



# SHAWANGUNK WATCH

Fall/Winter 2012 Preserving Open Space in the Shawangunks Volume 17 #2

Friends of the Shawangunks & The Shawangunk Conservancy

## State of the Shawangunks in 2012

At Friends' October annual members meeting, Bob Anderberg, the Open Space Institute's vice president and general counsel, discussed their land preservation efforts and goals in the Shawangunks. OSI would like to protect as much land as possible on the 52-mile-long span of the Shawangunk Ridge from north of Rosendale to the New Jersey border. By his count, 48,000 acres of land on and around the Shawangunk Ridge have been preserved to date. Anderberg says that "right now is a difficult time for land acquisition since public money is drying up. We need all the help we can get!"

### RECENT LAND ACQUISITIONS

Since last year 2,647 acres have been preserved. The biggest news is the purchase by OSI of 875 acres on the east side of the ridge from Smiley Brothers, Inc., owners of Mohonk Mountain House. It includes three farms and the testimonial gateway, a local landmark that once served as the gateway to the Mohonk property. OSI in turn transferred 534 of these acres to the Mohonk Preserve. The remaining 320 acres will continue to be farmed.

◆ Additional land has been acquired in the Giant's Ledges area for the Mohonk Preserve, bringing the Preserve all the way to Rosendale.

◆ Protected acreage in the Peters Kill Gorge now totals over 600 acres, including spectacular land along the Peters Kill stream.

◆ Minnewaska State Park Preserve, the largest public park preserve in New York State, has grown to over 22,000 acres. The preserve has been assembled through over 35 separate acquisitions, ranging from the 6,995-acre parcel of the Lake Awosting Tract in December of 1971, to a one-third acre acquisition on Jenny Lane. Last year an additional 380 acres were added to the preserve: the Ukrainian National Association parcel of 235 acres which includes the splendid Little Stony Kill Falls, the Kelly Farm on Mt. Menagha Road, and the Bellvale Partnership, a 78-acre parcel of open space near Stony Kill Falls.

### ONGOING PROTECTION EFFORTS

The Southern Shawangunks, including Shawangunk Ridge State Forest, Roosa Gap State Forest, Wurtsboro Ridge State Forest, Basherkill Wildlife Management Area and Huckleberry Ridge State Forest, is a real success story. The many units of state ownership south of Route 52 protect thousands of acres of land on and adjacent to the Shawangunk Ridge. OSI "doffs their hat" in honor of the NY-NJ Trail Conference "which has labored mightily with thin resources to protect important land in the Southern Shawangunks."

◆ OSI continues to protect farmland through the purchase of development rights. It has protected a total of 29 farms totaling 3,500 acres in many towns in the Rondout and Wallkill Valleys. This not only protects historic farmland from development, but enhances the Shawangunk viewshed and helps preserve a more rural landscape.



photo by Nora Scarlett

◆ OSI has a dream of an extensive rail trail network for the area, and is hard at work protecting rail trails.

◆ In the southern part of the Northern Shawangunks (from Rte. 44-55 south to Rte. 52) there is a marvelous, continuous wilderness—almost roadless—that is now more than 32,000 acres.

◆ Yet another OSI dream is a conservation corridor between New Paltz and the high peaks region of the Catskills. Theoretically you will be able to walk from New Paltz, to Mohonk, through Minnewaska, on through the Witch's Hole to the Lundy Estate and then into the Catskills.

Kudos to OSI for their stellar and continuing role in making the Shawangunks a world-class preserved area that has so much to offer to all those who love it, use it and, most especially, realize how precious a resource it is. 🌿

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## SHROUDED IN THE CUSTOMARY MYSTERY

by John Thompson

The Mohonk Preserve's acquisitions in Rosendale extend protection to some of the northern sections of the Shawangunk Mountains, and link the Northern Preserve to the Wallkill Valley Rail Trail, and to newly acquired bouldering areas. The properties are both historically and ecologically significant. The area known as "Giant's Ledges" has played a role in celebrated Rosendale cement industry.

Walking south from the Rosendale Trestle along the Wallkill Valley Rail Trail, you pass two cement silos and a long wall of nine lime kilns to the east. If you look west into the woods you see a kiln with two hearths. What's the story here? Why a kiln in the woods? This kiln is on an outcrop of Shawangunk conglomerate and behind the kiln is an old abandoned limestone mine (now filled with water) evidence of a juxtaposition of older Shawangunk rock over the younger limestones.

Rosendale became world famous for its calcareous bedrock (limestone and dolomite), and the current landscape is pockmarked with room-and-pillar mines and quarries. These kilns were loaded from the top in alternating layers of coal and raw stone. The load was baked under the supervision of the kiln operator. The burned rock was withdrawn from the bottom of the kiln and upper layers were continually refilled. The burned rock was then sorted, with the properly-burned stone taken to a mill to be ground to a fine powder and put into barrels to be shipped. Rosendale cement dominated the industry in the latter half of the 19th century. By 1898, Town of Rosendale cement production peaked at 3.5 million barrels per year, about 42% of the cement manufactured in the United States. At the time, fifteen cement plants were active in Rosendale, employing 5,500 people. The manufacture of Portland cement, begun in 1871 in the United States, caused a decline in natural cement after 1900.

Mining and quarrying exposed a great deal of bedrock to geological study. This provided a great outdoor classroom for the 1919 and 1920 Princeton Geology Department expeditions to Rosendale to study the geology of the Rosendale Cement District. Professor, Dr. Gilbert van Ingen, originally from Poughkeepsie, brought his students to this area to study fossil beds and structural geology. The students stayed in Rosendale at the Valley Inn, traveling the surrounding countryside identifying bedrock layers and surveying, measuring, and diagramming geological formations. One of the students, Harold Wanless, published his thesis in 1921 detailing the crew's daily movements through the region. The group took photographs that document an industrial landscape in decline—a landscape that has greatly changed.

In mapping the geology of the "North Section of Miller's Land" on October 27-31, 1919 and October 17-20, 1920, the students worked their way from a yellow house (Charles Delora) near Rosendale Plains, across "Miller's Kiln," the Wallkill Valley Railroad bed, a place they called "Hogg's Kiln," and up onto the Shawangunk ridge. These kilns were adjacent to the railroad, so shipping their product was opportune. What the students called the "Miller's Kiln" was constructed in 1903.

Thomas Miller, Sr. was president of the company at that time, and Thomas Jr. was manager of the Rosendale Plains Plant. The New York Cement Company buildings burned in a fire on December 13, 1903 causing \$250,000 in damage and putting 150 men and 50 boys out of work.

The cement quarry and the kiln on the west side of the tracks was started in 1906 by William Hoag, in competition with the kiln across the tracks. The limestone is on the surface here. Ira Coutant was in charge of the men in the new quarry according to the *Kingston Daily Freeman* (December 13, 1906), "where cement will practically be taken from the fields." The Directory Of American Cement Industries of 1909 stated that the William M. Hoag Cement Company made only experimental runs in 1907. Hopefully further research will reveal more of the history of this kiln.

Not only does the Giant's Ledges parcel have important cultural sites, but the geology of the area is more diverse than other areas of the Mohonk Preserve due to the Tillson Thrust Belt on the eastern section of the Giant's Ledges. The fields of 1903 that William Hoag quarried have grown up to a forest of Tulip Tree and American Beech mixed with oaks that occur on calcareous bedrock, just west of the Rail Trail. The composition of tree species in this stand is unique on the Mohonk Preserve. While the Mohonk Preserve is well known for its ridgetop dry, low-nutrient habitats, an outcrop of limestone forms

a low ridge parallel to the Wallkill Valley Rail Trail, providing a habitat unique to the Mohonk Preserve. Preliminary surveys show that this calcareous bedrock provides habitat for Maidenhair Spleenwort, Ebony Spleenwort, Wild Columbine and Hepatica.

Just as those Princeton University students of 1919 looked forward to their expedition to Rosendale to see fascinating geology, we are anxious to continue to discover new aspects of the history and ecology of the Giant's Ledges so that we can better understand the interaction of historical use with ecology.

*John Thompson is director of conservation science for the Daniel Smiley Research Center of the Mohonk Preserve.*



Directory Of American Cement Industries of 1909 stated that the William M. Hoag Cement Company made only experimental runs in 1907.

# THE SHAWANGUNK ECOSYSTEM OF YESTERDAY, TODAY AND TOMORROW

by Marc B. Fried, courtesy of the *Shawangunk Journal*

Worldwide, we hear of anthropogenic climate change, pollution, extinction of species, deforestation and loss of genetic diversity, all very real and dangerous trends. But here in the northeast and probably through much of the eastern U.S., we live in a time of great anomaly in the natural environment: for the decline in farming, especially over the past several decades, has resulted in a dramatic transformation of the landscape that goes counter to the worldwide trend.

Bounty hunting in the 18<sup>th</sup> century and forest-related industries of the 18<sup>th</sup> and 19<sup>th</sup> centuries, as well as the clearing of land for hay and pasture, had culminated by the late 1800s in a valley ecosystem practically devoid of trees, and of mammalian wildlife other than rodents and the occasional fox or raccoon. Photos and art from that period show a landscape whose forest growth was limited to stream banks and along stone walls. The primeval forest was confined to the rockiest, steepest and most remote of mountain lands, as well as those pockets of wilderness rescued by conservationists such as the Smiley families of Mohonk and Minnewaska. Most of the mountain slopes were a patchwork of open pasture and young, second-growth forest. As recently as 50 years ago, it was exceedingly rare to see a deer in the valley, and coyotes, fishers and wild turkeys were unknown. The trees of the Shawangunk pine barrens have ancient roots that usually re-sprout after fire, but the frequency of berrypickers' fires meant that most of the trunks and crowns were relatively young.

By late in the 19<sup>th</sup> century, family dairy farms occupied a huge percentage of the land in much of southern Ulster County, and dairying continued to be the primary land use through about the 1960s. No one has a greater nostalgic attachment to that visual and auditory environment than I; however, from the standpoint of habitat and wildlife, it was not a healthy and balanced ecosystem. Those open fields and pastures have now become young woods, and the mountain slopes maturing forests. The pine barrens have become more mature and diverse. With improved habitat has come an abundance of wildlife not seen in 200 years. (Other parts of the world have not been as fortunate: in places where relatively high population densities, over-grazing and deforestation of steep slopes have existed for millennia, loss of topsoil has prevented the spontaneous regeneration of forests that has occurred here.)

We in this part of the planet who love wild nature are fortunate to be living in this time. Complacency, however, would be foolish, for our improved situation occupies but a blink of an eyelid in biological time. Human intervention, both intentional and accidental, poses threats to this rebound of environmental health: even as the woods grow more mature, rapidly increasing human population in our region is resulting in the spread of subdivisions into former farm fields and regrown forests alike. And there are more insidious threats: from discussions I've had with Paul Huth, Director of Research at the Mohonk Preserve, Jerry Carlson, a research scientist with the DEC (Albany office), and Charlie Canham, senior scientist with the non-

profit Institute of Ecosystem Studies in Millbrook, it would appear that, in the Shawangunk region, the biggest and most immediate threat aside from development pressures may come from invasive species.

The great hemlock trees that survived the 19<sup>th</sup> century tanbark industry are now seriously threatened by both a warming climate and two invasive, aphid-like insects from Asia, the wooly adelgid and elongate hemlock scale. The adelgid is curtailed somewhat when winter temperatures fall below -5°, but climate change has decreased the frequency of such temperatures, allowing the insect to thrive. Since the hemlock is a northern species and our region is fairly near to its southern limit, a warming climate is likely to increase the stress on hemlocks in the long term, making them more susceptible to disease. So is defoliation from gypsy moths, another invasive species. Our hemlocks may go the way of the native chestnut and elm, both reduced long ago to remnant populations as a result of invasive fungi.

Butternut and American beech have been decimated by invasive fungi as well, and the sugar maple, stressed by atmospheric deposition of calcium, mercury and aluminum, is threatened by the deadly Asian longhorn beetle. After some initial success in confining it to small outbreaks in N.Y. City and a few other locations, it has spread to Massachusetts—though so far, not to the Hudson Valley. But it may be just a matter of time.

And what of the pitch pine, the characteristic tree of the Shawangunk bedrock? The pine needle miner is capable of turning huge swaths of the pine barrens brown for a period of months, and did so in 1988-95, but the infestation takes its course and the trees seem little damaged by the experience. Other, potentially more serious borers, some of them invasives, affect pines. It has not been determined whether the wood wasp (*Sirex noctilio*) or pine shoot beetle (*Tomicus piniperba*), or the mountain pine beetle currently devastating parts of

British Columbia and slowly spreading east, would be a future problem for pitch pines. Pitch pines are near their northern limit in the Shawangunks, so warmer temperatures in and of themselves may actually be beneficial.

There are many variables, as global warming, pollution and the spread of invasives alter the intricate web of life in ways that are as of yet unknowable. The only certainty is that change will occur, and will occur very rapidly in the context of the biological time frame. Some species of animal and plant life will not survive, others may prosper. Human beings, with their inclination toward coastal development, territorial competition and complex economic interdependency, will surely be among those most deeply impacted.



photo by Nora Scarlett

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*Marc B. Fried is author of five books about Ulster County and the Shawangunk region and writes a monthly column ("Notes From The Other Side") for Ellenville's weekly newspaper, the Shawangunk Journal. This article originally appeared in the Journal December 7, 2006, and is used with permission of the publisher. Some minor revisions made by the author for Shawangunk Watch mostly reflect scientific updates.*

# Problems on the Mohonk Preserve Trails

By Keith LaBudde

This past summer Friends President Neil Zimmerman, Open Space Institute (OSI) Vice President and General Counsel Bob Anderberg and I tried several times to arrange a meeting with Mohonk Preserve's President Ron Knapp and Executive Director Glenn Hoagland to discuss our concerns with the Preserve's management of its trail system. The problems fall into two categories: mountain bikes using hiking trails and the apparent failure of the Preserve to comply with its policy regarding new trails and the relocation of trails. We were told that the proper forum for such a discussion was the Preserve's Land Stewardship Committee, of which I am a member. At my request these items will be discussed at the December meeting.

## MOUNTAIN BIKES ON HIKING TRAILS



*A single track rider ignoring all the moss trampled in an off limits and pristine area*

Last fall I took a hike that started at the Mohonk Preserve's Spring Farm parking lot. I took the Chapel Trail to get to the Undivided Lot Trail, and switched to the Stokes Trail. Then, after going down Mossy Brook Road and along Cedar Drive, I used the Northwest Trail to get back to my car. I was very disturbed that on all four trails, Chapel, Undivided Lot, Stokes and Northwest, I found bicycle tracks, in spite of the fact that the Preserve prohibits bike usage of hiking trails.

I was further disturbed on a later hike when I found that the logs serving as water bars on the Crag Trail had been removed. I queried the Preserve as to determine if they

had removed the logs, or was if it was the work of bikers. I got no response. I suspected bikers, so as an experiment I went back to the trail and pulled some logs across it to serve as water bars. A week later the logs were gone. I repeated the experiment, with the same result.

These weren't my first encounter with mountain bikes on hiking trails. A few years back I encountered a group of six bikers on the Coxing Trail heading for Millbrook. I confronted the leader of the pack, telling him and his followers that bikes were not allowed on hiking trails in the Preserve (also in Minnewaska State Park Preserve). He responded with a sneer and continued on his way, but two of his followers, apparently overcome by guilt, got off their bikes and started walking them.

I was sufficiently bothered by my experiences to ask the chair of the Preserve's Land Stewardship Committee to put the matter on the agenda for the May 11, 2012 meeting. At this meeting I suggested that the Preserve modify its trail maintenance guidelines to no longer remove trees that comes down across trails unless it is not possible for a hiker to get over or under them. I feel that if enough obstacles requiring a biker to dismount are left on trails, it might discourage them from using the trails. At this meeting it was agreed to mount a camera on one of the trails bikers were using to see if they could be identified. I recently learned that the camera is to finally be mounted next spring.

Concern for hiker safety is the primary reason for excluding bikes on hiking trails. The type of biker who uses trails is looking for an exciting experience, one that involves speed on difficult terrain with a narrow track. Bikers can overtake hikers with little time for either to react, so accidents are waiting to happen. Hikers, unlike bikers, have no organization advocating on their behalf, so it is up to individuals to express their feelings on this matter. A further issue involves the impact of bikes on trails. The skidding of bikes on turns can result in serious ruts.

The Mohonk Preserve has recently acquired several parcels in the Rosendale area in what is known as the Northern Preserve. These parcels have previously seen mountain bike usage on their trails, a use that is continuing under Preserve ownership. An unfortunate side affect of this continued bike usage has been a growing reluctance of some property owners in the area to see some or all of their property become part of the Preserve. They do not want to see biking on "their" land. One owner who had planned to someday transfer a major part of their holding to the Preserve has abandoned the idea.

## NEW TRAILS AND THE RELOCATION OF TRAILS

Recently, I was hiking on the High Peters Kill trail when I noticed what was apparently a new trail heading up the to south end of the Lost City cliff. I found this disturbing because as a member of the Preserve's Land Stewardship Committee I should have been aware of any proposed new trails. The Executive Summary to the Mohonk Preserve Land Management Plan requires the approval of the Land Stewardship and Research Committees for new trails and the realignment of existing trails. When I asked about the new trail, I was told it was just a "social trail" that climbers had been using for years, as if that excused its construction without Land Stewardship and Research approval.

My concern about the bypassing of Land Stewardship is further exacerbated by several trail relocations that also have not been approved by Land Stewardship and Research. One of these occurred several years ago near the upper end of the Stokes Trail. In this case there is no question that the relocation vastly improved the trail, but Land Stewardship was not consulted.

More recently there were two relocations on the Millbrook Ridge Trail in the stretch between Millbrook Cross Trail and the actual ascent of the Millbrook Ridge. When I enquired about the reason for this I was told that the property owners (Wustrau and Majestic) had asked for the relocation. Imagine my surprise when, at a Gardiner Planning Board meeting considering the Majestic's proposal to construct a driveway to their landlocked property (see page 8), Mary Beth Majestic proudly claimed that the Millbrook Ridge Trail crossed their property. Then Werner Wustrau rose and further clouded the issue by stating that the trail used to cross his property too, but the Mohonk Preserve moved it; he said he hadn't asked to have it moved. When I reported to the Preserve what had been said at the meeting, the reason given for the relocations changed.

At one time the Preserve had received a complaint from a property owner across whose property the Millbrook Ridge Trail passed. That portion of the trail was relocated, and the Preserve contacted other property owners who also had the trail on their property, asking them if it was okay to keep the trail there or did they want it moved. Wustrau and Majestic did not reply to this inquiry. So even though neither asked to have the trail moved off of their property, the Preserve did just that without review by Land Stewardship. I find the Majestic relocation to be extremely unfortunate. The original route involved a delightful scramble over exposed rock; the new route is one of the least pleasant sections of trail in the Preserve. I am apparently not alone in this view, because obstacles placed to block off the old section have been removed, and somebody is cutting back the brush.

I would very much like to see the Preserve observing its policy of taking proposals for new trails and the relocation of existing trails to the Land Stewardship and Research Committees.

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*Keith LaBudde is the past, longtime president of Friends of the Shawangunks. He is a climber, former professor, and champion woodcutter.*

# A Year of Rehabbing Wildlife

by Annie Mardiney

December is the time of year wildlife rehabilitators must organize their paper trails and send wildlife logs and summaries to the NYS DEC and Federal Fish and Wildlife. This annual homework gives me a clearer picture of the reasons birds and animals get to my door in the first place (injuries resulting mostly from collisions, cats, dogs, logging, unnecessary human intervention) and my effectiveness as a rehabber (around 50-60% release). The spring and summer brings nestling birds and pinky rabbits by the handfuls; the fall and winter brings the starving juveniles, and seriously injured or sick adults. Page one of my log has two screech owls, a rock pigeon, a dark-eyed junco and a cottontail rabbit. All released except for the rabbit, who died from his injuries from being run over by a car. Page 96 has a rabbit, a flying squirrel, a house finch and a rock pigeon. Only the house finch has survived, fighting what's usually an extended battle with eye conjunctivitis. Today I took in yet another barred owl, this one with a leg injured by being tangled in a fence made of plastic netting (I hate that product!). Although I've had almost 500 birds and wild critters come through my hands this year, it's easy to recall the ones that moved me more than usual, and I will recount them below.

◆ In the spring, I retrieved two black vulture eggs from the second floor of a barn due for renovation. One egg hatched, but after several weeks, the nestling had a sudden health emergency, probably due to nutritional imbalances, even though she had been fed an organic, raw meat dog diet and all the body parts of fresh road kill. Yum. Throwing off my gloves as well as my hand-feeding "mask," my veterinarian prescribed multiple daily doses of vitamins and supplements for a couple weeks. "Shawnie" not only survived but grew into a beautiful, healthy adult. Unfortunately a four-day attempt to release Shawnie to the wild in Minnewaska State Park Preserve, at a location where vultures routinely fly and roost, failed. The Minnewaska park rangers were exceptionally helpful. Shawnie had become too attached to humans, and clearly was not going to survive with her own kind. I consider this a failure on my part, and feel very sad that this bird will never know freedom. But I have learned from this experience and a wildlife education center now has an awesome educational bird who is a real character and seems contented.

◆ In September, I got a call from frantic homeowners in Gardiner who said they had a hawk with a broken wing on their lawn. When I arrived, it was instantly clear that this was an immature bald eagle, and it was in terrible shape. One wing had been shattered near the shoulder and he was extremely underweight, so it was an old injury. After making phone calls from the site to the DEC, my veterinarian, and the northeast Office of Federal Fish and Wildlife, I brought the poor bird home for the night. The injured wing was hanging by a thread and literally fell off.. I cleaned off (and out) the hundreds of maggots, gave him subcutaneous fluids, antibiotics, and a quiet, warm place to rest. By the next day, after my vet further cleaned and sutured the wing stub, the eagle was perching, eating, even preening. I had already located a rehabber with the special license required by the Federal government to take care of bald and golden eagles. However, federal regulations mandate that any wild bird who has a wing amputation or loss about the elbow, must be humanely euthanized, whether it's a pigeon or an eagle. This unfortunate eagle had to be euthanized, and his body sent overnight to the only eagle repository in the country, located in Colorado. There, eagle bodies and feathers are evaluated, cleaned and stored for possible use by Native Americans, artists and others who apply to use eagle feathers and parts.

◆ Last fall, right after Hurricane Irene devastated the Hudson Valley and Catskills, I received an unusual number of downed owls, crows, ravens and hawks. All were starving, some on death's door. Many had internal bacterial or fungal infections. My veterinarian did blood work on many of these poor birds to confirm this so we could treat with appropriate herbal and conventional medicines. We could only assume



A black vulture that was hatched out in the spring. This bird is a month old and thriving. The fluff lasts for quite a while. It might take four or five months before they are fully feathered. Annie said it "took forever for she or he to grow up."



This two-month-old vulture is exercising his wings. He/she will be ready to fly at about four months

photos by Annie Mardiney

that the massive flooding killed many rodents, the main food source for owls and many raptors. The flood waters must have stirred up a lot of nasty bacterias and funguses, which the birds ingested when eating rodents or road kill, or by being in contact with the flood waters. With Hurricane Sandy roaring up the coast this fall, I was ready for the influx of birds in trouble, and did indeed take in three barred owls within a few days of the storm. I also attempted to rescue one more owl which had, oddly, slammed into a second-story window, midday, with such force that it looked like someone had hit the window as hard as they could with a rock or a bat. This particular owl had been confused by the hurricane winds, but was only stunned by the collision with the window, and took off on his own when I arrived.

◆ One bird was a surprise: a double-crested cormorant found in the middle of a farm field in Phoenicia. Unable to stand or stay upright in a shallow pool, this bird had to go to my vet. It turned out he had a broken back. Apparently, the hurricane winds must have tossed the cormorant off its migration path to the south, and somehow flung it into the field in the Catskills. There were cormorants still on the Hudson River at that time, but this one had to be humanely euthanized.

◆ Then there were the dozens and dozens of orphaned mallard ducklings from the SUNY-New Paltz campus this spring. This is still a mystery that I haven't had time to solve. The campus has used several legal techniques to discourage Canada Geese from living on or building nests on their grounds. As far as I can tell, it's worked. But at what costs? I believe the orphaned mallard ducklings were collateral damage, as I never found any dead adult mallards, and wonder if they were chased off or killed somehow. Certainly when spooked, the adults fly off and may not return, even if their newborn babies are crying for them. I was called down to the campus five or six different times by concerned students and others to rescue batch after batch of orphaned, hungry ducklings. All were successfully raised and set free, nowhere near SUNY New Paltz.

I could go on and on with the stories of orphaned and injured birds and wildlife, as can every wildlife rehabilitator. Every time I can let another bird fly free, or a rabbit race away into a meadow, or ease the suffering of an injured creature, I'm reminded that this is work worth doing as long as I am able, and as long as others keep an eye out for wildlife in need.

Annie Mardiney, lives on the edge of the Northern Preserve and is a member of the FOS board.

# Spotted Knapweed: Morphing of an Alien Invader

By Shanan Smiley,

When I first moved to the Shawangunks from Montana in 2003, I recognized spotted knapweed (*Centaurea stoebe micranthos*) in scattered places along the edges of carriage roads, but in relatively small numbers. I made the assumption that climate differences may limit the growth and success of spotted knapweed here, since it prefers dry range. However, over the last 2-3 years, it has suddenly become more successful. Why? What changed?

I decided to start at the beginning. What is the biogeography of spotted knapweed? How and where did spotted knapweed become a species? What are the habitat requirements for the species? How did it come to the United States? Has the species changed since it arrived? Each answer, of course, drew out more questions, but a very complicated story unfolded which shows how adaptable, resilient, and threatening this species could become.

The genus *Centaurea* first appeared in the grassland areas that developed in the Mediterranean in the Middle Miocene Epoch. The cool and dry conditions of the Pleistocene supported a huge continuous area of cold steppe reaching from Iberia to Asia throughout the interglacial period. Forest habitats were displaced southward during this time. This expanse of prime habitat enabled *Centaurea* to migrate from the Balkans, spreading both east and west.

The data suggest that spotted knapweed was introduced at least a few, if not multiple, times into North America. The earliest report dates to 1893 for Victoria, British Columbia. It subsequently spread into the coastal areas of British Columbia and Washington, USA. The species, however, appears to have spread into Washington in greater numbers from the east and was abundant in Montana before it became common in eastern Washington. This strongly suggests that spotted knapweed was also introduced to Montana, probably as alfalfa seed contaminants. Today, Montana suffers from large infestations by this noxious invader and thus may be regarded as one of today's core areas of spotted knapweed invasion.

Researchers also found it conceivable, that these introductions were from a relatively narrow geographical region, given that samples from Bulgaria contained all of the DNA sequences found in North American spotted knapweed. This area of central Europe was an important source of alfalfa seed shipped into North America, which makes multiple introductions definitely feasible.

The first written account of spotted knapweed in the Shawangunks didn't occur until 1952, at Sky Top. Frequented by horses and hikers alike, seeds could have been transported to the Shawangunks either through hay, or seeds on a hiker's boots.

Spotted knapweed is a highly adaptable plant. It can be found at various elevations, in moist or dry conditions. It is shade tolerant, but is commonly found in sunny areas and prefers well drained or gravel/sandy soils. It thrives in sunny, arid conditions in coarse soil. In North America, spotted knapweed grows mainly on disturbed, dry sites such as roadsides, and in its native Europe grows mainly in the grassland habitat. Density of knapweed has been found to be positively correlated with disturbance - the greater the disturbance, the higher the density of spotted knapweed. Spotted knapweed has also been found in some research to be allelopathic (roots excrete a toxin into



the soil) and can inhibit growth of other plant species and soil bacteria in the adjacent area, thereby reducing competition. In addition, it is not a species selected for forage by herbivores.

Reproduction is mostly by seed, but the plant can also reproduce vegetatively (spread through the root system). The seeds are too heavy to be distributed very far by wind alone; they fall to the ground within a few feet of the plant. Vehicles, livestock or contaminated hay or gravel often disperse seed over longer distances. It is a biennial or short-lived perennial, growing from a woody root crown. Here in the Shawangunks, spotted knapweed typically blooms from mid- to late July through September. Each individual flower will bloom for 2-6 days. The flowers will reopen after 20 days to disperse seeds. One knapweed plant can produce up to 1000 seeds!

Since spotted knapweed of North America is believed to have been sourced from Bulgaria, the comparison of its climate to that of the Shawangunks might shed some light on the potential for success. The climate of the grassland areas of Bulgaria is moderate transitional-continental with four seasons, an average annual precipitation of over 19 inches and average annual temperature of 50.9°F. Bulgaria has hot, dry summers with an average temperature of 73°F, and cold winters (average temperature 32°F) with snowfalls. The climates of Bulgaria and the greater Mediterranean region, compared with both western and eastern North America, are quite different. According to the records at the Mohonk Lake Cooperative Weather Station (1896-2011), the average annual temperature is 48.4°F, annual average precipitation is 47.95 inches, and annual average snowfall is 59.1 inches. January is the coldest month, with an average of 24.8°F, and the warmest month is July at 70.8°F. Precipitation does not vary much throughout the year, with the lowest amount being in February with 3.27 inches and the most in July at 4.52 inches. The average growing season is 180 days.

Researchers have found with robust cross-continental data that a shift of the observed climatic niche occurred between native (Mediterranean) and non-native (North America) ranges of spotted knapweed. These findings provide the first empirical evidence that an invasive species can occupy climatically distinct niches following its introduction into a new area. The niche shift could be caused by hybridization and/or evolution.

There is concern this species could eventually become an invasive "problem" in the Northern Shawangunk Mountains. Preventive removal may be advisable to avoid future crisis. While the invasion dynamics may change over time, the possibility that spotted knapweed may never become invasive, as seen in some areas of the Appalachians, should be weighed when considering control measures here and throughout the eastern U.S. This study illustrates that invasion dynamics can vary geographically and that land managers need relevant information to gauge an appropriate and economical response. Since this species is not used by any native fauna, is known to evolve quickly, has shifted climate niches, can be allelopathic and has a frightening potential of becoming a noxious weed, I would promote taking the more economical route of removing this weed while populations are manageable.

continued from previous page

Predictions of the effect of climate change in this region point to warmer and wetter weather, which are not currently the preferred conditions for this species. This increase in warmer and wetter weather is the same trend already documented over the 116 years of weather record at Mohonk. The population of spotted knapweed has already increased in this location, especially in the last decade, with increasingly warmer and wetter weather. Because of the many changes this species has already been capable of, I do not think it is wise to rely on hope that this species will not become invasive.

Bob O'Brien at Minnewaska State Park Preserve is the invasive species control field director of the NYS OPRHP. He is pioneering the use of biocontrols on Spotted Knapweed in the Shawangunks. Several insects that feed on various parts of the plants have been released on state lands where large fields of Spotted Knapweed are present. The effects are not seen immediately, but will take several years to control these large stands of the plant. Meanwhile, hand pulling is the most effective method of removal and control where smaller amounts are present. However, there are several different species of knapweeds in the Shawangunks: Black Knapweed, Tyro Knapweed and Royal or Brown Knapweed. So, if you are interested in being part of the solution, get a field guide, or find a trustworthy source online, and familiarize yourself with the distinguishing characteristic of this alien invader before you start pulling!

*Shanan Smiley is conservation biologist/collections manager at the Daniel Smiley Research Center of the Mohonk Preserve.*



## On Board!

Steve Jervis, a longtime Shawangunk devotee, has been added to the board of Friends of the Shawangunks.

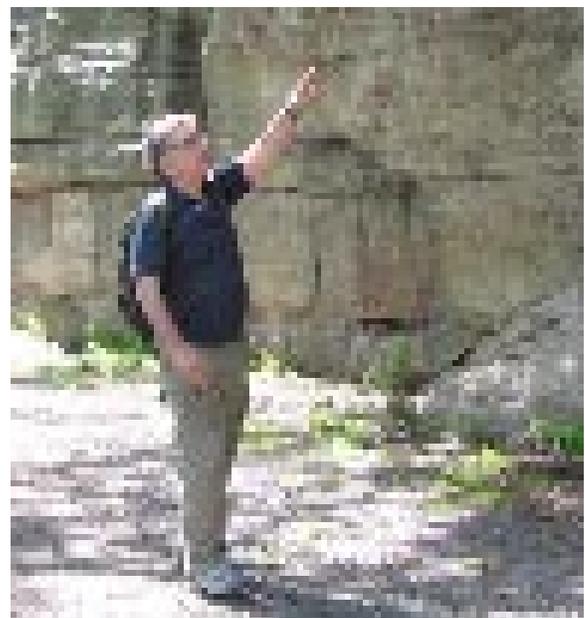
His devotion to the Shawangunks dates from his first climb in 1952, at age 14, with the Appalachian Mountain Club. He still climbs in the Gunks, though at a very modest level. He recently celebrated his 55th year as a member of the American Alpine Club. He is a life member of the Mohonk Preserve..

Steve's mountaineering trips have taken him to the Tetons and Wind Rivers (Wyoming), Canadian Rockies, Peruvian Andes, Ecuador, and Hindu Kush (Afghanistan), among other places. Now he and his wife travel a great deal (see his web site, [stevenjervis.com](http://stevenjervis.com)). Their home is in Brooklyn.

Steve has a doctorate in English from Stanford University. Now retired, for many years he was a member of the Brooklyn College English Department. He also taught at universities in Nigeria and Nepal. His book reviews and stories about climbing have appeared in the *American Alpine Journal*, *Appalachia*, and *Ascent*.

His article about the forthcoming conversion of the Gunks into a climbing gym is in *Alpinist* magazine, #40 (this is, he hopes, a joke).

Steve is happy to join the board of Friends and will do all he can to protect the beautiful Shawangunk Ridge that has played so large a role in his life



## Volunteers needed for Bat Assessment at Joppenburgh Mountain in Rosendale



The Wallkill Valley Land Trust and the Shawangunk Catskill Area Grotto used

volunteers last September to help assess any potential bat populations which may be utilizing Joppenburgh Mountain.

The former entrances into some of the mines under Joppenburgh Mountain were closed many years ago when mining operations ceased. While humans cannot enter these mines to visually inspect bat populations, there are openings large enough for bats to enter. Volunteers sat in small groups outside these entrances during evenings in early September to see if they could witness any bats swarming these entrances during sunset. Any data collected will provide valuable information to both the land managers and to bat biologists studying populations in this area.

There will be several opportunities to join future bat monitoring events.

If you would like to be on the mailing list for bat monitoring, please e-mail Cara at [cara.gentry@gmail.com](mailto:cara.gentry@gmail.com) with bat monitoring in the subject.

## Fighting a Driveway to Millbrook

by Keith LaBudde

This isn't an ordinary driveway, but an approximately 2,800-foot driveway to a site in the most highly-protected zone in the Town of Gardiner. Charles and Mary Beth Majestic are proposing to construct this driveway over heavily-wooded steep slopes, across a stream requiring a 30-foot-long bridge that can support fire trucks, to a location below the Millbrook cliff where they propose to build two houses.

The house sites are in what is known as the SP-3 Shawangunk Ridge Protection District. The District was created "to protect the unique environmental and science resource of the Shawangunk Ridge and its foothills." To proceed with the proposed driveway the Majestics needed to get the Gardiner Zoning Board of Appeals to grant them variances for the length of the driveway (exceeds 2,500 feet), for more than 700 feet of driveway on slopes of greater than 30%, and for an average grade of greater than 12%. The ZBA granted these variances. The buck was passed to the Planning Board.

At this point Friends of the Shawangunks, because we were alarmed at the magnitude of the impact this construction would have on the environment, hired an attorney (David Gordon), an engineer (David Clouser & Associates) and an ecologist (J. G. "Spider" Barbour) to assist us in fighting the proposed driveway. Each of these filed a report with the Planning Board citing the adverse impacts of the proposed construction. The Town of Gardiner Environmental Conservation Commission also submitted a report to the Planning Board that was highly critical of the project, but they were not allowed to talk at the Planning Board meetings.

From comments made by individuals on the board it appeared that the majority would approve the project in spite of all the objections raised to it. Our hopes of preventing the construction of the driveway rested on a provision of the SP-3 code that requires any construction to take place on the lowest buildable site on the property. Our engineer identified such a lower site in his analysis. The Planning Board hired an engineer to determine if this lower site is in fact buildable, and their engineer said it was not. At its November 20<sup>th</sup> meeting the Planning Board approved the construction of the driveway by a vote of 4 to 2.

This situation illustrates the frustrating fact that however well-intentioned the new zoning was, it can be sidestepped by individuals serving on zoning and planning boards who do not support it. Our attorney will be meeting with the Friends board in early December to discuss what else it might do to get the protection for the ridge supposedly provided by the Shawangunk Ridge Protection District.



## Save the Lakes Update

Hudson River Valley Resort's permit application has been rejected again. They continue to have problems getting approval from the DEC and the Town of Rosendale. HRVR's zoning amendment is inconsistent with the Town's Comprehensive Plan.

### DEPARTMENT OF ENVIRONMENTAL CONSERVATION

In April 2011, HRVR submitted several Permit Applications to the DEC for approval, for things like their proposed water supply and sewage plant. Two months later, DEC deemed the applications to be incomplete.

So, HRVR resubmitted their applications on July 25, 2012 and, once again, the DEC found them to be incomplete. Among the reasons: absence of supporting documentation for several key assertions made by the developer; the need for details on the proposed Restrictive Land Covenants that will (a) codify verbal promises made by the developer but (b) leave any enforcement to a vaguely defined Property Owners Association; need for a description of how Williams Lake and the adjacent lagoon will interact during and following storm conditions; need for detailed plans on proposed lake heat exchangers, which have the potential to alter the balance of seasonal temperatures in the lake.

The DEC has indicated that they will not accept HRVR's Final Environmental Impact Statement until HRVR submits acceptable permit applications...

### TOWN OF ROSENDALE

The Binnewater Lakes Conservation Planned Development Area (BLCPDA) zoning amendment is HRVR's response to the fact that their project, as designed, does not comply with current Town zoning law. By writing their own amendment to that law, and getting it approved by the Town Board, they can change the law, rather than the project. The BLCPDA has been widely circulated within various Town boards and all have provided extensive comments. The biggest concern of reviewers is the vague wording throughout this legal document, including terms such as "if feasible" and "are encouraged" rather than "shall." Other concerns include the 15-18 years allotted for development, language that closely matches HRVR's plan (creating a risk of "spot zoning" litigation), and a lack of consistency with the Town's Comprehensive Plan.

The Comprehensive Plan is intended to serve as a guide for Town planning. Zoning law provides a mechanism for ensuring that the vision of Town residents is carried out. The BLCPDA, however, does not follow that vision. Here's a comparison:

◆ The Town's Comprehensive Plan emphasizes protecting the water supply, maintaining environmental quality, and preserving open space.

The BLCPDA allows for a five-story hotel and 160 residential units in close proximity to two of the most pristine lakes in Ulster County, one of which would be used mainly as a water supply and geothermal heat source/sink.

◆ The Town's Comprehensive Plan calls for small-scale development centered on the major highway corridors and for economic variety of housing.

The BLCPDA does not provide for the economic variety of housing intended by the Plan, but only requires "Provision of an affordable housing component within the development plan or support of another affordable housing effort or project within the Town."

◆ The Town's Comprehensive Plan indicates the need for a process to enhance public access to Town water bodies and natural areas.

The BLCPDA states vaguely that any development 'shall demonstrate compliance with...inclusion of a public access component into the development plan.'

# Trunks in the Gunks by Nora Scarlett



Nora Scarlett has spent hours searching for unusual trees, capturing how they have adapted to the glacial landscape of the Shawangunks. She is fascinated with how they have persevered despite formidable obstacles, overcome adversity and succeeded in visually astonishing ways.

She is a professional photographer who left her studio in NYC and now lives in Gardiner, NY where she is working on various projects.

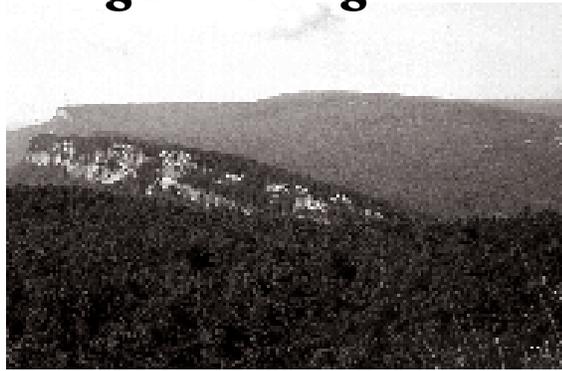
“Trunks of the Gunks” is a photography exhibit that was shown locally at Unison Arts Center. She is working on a Trunks book. You can visit her website at [norascarlett.com](http://norascarlett.com)

# Friends Goes Online

[www.Shawangunks.org](http://www.Shawangunks.org)

Check out Friends of the Shawangunks website at [www.Shawangunks.org](http://www.Shawangunks.org)

It has back issues of our newsletter *Shawangunk Watch*, links to dozens of Shawangunk sites, updates on ridge projects and threats, and more than 80 photos showing natural features of the ridge. The site also provides an easy way to join Friends, contact us, or send a donation using a credit card.



FRIENDS of the SHAWANGUNKS  
Preserving Open Space Since 1963

**Friends of the Shawangunks, Inc.** is a not-for-profit organization working to preserve open space in the Shawangunks.

**The Shawangunk Conservancy, Inc.** is a not-for-profit land conservancy.

Friends of the Shawangunks  
P.O. Box 270  
Accord, NY 12404

e-mail: [info@shawangunks.org](mailto:info@shawangunks.org)

## Give a Friends Tee Shirt

Tee shirts are \$15, and that includes shipping.

Our shirt is 100% cotton, and features a portion of the NY/NJ Trail map so you can never be lost if you hike in that area! Go to our website: [shawangunks.org](http://shawangunks.org) for an order form.



## PLEASE CONSIDER A YEAR-END CONTRIBUTION

There is still work to be done  
protecting Open Space  
and it is critical to be able to do it now!

### THANK YOU FOR YOUR SUPPORT

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#### Friends Newsletter

Editor: Annie O'Neill  
Design and production:  
Annie O'Neill,

Addtl. editing: Keith LaBudde

A copy of FOS and The Shawangunk Conservancy's latest financial report may be obtained by writing to the Office of the Attorney General, Charities Bureau, 120 Broadway, New York, NY 10271, or by writing to The Shawangunk Conservancy.

Printed on recycled paper

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## YES, I want to support your work

YES, I would like to join

- Benefactor \$ 250
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I would like to make an additional contribution of:  
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Amount to go to The Shawangunk  
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Please make checks payable to *Friends of the Shawangunks* or *The Shawangunk Conservancy*. Contributions are tax-deductible.

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