The 500-Year Forest Foundation Newsletter

Volume 13 ▪ Number 2 ▪ Summer/Fall 2010

With your donation you pay for the care of our forests that store one ton of carbon per acre annually.

Many New Happenings

Two New 500-Year Forests

Since our last newsletter mailed in May 2010, we have increased our number of 500-Year Forests from three to five. The possibility of the 117-acre 500-Year Forest of **Donald and Joanna Sunshine** of Blacksburg, Virginia was first announced four years ago. It became a reality this summer. Also the 159-acre 500-Year Forest, announced last fall, owned by **Rick Helms and Carolyn Philips** near Batesville, Virginia was approved in October of this year. Both easements are held by the Virginia Outdoors Foundation.

Joanna and Donald Sunshine

Rick Helms and Carolyn Phillips

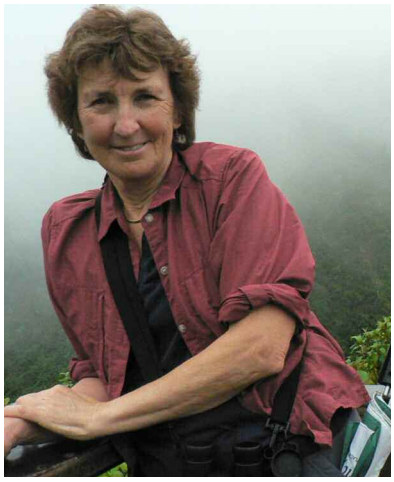
Help Remove CO_2 from the Atmosphere

Annually each person in the United States generates approximately 2.3 tons of carbon dioxide, CO_2. Two thirds of an acre of mature deciduous forest will absorb this amount. In this regard a helpful equivalent to remember is that 3.67 tons of CO_2 converts to a ton of carbon stored in the forest.

*See **Help Remove CO_2 from the Atmosphere**, page 4*

New Board Member – Nancy Weiss, M.D.

We are pleased to announce a new board member, Nancy Weiss, M.D. Nancy's childhood was spent at the New Jersey shore, swimming, biking, bird watching, practicing music or reading. She continued all of those activities at Swarthmore College which she chose partly because the campus has an arboretum. She loved their beautiful trees.



*See **Nancy Weiss, M.D.**, page 3*

Take a look at our New Website

Throughout this issue we have featured the photos from our new website slide show. We did this in the hopes that you will visit our new site, **www.500-yearforest.org,** to look at the show and then on to a subject that interests you. If you like maps, we now have 3-D maps of each forest and a Google map showing the location of all forests.

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500-Year Forest Reports

Gilvary Forest – Chestnut Ridge Preserve

The biotic inventory has recently been completed. The Virginia Natural Heritage will now develop a forest management plan.

In the interest of determining carbon credits for his 2,500 acre forest, Bob Gilvary hired Britt Boucher of Foresters, Inc. to compute the annual carbon storage capacity of 15 stands in his forest. This old-growth stand was calculated to be removing 3.87 tons of CO_2 per acre annually, an amount equal to slightly more than a ton of carbon per acre.

Report from the Kolb Forest
Wildlife Food by Jean Kolb

Food for Bear

When a storm takes down a good-sized tree in our forest, it slowly becomes a food bar for bears—a rotting log offering grubs, ant larvae, termites, and perhaps a mouse nest or seed cache. Pulled-off chunks of softened wood mark a bear's visit. A pile of large splinters beside a less decayed log is the work of a pileated woodpecker with similar intent. This year, I found wild turkey droppings and a feather among hundreds of discarded burrs under a nut-loaded chinquapin and empty shreds of chewed-open acorns under the chestnut oaks. Gray squirrels husked and planted the black walnuts they didn't eat, and although chipmunks and birds harvested most of the spice bush berries, we found several small caches of bright red berries stored by an Allegheny woodrat. Orange persimmons adorning leafless female persimmon trees will drop now and then for weeks, extending the fall food supply, while clusters of wild grapes, blue greenbriar berries, and white poison ivy berries (enjoyed by woodpeckers) will be available through most of the winter.

With an eye on future mast production, we distributed sprouting white oak acorns provided by Peter Mehring. To keep antlers away from a beautiful, straight American chestnut — 35 feet tall, 4 inches in diameter in a canopy gap — we caged its trunk and hope it lives to produce chestnuts. Beech trees, recent additions in our forest, have pushed their shade tolerant tops 30 feet toward the canopy; when about 40 years old, they should begin adding beechnuts to the wildlife food supply.

To be sure, we've continued to attack non-native invasive bittersweet, garlic mustard, ailanthus, and stilt grass, because, if invasives take over, there'll be much less food for wildlife.

Clinch Mountain Preserve Report
Japanese stilt grass on the Run by Maxine Kenny

Now that summer is only a memory we have time to reflect on our continuing struggle to combat garlic mustard, ailanthus and Japanese stilt grass — three of the most tenacious invasives on the Clinch Mountain Preserve's 500-Year Forest. Fortunately for us we had the assistance of two young, energetic Eagle Scouts who pulled great patches of garlic mustard in the spring. One of the teenagers came back during the summer to help us stalk and destroy a great many ailanthus trees and saplings.

In an unexpected turn of events, nature itself may have set us on a path of biological elimination of the stilt grass that has swept across our lower acreage and along pathways that lead into our 500-Year Forest on the upper slopes of the Clinch Mountain. In early July a forester friend, Russ Richardson, told us about a fungus called *Bipolaris* that he thought was killing stilt grass on his West Virginia farm. He sent pictures to us of stilt grass that had brown lesions on its leaves and shared an academic paper regarding the phenomenon written by a biologist at Indiana University. Later in July, during a hiking trip to the Pinnacle Natural Area Preserve in southwest Virginia, we saw stilt grass along the hiking trails that appeared to be afflicted with the same brown lesions. Subsequently, that sample was confirmed as infected by *Bipolaris* fungus.

Soon after we saw what we believed to be *Bipolaris* lesions on the stilt grass along our own driveway. We sent it off to be analyzed and it too was confirmed as *Bipolaris.* We checked back with Russ in West Virginia to discuss the infestation on our property and he said that the fungus spreads in much the same way as stilt grass itself — that is, it rides along pathways traveled by both humans and animals — so he wasn't surprised that after we waded through infected stilt grass at the Pinnacle that it had hitchhiked back home with us on our trouser legs. He also told us that much of the thriving stilt grass that he observed on his property last year was now reduced to a dead, dry thatch! Wouldn't it be wonderful if nature could rid our fields and forests of stilt grass?

WEB SLIDE SHOW

Japanese stilt grass

WEB SLIDE SHOW

Mehring Family Forest

WEB SLIDE SHOW

Gilvary Forest – Spice Bush Swallowtail

Tread Softly *by Peter Mehring*

Peter Mehring's family and his two sibling families own a 600 acre farm near Covesville, Virginia. Peter says it contains a section of forest that he hopes someday will become a 500-Year Forest. The photo above was taken in this forest. Peter has been helping the Kolbs combat invasive plants for almost four years. Read his observations as a naturalist.

Forest weeding for non-native invasive plants helps native plants survive while providing time for the weeder to discover more of nature's secrets. So I weed and watch and listen and think. Here are orange-bordered black millipedes climbing logs. I suspect they have been commandeered by a fungus to climb and settle and die and then spread spores from the windier tops of logs and fallen branches. Here is a young red eft showing bright orange warning colors against the moist leaves. There, next to my boot, is a plump box turtle with the front third of her shell buried in the leaves. Is she pausing in digging a hole for eggs or is she searching for truffles?

In spring the forest floor is soft from abundant moisture. With each step I sink into this fluffy medium of life. Everywhere I see the beginning colonies of native herbaceous plants. One jack-in-the-pulpit will become five will become twenty; an alumroot has generations strung below it down the side of the mountain.

A half-grown toad hops in front of me. I wonder what connection his reddish coloration has to the reddish phase of screech owls or the summer red of deer. The forest grows dimmer as night approaches and wild turkeys come to roost high in the leaning oaks. I hear the sleepy whistle of a grosbeak and decide to gather one more handload of garlic mustard before heading down the mountain.

I approach a tangle of moonseed and fallen sassafras cautiously because this is a time when nocturnal hunters begin to emerge. By now I've grown almost automatic in my weeding — move my right foot out so my forearm can support the weight of my upper body on my knee; reach the cool stalks with my left hand and pull them carefully, switch sides to stretch both sides of my frame. With my next step I feel something strong moving under my boot. I step back to see warning hourglass shapes on freshly molted skin and a reddish phase copperhead gliding away from me in gentle S-curves, moving deeper into a spicebush thicket away from the Big Foot.

WEB SLIDE SHOW

Kolb Forest

Nancy Weiss, M.D.

continued from page 1

She received her M.D. from Temple University in Philadelphia, PA and went on to specialize in surgery, completing her training in Massachusetts. Soon in love with the climate and topography of western Mass, she opened her practice there in1976 which continued until 2007. During her career, she was selected as one of The Best Doctors in America. While living in Massachusetts (and because of her concern for habitat preservation), she became active with both The Nature Conservancy and Mass Audubon Society. She served for 6 years on the board of TNC – MA Chapter and is a life member of the Massachusetts Audubon Society board of directors. She bought more than 600 acres of forest land there to learn about forest management first hand. Eventually she donated more than 450 acres for permanent protection. Currently, she serves on the Board of Directors of the American Bird Conservancy.

Three years ago, she retired to Charlottesville and continues learning about the natural world. She became a certified tree steward and certified master naturalist. Currently, she is chair of the projects committee of the Charlottesville Area Tree Stewards, has volunteered for two county free medical clinics and serves on the Greene Free Clinic Board. Further, she tutors two students learning English as a Literacy Volunteer.

WEB SLIDE SHOW

Gilvary Forest – B and W Warbler eggs

WEB SLIDE SHOW

Kolb Forest – Wildflowers

Carbon in Forests

by John O'Keefe

John O'Keefe is the recently retired Coordinator of the Fisher Museum at the Harvard Forest, Harvard University in Petersham, Massachusetts.

Forests play an important role in carbon storage. As they grow, trees and all plants carry out photosynthesis where they use energy from the sun to convert carbon dioxide from the atmosphere and water to carbohydrates, which are then used to make tissues including wood, roots, leaves and bark. Oxygen released to the atmosphere is the by-product of this transaction. The net accumulation of carbon in a plant's tissues represents growth by that plant and the net accumulation of organic matter or biomass in the forest represents carbon storage within the forest. Through litter fall of leaves, fine twigs, etc. and root growth/death carbon is also stored in the soil.

Since 1992, eddy covariance measurements have been ongoing at the Harvard Forest in central Massachusetts. Eddy flux covariance towers, which continuously sample concentrations of carbon dioxide and water vapor at the top of the canopy and correlate changes in concentrations with instantaneous wind flows (fluxes) either up from or down into the canopy, have allowed long-term measurement of the overall net uptake or release of carbon from forests through the seasons. This oak-dominated mixed forest has shown a net carbon uptake of 1-1.25 tons of carbon/acre/year. Surprisingly, this uptake has been increasing during the past decade even though the dominant trees in this forest are approaching 100 years of age.

WEB SLIDE SHOW

Kolb Forest – Stream

Help Remove CO_2 from the Atmosphere

continued from Page 1

For the care of our forests to implement our management plans, we spend approximately $3,000 annually for each forest. While all of our forests exceed 100 acres, if we assume each forest is 100 acres, the annual expense per acre is $30. From John O'Keefe's article across the page and the Chestnut Ridge calculations on page 2, we can safely assume that our forests are storing at least one ton of carbon per acre annually.

Now, we are looking at your donations in an entirely new light. A donation of $30 is responsible for the forest care that results in a ton of stored carbon per acre annually within our forests. Should you make a contribution of $3,000 to cover an entire forest, we will wine and dine you. Pick a forest that you would like to visit and you will be our over night guest.

A car driven 11,000 miles produces the equivalent of one ton of carbon. For your calculation pick from one of the Donor Categories listed below or create your own:

Tons of Carbon	Donation	Car Miles Offset
1	$30	11,000
2	$60	22,000
3	$90	33,000
4	$120	44,000
5	$150	55,000
10	$300	110,000
20	$600	220,000
30	$900	330,000
40	$1,200	440,000
50	$1,500	550,000
75	$2,250	825,000
100	$3,000	1,100,000

WEB SLIDE SHOW

Gilvary Forest – Black Bear

WEB SLIDE SHOW

Gilvary Forest – Appalachian Azure

Donors ~ Thank You

What we do is only possible with the support of our contributors.
The following gifts were received from May 1, 2010 to October 31, 2010.

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Lewis and Martha Goode
in memory of Charies Sackett
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Sue and David Reitz
in memory of Patricia Leggett, Mom
Paul and Linda Revell
Dick and Carol Royer
Mary Sadler

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Benefactor	$5,000
Conservator	$2,500
Forest Friend	$1,000
Soil Saver	$500
Stream Steward	$250
Flora Fancier	$100
Fauna Fan	$50
Tree Tender	$30
Student or Senior	$15

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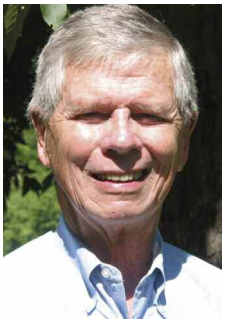
500-YEAR FOREST
FOUNDATION

President's Letter



Ted Harris

After a strenuous walk, our directors listen to Donald Sunshine. Photo by Nancy Weiss

We are very pleased with the addition of two new forests. Owners of these forests, Donald and Joanna Sunshine and Rick Helms and Carolyn Phillips, are to be highly commended for their recognition of the importance of conserving old growth and their willingness to sacrifice future timber profits.

In late October our annual meeting was held in the library of the University of Virginia's Biological Station at Mountain Lake, thanks to director Jim Murray. On separate days our directors visited two 500-Year Forests, that of the Gilvary's, the Chestnut Ridge Preserve in western Giles County and the Sunshine Forest near Blacksburg.

Creating a new website has been a challenging summer-long experience. It has been quite a satisfying process and I am glad it will only require updating from time to time.

I do hope that you will identify with our new donation approach. We are trying to show you how much your involvement means by contributing to removing CO_2 from the environment.

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