The new statement reads: "The mission of the Guild is to promote ecologically *and economically* responsible resource management that sustains the entire forest across the landscape. The Guild provides a forum and support system for practicing foresters and other resource management professionals working to advance this vision."

REVISIONS TO GUILD ORGANIZATIONAL GUIDELINES OVERWHELMINGLY PASSED

A thorough overhaul of the Guild's organizational guidelines received nearly unanimous approval in April. Revisions to the document, which outlines procedures for how the Guild functions, provide greater flexibility for adapting organizational structures and a clear process for policy development.

THE GUILD SPEAKS OUT ON TRANSGENIC TREES

The Guild's newest policy statement speaks against field deployment of transgenic trees, due to a number of concerns, including potential for genetic drift and ecosystem disturbance, obstacles to effective monitoring, potential for constriction of economic options for timber producers, and regulatory inadequacy.

For a detailed look at the policy statement, go to http://foreststewardsguild.org/transgenictreepolicy.htm.