Friends of the Great Swamp

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Judy Kelley-Moberg and Jill Eisenstein, Editors

NORTH HOLLOW

A Legacy Preserved

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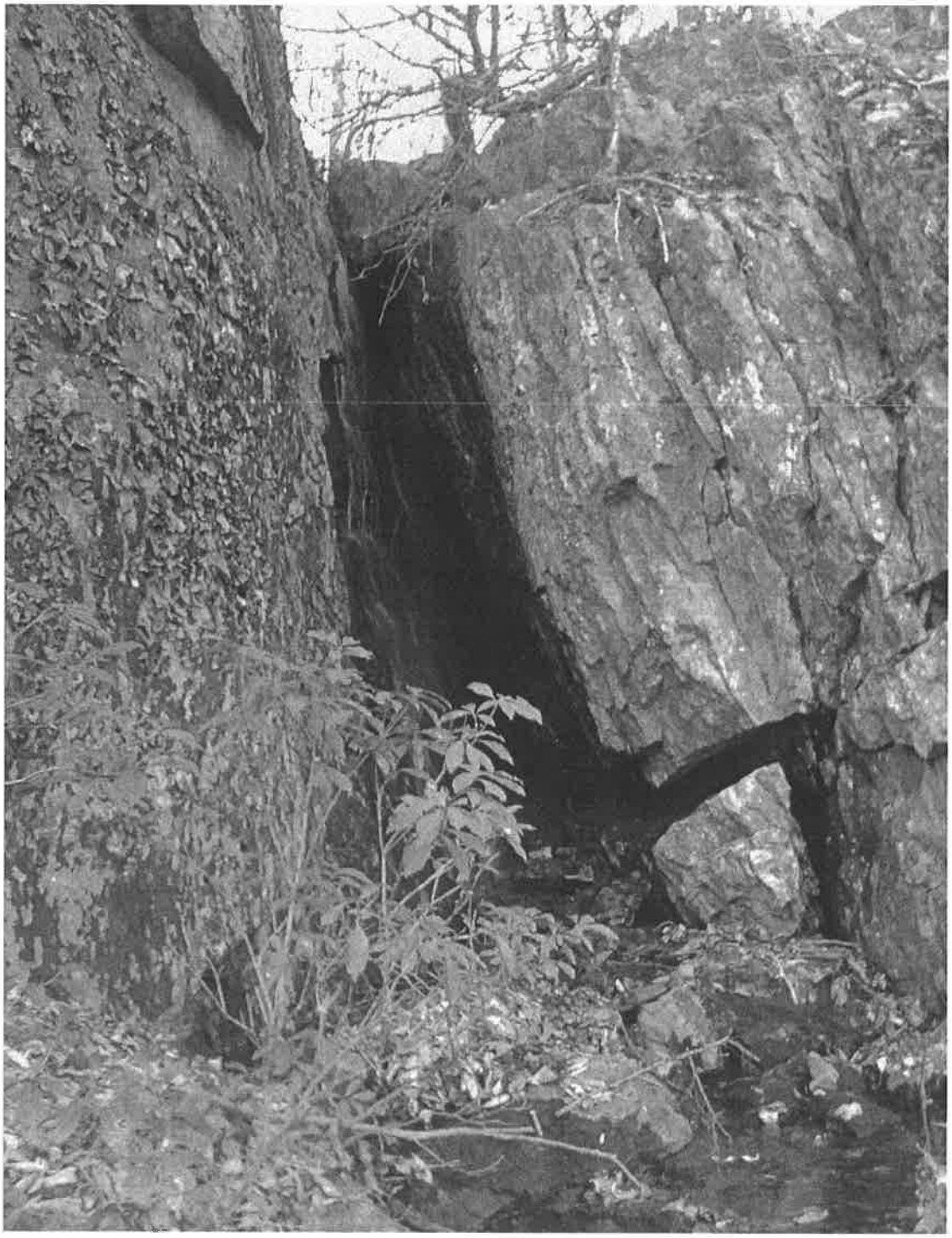


The Falls at North Hollow

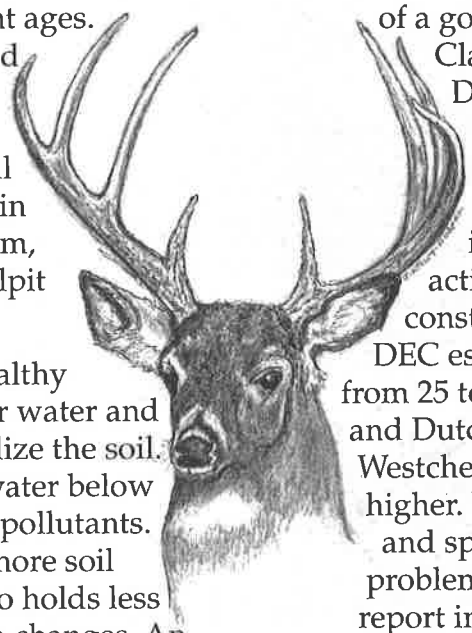
Photo by Dan Kuchta

What's Happening to the Forest

by Jill Eisenstein

The snowstorm of October 29, 2011, changed the forest landscape of the Northeast from the top down in just one day. But something else has been changing the same landscape for years from the bottom up— just as significantly, and much more slowly.

Recently I spoke with a few experts who voiced unanimous concern that the health of the forests in the Northeast is declining. They agreed that, in general terms, a healthy forest is one that supports several layers of diverse, native trees and shrubs of different ages. The larger, old-growth trees spread a canopy over the top, sheltering an emerging forest of seedlings and saplings, which over time will replace it. Shrubs such as Mountain laurel and wildflowers like Trillium, Lady's slipper and Jack-in-the-Pulpit thrive in the understory.



A healthy forest makes for a healthy watershed. The roots of trees filter water and slow its flow; they hold and stabilize the soil. The canopy of a forest cools the water below and the plants sequester harmful pollutants. Without healthy forests, there is more soil erosion, the water gets warmer (so holds less oxygen), and the entire ecosystem changes. An unhealthy forest can lead to an unhealthy watershed. Of course, I thought of the Great Swamp!

What has been changing the forest? Well, for one, the white-tailed deer. Deer are as natural as the October snowstorm, only more subtle. Essentially extirpated from New York in the early 1900's, they are now munching their way through the forest undergrowth, through farm crops and through landscape plantings. Here in New York, the population now tops 1.25 million. The suburban matrix provides the perfect habitat for hungry deer. Fragmented forest and yardscapes offer the ideal edges for browsing, and according to maps produced by The Nature Conservancy, it's more pronounced in this area than anywhere else in the Boston/NYC/LI corridor. In the absence of natural predators such as wolves and mountain lions, the herd suffers fewer losses. Plus a growing number of large landowners, interested in exclusion and privacy, post their land to keep hunters away. And thousands of us provide a year-round nutritional buffet with landscape trees and shrubs. Together these elements provide deer with plenty of protection and food, perfect conditions for herd growth. Any population that is not restricted in some way grows at an increasingly accelerated rate.

Deer are beautiful, but how much is too much of a good thing? According to Kevin Clarke, deer expert at the NYS Department of Environmental Conservation, it's when deer numbers reach "a higher level than are culturally tolerable"— in other words, when human activities and deer activities constantly collide. He said that the DEC estimates that deer densities range from 25 to 50 per square mile in Putnam and Dutchess Counties. In much of Westchester, population densities are even higher. Westchester devised a taskforce and spent over two years studying the problem. After publishing their final report in 2008, they implemented an adaptive deer management program (controlled hunting) to reduce deer populations. In NYS, annual estimates of deer damage, including damage to cars, agricultural crops, the timber industry, and landscape plantings, are in the millions of dollars.

What has attracted attention more recently, however, is the impact of deer on forest biodiversity and ecology. Lasdon Park in Westchester has had a "deer exclosure" area for more than 15 years, and the differences on either side of its fence are astounding. Deer prefer the seedlings of hard woods such as maples, oaks, and ashes, and love Trillium, wild violets, and other delicate native wildflowers. However, these types of food resources have been greatly diminished, and under pressure to find food, deer will eat almost anything within reach. Where deer are too numerous, over-browsing has led to open,

park-like understory areas known as "deer savannahs". In some places, the only evidence of spring is unfurling fiddleheads (deer don't eat ferns and the ferns actually inhibit the growth of tree seedlings) and greening Japanese barberry and stilt grass. Some hardwoods are not regenerating because the seedlings are being browsed to the ground. According to Ted Kozlowski, Certified Watershed Forester and Patterson Environmental Conservation Inspector, "this is not what the world should look like!" The loss of native understory plants negatively impacts songbirds, as well as species such as the wood thrush, woodcock, ruffed grouse, indigo bunting, blue-spotted salamander, the New England cottontail, and others. Besides loss of biodiversity, less vegetation means more soil erosion (fewer roots to hold the soil), and lower water quality in the watersheds. Recognizing this, the DEP opened its watershed properties to deer hunting two years ago.


Healthy Understory

So overabundant deer contribute to declining forest health. But alas, when you pull on one thread in nature, you find it attached to many others. One thing is never just one thing. It's all about relationships—chemicals and compounds, systems and food webs. The forests are in trouble, but deer are only a part of the problem. Also culpable are invasive plants— many invade the forests as birds and animals drop seeds from landscape plants such as Burning bush (Euonymus), Japanese barberry (Berberis), Oriental bittersweet (Celastrus orbiculatus), Russian olive (Elaeagnus angustifolia)and Multiflora rose (Rosa multiflora). Add to that exotic insects and tree diseases (wooly adelgid, chestnut blight, gypsy moth to name a few), poor land practices, climate change, earthworms, acid rain and the already-mentioned fragmentation of forests.

There is good news! Individuals have ways they can help the forest get or stay healthy. Since more than 80% of New York's nearly 19 million acres of forest are held in private ownership, landowners have a huge ability to impact forest health. Landowners can plant native landscape plants instead of invasives, and can help eliminate invasive plants. In the right numbers, deer can actually help, too...Mile-a-Minute vine and Euonymus are on their menu.


Deer Savannah

In some places, deer exclusion fences are being installed, and/or hunting is being encouraged (landowners can allow limited hunting on private property; check with the DEC on how) to help reduce deer densities and hopefully help forest regeneration. Ted recommends that landowners avail themselves of the free information and help available from the NYC Watershed Agricultural Council and the DEC foresters, as well as Cornell Cooperative Extension.

All of us who enjoy the Great Swamp want clean water, a healthy, diverse landscape and abundant wildlife for ourselves and the next generations. We need to be aware of the signs of poor forest health, learn about what plants belong in the forest and what may be harmful. What can we do? We can definitely change planting practices, manage the forest on our own properties, and encourage healthy forest regeneration. Watch for local programs for homeowners.

Special thanks to Dan Aitchison, Curator of Wildlife for Westchester County Parks; Bill Harding, Executive Director, NYS Dept. of State; Ted Kozlowski, Certified Watershed Forester; and Kevin Clarke, DEC, for their invaluable information, expertise, and insight.

NORTH HOLLOW—*A Legacy Preserved*

by Judy Kelley-Moberg

A $653,500 portion of the Highlands Conservation Act grant was used to acquire NORTH HOLLOW, a 261-acre parcel that will connect the Cranberry Mountain Wildlife Management Area to Haviland Hollow Road. The grant required a non-federal dollar- for- dollar match in order to reach the assessed value of the property. The Trust for Public Land worked over a period of years with the Blumberg family to make this transaction work. When Gerald Blumberg acquired the land over 50 years ago, he thought it was something special, saying, "They don't make land like this!" He passed away in 2009 but his son Lawrence and daughter-in-law Robin were determined that his father's "special place" would be protected. The Blumberg family wanted the land to be his legacy for everyone to enjoy and generously donated half the value of the property to meet the match.

The 2004 federal Highlands Conservation Act (administered by the USDA Forest Service) was designed to provide monies to acquire important land parcels identified by the governors of the states that formed the geologically related Highlands that run from Pennsylvania through New Jersey and New York to Connecticut. The eastern portion of the Hudson Highlands forms the bedrock of Putnam County. This eroded ancient mountain chain contains unique natural habitats and historic sites. Its wooded ridges protect and supply water to reservoirs, recharge the aquifers and give urbanites a chance to recreate and enjoy nature. Governor Pataki earmarked the Great Swamp as a target area for the Highland Act funds in New York State.

Haviland Hollow Brook/Quaker Brook is one of the most significant tributaries in the south flow of the Great Swamp. Noted for its outstanding water quality, the brook begins in Pawling and runs eastward through Deep Hollow in Connecticut before turning back into Patterson where it flows through Haviland Hollow before emptying into the Great Swamp. Protecting "pristine" Haviland Hollow/Quaker Brook has been a significant goal of FrOGS, the DEC, the DEP, and concerned environmental groups in both Connecticut and New York. The state-owned Cranberry Mountain Wildlife Management Area and Putnam County's Ciaiola Park cover a portion of the north slope of the "Hollow". The New York, New Jersey Trail Conference has been developing a "Highlands Trail" from the Hudson to Connecticut. The "Wonder Lake" section was recently opened and there are plans to complete the New York portion of the trail along Haviland Hollow through the Cranberry Mountain WMA and Ciaiola Park.

From left to right; Willie Janeway, Regional Director of DEC; Raymond Merlotta, DEC representative, Wildlife Management Board; Dr. James Utter, Chairman of FrOGS; Lawrence Blumberg, former property owner; Michael Griffin, Supervisor, Town of Patterson; Mary Ellen Odell, Putnam County Executive; Joe Martens, DEC Comissioner, and Marc Matsil representing the Trust for Public Land. Photo by Peter Rostenberg.

Fall Highlights

The Great Swamp Art Show Student Art Contest
photo by Don Turner

Nancy Clark, chairperson of the FrOGS Art Committee, presents John Delgiudice of Pawling High School with the first place award in the annual Peter Dunlop High School Art Competition held at the Great Swamp Art Show in October.

"Turtle Man" Michael Musnick in the Field

Decked out in old clothes, a baseball cap and waders, "turtle man" Michael Musnick checks on the many wood turtles he monitors in the field. He locates the "study" turtles with a large hand-held antennae that can pick up radio signals from transmitters glued to the turtles' shells.

FrOGS Program "Boardwalking Through The Great Swamp" *photo by Judy Kelley-Moberg*

Dod Chahroudi, steward of Putnam County Land Trust's Laurel Ledges Preserve explained the "hows and whys" of building a nature trail between a wetland and a sheer cliff. The hikers could then better appreciate the Preserve's "floating boardwalks".

Building the Appalachian Trail Boardwalk in Pawling
photo by Dorian Winslow

Noland Hisey had a large audience for his on-site talk about the boardwalk and how it was constructed. Judy Kelley-Moberg of FrOGS acted as the naturalist at this Oblong Land Conservancy's "First Saturday" event. Beaver behavior was the topic of discussion.

Tabling at Patagonia *photo by John Handrik*

In December, FrOGS headed to the new Patagonia Tin Shed pop-up store on Third Avenue in Manhattan. We were invited to set up a display to celebrate the store's opening and Patagonia's support for local grassroots organizations that are "working to make a real difference" in environmental stewardship. In the photo: Dr. Utter, Judy Kelley-Moberg, Edie Keasbey and Gordon Douglas.

MEET DON TURNER
Photographer and FrOGS Volunteer

Don used his business degrees to work in real estate marketing, but when he picked up a camera he became passionate about nature photography. He used his photos on the families' Christmas cards and then made "nature notecards" for craft shows including the Great Swamp Art Show. Don has volunteered his talents as a photographer at FrOGS events and been instrumental in getting them into the local newspapers. He admires the work of Eliot Porter, whose photographs reveal the beauty of nature in the ordinary places all around us, if only we take the time to look.

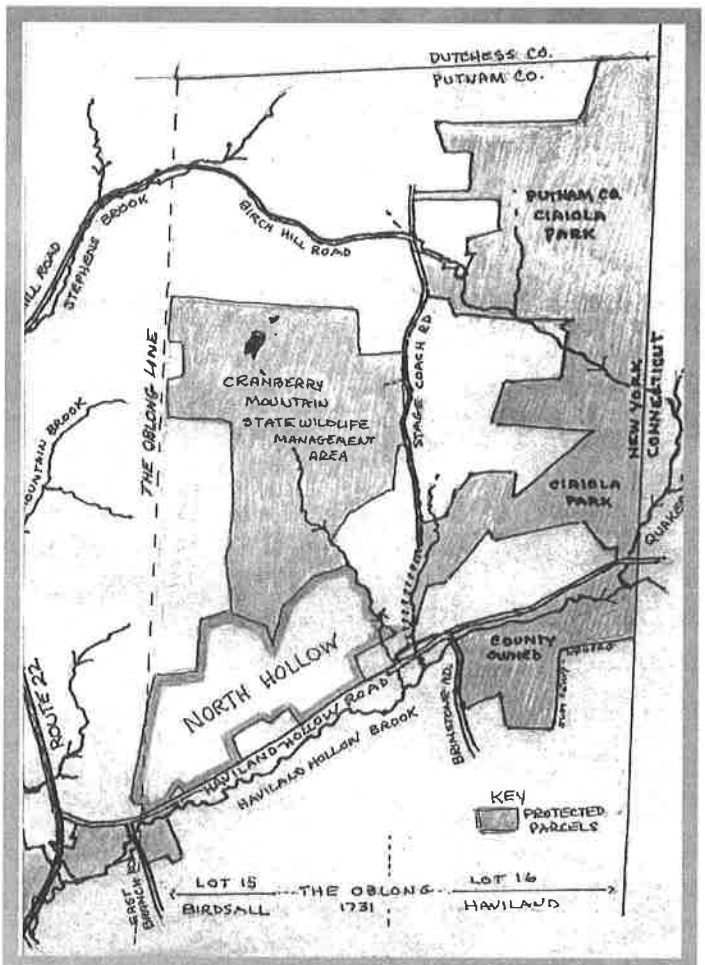
On December 9th the greenhouse at Claire's Garden Center was packed with an upbeat crowd ready to celebrate the addition of NORTH HOLLOW to the Cranberry Mountain WMA. The park will now contain 728 acres of forest land and protect the north slope of Haviland Hollow Brook. All the speakers, starting with Commissioner Joe Martens of the DEC, repeated the same themes: "great idea", "incredible persistence", "great family", "great land acquisition and habitat protection", "good for the town", "local taxes paid by the State", and "important for wetlands and stream protection."

Some grant money has been earmarked as "seed money" for the remaining (more than 300-acre) Blumberg property south of Haviland Hollow Road. This parcel would provide critical protection for the uplands and riparian corridor that contains Haviland Hollow/Quaker Brook.

The "Stone Throne." Photo by Judy Kelley-Moberg

A topographic map shows that Haviland Hollow lies between the extremely steep southern slope of Cranberry Mountain and the gentler slope of Brown's Mountain to the south. NORTH HOLLOW runs along the southern ridge of Cranberry Mountain and down the slope to Haviland Hollow Road (excluding several private properties). We were very excited about the property and several of our members hiked the area. An old logging road crisscrossed with fallen trees and laced with seeps and springs runs up the slope of NORTH HOLLOW to a plateau behind Claire's Garden Center. Glen Waruch, owner of Claire's, said the property had been logged about 15 years ago. The forest is now composed of second growth oak, American Beech and Black Birch with an occasional majestic Tulip or Beech tree. Close by the old road is a curious round fieldstone structure known locally as "The Stone Throne". It's big enough to climb into (waist high) with a stone seat to sit upon. Is it an old hunting blind,

Continued on page 7.



In 1731 a two mile wide strip of land called the Oblong was created to settle the boundary between Connecticut and New York. The Oblong was divided down its length into 2 adjacent 500-acre farm lots. "North Hollow" was part of Lot 15. Nathaniel Birdsall one of the original surveyors of the Oblong owned Lot 15 in 1761. Benjamin Haviland a fellow Quaker owned Lot 16 to the east. The Havilands became more prominent as the Birdsalls sold off most of their land in "The Hollow". Cranberry Mountain used to be called Burch Hill (a family name) and Stagecoach Road wound up its southern slope to the farms on Quaker Hill. When Danbury was burned by the British in the spring of 1777, Col. Henry Ludington led his Dutchess 7th Militia through the "Hollow" to help harry the retreating British forces out of Connecticut. In the fall of 1778, General Washington and his troops were quartered along Route 22 and in Haviland Hollow. When meeting with General Wayne who was quartered at Havilands, Washington shod his horse at Joel Winter's blacksmith shop on Stagecoach Road.

Pioneer Plant

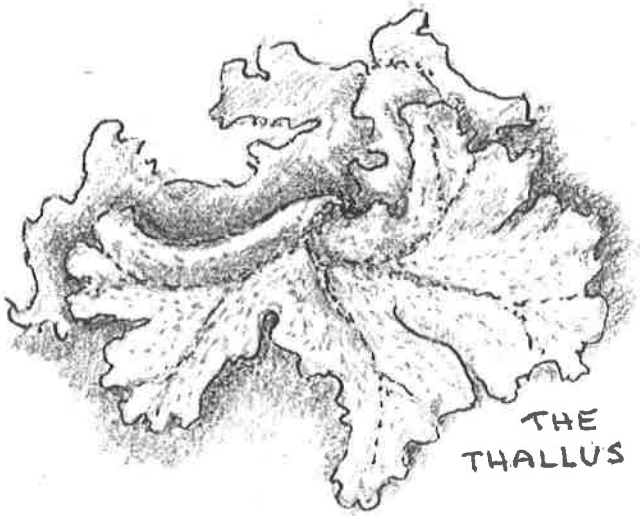
by Judy Kelley-Moberg

A dark green carpet of vegetation spread across the exposed surface of an old landfill by the edge of the road in Towners. My feet sank a good two inches into upright rosettes of lobed green pads all packed tightly together to form a dense fleshy mat. The plants reminded me of prickly pear cactus pads but most people thought they resembled the shape of a liver; hence the name LIVERWORT.

I tentatively identified the plant as Marchantia polymorpha, a complex and highly specialized thallose liverwort. It is the most common of the several varieties of liverworts and is found growing on the soil in greenhouses. Liverworts usually grow in moist, shady locations but Marchantia can survive in full sunlight on mineral rich soils even those containing heavy metals. Mats of marchantia often grow on the thin mineral soil and charred humus left after a forest fire.

Liverworts have been around for at least 470 million years. They are older than the mosses, and may be the very first "true" green plants to survive on the rocky surface of the earth. Liverworts are "Pioneer Plants" because they can survive on thin rocky soil and their growth and decay provides the organic substrate (soil) necessary for all the other green plants. The National Science Foundation is sponsoring a project called "Assembling the Liverwort Tree of Life" to learn more about their role in evolution.

Without a well-developed vascular system (tubes that transport water) liverworts can't grow very large. Single-celled, hair-like rhizoids attach the thallus (flattened green plant body) to the substrate. As it grows, the thallus divides into paired lobes. Marchantia's complex thallus is three cell layers thick. The upper layer contains air pores, the middle layer air pockets and chloroplasts as well as unique oil bodies (whose function is still unknown) and the bottom layer stores carbohydrates.

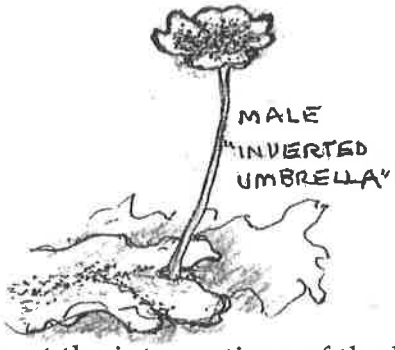


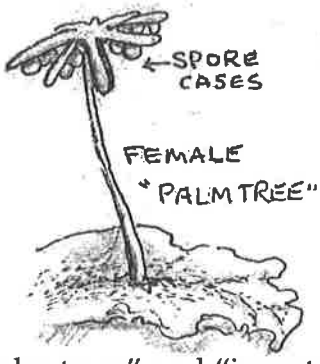
Water is essential to Marchantia's survival and plays a key role in both the asexual and sexual forms of reproduction in its life cycle.

In the asexual stage, small funnel shaped "splash cups" grow on the surface of the thallus. Nestled in the bottom of the cups are bright green buds produced by the parent plant. A drop of water splashes the tiny buds out of the cup to new locations. Plants can also grow from pieces of the original plant body.

Male and female reproductive bodies develop on separate male and female plants in the sexual stage of its life cycle. The eggs on the female plant are fertilized by sperm produced on the surface of a scalloped disc perched on top of a stalk that grows up from the male plant. The structure looks like an inverted umbrella. Raindrops splash the sperm onto the female plant where they can swim to the eggs. The fertilized eggs develop into thousands of spores packed in round sacs that hang beneath the branches of a structure resembling a miniature palm tree that rises from the female plant. Atmospheric changes cause the "branches" to move which helps disperse the spores into the air.

The "splash cups" on my sample of Marchantia are empty and the dried discs of several male bodies are still on their stalks. No female "palm trees" remain but spherical bodies





are forming at the intersections of the lobe divisions and I'm waiting to see what they become!

Tracking down a tiny plant growing in a roadside waste place has introduced me to a plant so ancient that it may be the pioneer of all the green plants that grow on the surface of the earth. Marchantia polymorpha's unique reproductive structures, from clever "splash cups" to miniature "palm trees" and "inverted umbrellas" really piqued my curiosity. Don't overlook the small stuff; it can take you to amazing places!

I used *Outstanding Mosses & Liverworts of Pennsylvania & Nearby States* by Susan Munch for field identification and http://www.biology.duke.edu/bryology/LiToL for its evolutionary role.

North Hollow *(continued from page 5)*

a boundary monument, a farmer's folly or a fire pit? The road continues to an old bridge made of large Black Birch trunks that have decayed and fallen into the streambed. The property runs further to the west but we stopped at the bridge.

Moving upstream from the bridge involves holding onto trees and scrambling up a series of steep rocky steps to the top of the ridge. The top-most rock step forms a lip at the bottom of a narrow V- shaped gorge. The small stream in the gorge drops in a thin waterfall over the lip into a recessed stone chamber before tumbling down the rest of the mountain. A rocky knob nearby provides a nice view of the hills to the south. The thin soil and exposed bedrock on the ridge supports Chestnut Oak, patches of Mountain laurel, mosses and low bush blueberry. A trail runs north along the ridge behind the Watchtower property (well posted) to the upper Cranberry Mountain WMA parking lot on Stage Coach Road.

Join us on February 12th for a hike from the lower Cranberry Mountain parking lot to the waterfall and lookout. Check the calendar for more information-registration required.

Thank You to Chuck Olson

by Judy Kelley-Moberg

In his 35 years in the graphics/printing/sign industry, Chuck has worked on everything from newspapers and magazines to text books. For the past 23 years he has owned and operated "Signs and Printing by Olson" on Route 22 in Patterson, with the help of his wife Daphne and daughter Alicia. They worked with the Patterson Historical Society on *Vignettes of Patterson's Past* and with FrOGS on the layout and printing of our newsletter. Fellow printers rate him as one of the best computer graphics guys they've ever met and a real problem solver. Over the years, Chuck and I have laughed a lot and been frustrated with the FrOGs newsletter, but somehow he manages to pull it together and make it look "great"! "So when do you need it?" Chuck says with a grin, knowing we're always late and in a panic to mail the newsletter. He never fails to come through for us and we get it in time!