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of the Mianus River Gorge, Inc.

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## The Ecology of a Changing Forest

Whether we like it or not, the forests of southern NY are changing. To understand this change, how to lessen its impact, and improve the health of existing forests, we need to understand the historical factors that led to the creation of our woodlands.

By 1880 most of New York State was cleared of trees for farmland, with 241,000 farms comprising 22,900,000 acres. All natural predators were eliminated and white-tailed deer became nearly extinct. Soon farmers abandoned these farms for better lands out west and the trees grew again. At the same time, the deer population, without any predators and with plenty of food from the new forest, exploded. It is this super high deer population and the post-agricultural soils that dramatically influenced the forest that covers most of our area today. Characterized by soils high in nitrogen (from past agriculture activities), low-species diversity of trees (deer ate what they preferred), trees of the same age class (they all grew back at the same time), and no understory (destroyed by hungry deer), the poor condition of this habitat still negatively affects all wildlife that lives here. It also makes a perfect environment for colonization by non-native species introduced by increased global trade.

So how can we help improve the health of these forests? First we need to control the non-native species that are having the greatest impact. There are 379 non-native invasive species in Westchester/Putnam Counties right now and that number is growing. We can't eliminate all of them, but we can practice triage and control ecosystem-changing species like oriental bittersweet, mile-a-minute vine, porcelain berry and other vines along with aggressive shrubs like Japanese barberry. However, this strategy alone will not have much of an effect if we don't also address the influence of deer and work to improve forest soils. Fencing can play a role, but does not address the overall overpopulation problem.

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For newsletter, news and program updates  
via email, send your email address to  
[info@mianus.org](mailto:info@mianus.org) or put it on the return  
envelope with your donation.

The mission of Mianus River Gorge, an independent, not-for-profit organization, is to preserve, protect and promote appreciation of the natural heritage of the Mianus River Watershed through land acquisition and conservation, scientific research, and public education throughout the region.



## Scout Improves Taylor Preserve for Eagle Scout Award



Over the holidays this past winter, David Zelenz, along with the help of family and fellow scouts, completed his Eagle Scout Project at MRG's Taylor Preserve in Stamford, CT. Since the purchase of the Taylor Preserve, the ruins of an old stone fireplace and access across the dam that spans the river between our preserve and Newman Mills Park have caused problems for the MRG staff. The site attracts drinking, partying, and other poor behavior, especially during the summer. David, a scout in Greenwich Troop 5, spent several days demolishing the fireplace and removing more than three tons of rock and debris from the site. He also erected a metal fence at the edge of the dam to prevent people from accessing the preserve from the town park. In an effort to continue the restoration of this site, MRG staff plan to remove several dead trees on the site and replant the area in the near future. Thank you David for all your hard work and congratulations on your Eagle Scout Award!



## Wildlife Technician Program Update

MRG would like to welcome our new Wildlife Technician Program students: Kaitlin Furu (Carmel HS), Adriana DiGiacomo (Somers HS), Kayleigh Harney (Carmel HS), Rohan Shah (Dalton School), and Holden Skaggs (Dobbs Ferry HS). Kaitlin will be working on analyzing camera trap data from NYC and MRG to make predictions about species'

habitat selection and activity. Adriana will be looking at changes in phenology (seasonal timings) of native plant species from old records from the 1950s compared to now. Kayleigh plans to use eDNA to determine amphibian species composition in several of MRG's vernal pools. Rohan and Holden will be working on building wildlife corridor models for different species in and around the town of Bedford (see the article to the right for more info on this project).



## Spotted Lanternfly Arrives in the Mianus River Gorge

In October, MRG staff trapped spotted lanternflies at several locations throughout the Preserve. The spotted lanternfly (*Lycorma delicatula*) is an invasive species from China that was first detected in Pennsylvania in September 2014. The spotted lanternfly feeds on a wide range of fruit, ornamental and woody trees, with the invasive tree-of-heaven (*Ailanthus altissima*) being its preferred host. Spotted lanternflies are invasive and can be spread long distances by people who move infested material or items containing egg masses. As it expands its range in the Northeast, this pest poses a serious threat to the region's grape, orchard, and logging industries. MRG encourages our neighbors to keep an eye out for the spotted lanternfly and remove the invasive tree-of-heaven from private



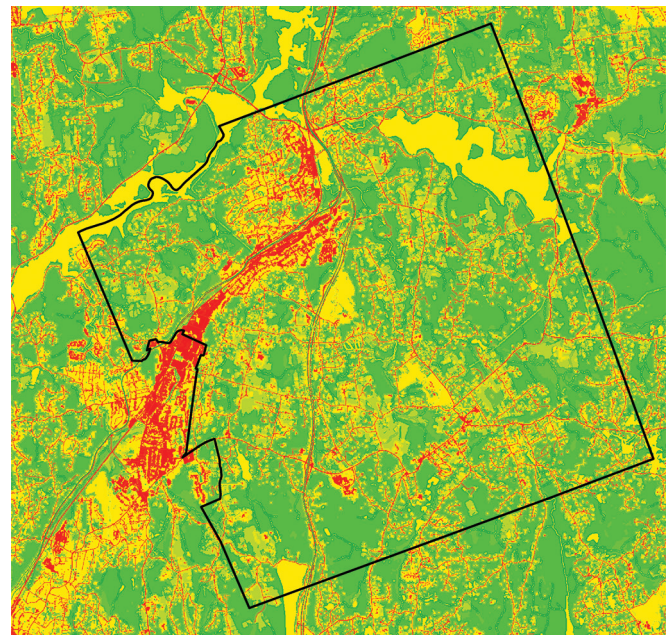
properties. Neighbors can also help control the species by scraping egg masses and vacuuming up the bugs (a shop-vac will work), particularly after storms when they can be found at the base of trees. For more information on what you can do, please go to <https://www.aphis.usda.gov/aphis/resources/pests-diseases/hungry-pests/the-threat/spotted-lanternfly/spotted-lanternfly>



## Corridor Mapping Project

MRG recently received a grant from the Town of Bedford to map potential wildlife corridors in and around Bedford. Wildlife “corridors” are pathways that wildlife use to move from place to place, connecting areas that have resources that a given species needs (i.e., habitat). Parks and preserves such as MRG provide important habitat for wildlife but each individually is not large enough to support stable and persistent populations. There needs to be some amount of connectivity between high-quality areas to provide dispersal opportunities for young animals, ensure gene flow, and to replenish sub-populations that may have declined. In other words, increasing connectivity between protected areas increases the overall stability and viability of the entire network.

Corridors become more important as the landscape becomes more fragmented, usually by housing, roads, and other human development. Identifying paths, strips, and corridors that connect patches of high-quality habitat can be complicated but there are a few analytical techniques that can make predictions. MRG plans to map these corridors using geographic information systems (GIS) and two connectivity analysis techniques, and track a number of potential corridors for micro-features that are not picked up with remote sensing data (e.g., fences that may block animal movement; culverts or underpasses that may facilitate it). We also hope to deploy passive sensing equipment to detect actual usage of these corridors.



**Preliminary map of the Bedford area showing relative resistance to wildlife movement based on several categories of land cover (red is high resistance, yellow is medium, green is low resistance). Landscape resistance is used as an index of how likely an animal is to move through a particular location based on its geographic classification (i.e., land cover, such as forest, development, water, etc.). There are several analyses that can produce a map like this and determine the most likely paths an animal will take to move between two locations based on the supplied resistance values.**



## MRG co-authors publication with Cornell University



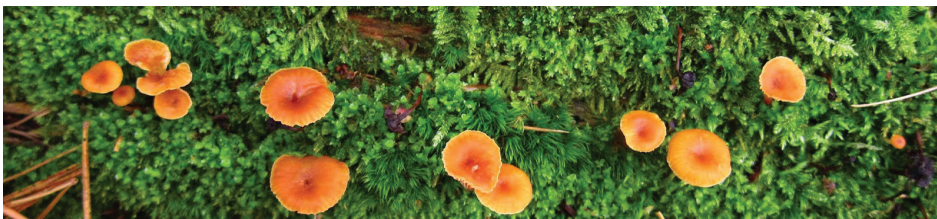
Budd Veverka is a co-author of an upcoming peer-reviewed article in the *Journal of Biological Control*. The article titled Overwintering diapause and survival of western *Leucotaraxis argenticollis*, a promising biological control agent for *Adelges tsugae*, in the eastern United States looks at overwinter survival of the silver fly, a hemlock woolly adelgid biocontrol, being reared at Cornell University and introduced into important hemlock stands across New York State. MRG was an important partner in the pilot research on this paper and built the housing structure used across the country to monitor the overwintering flies.

## The Ecology of a Changing Forest

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It just pushes deer to adjacent unfenced land. The white-tailed deer population is best controlled by predation (coyotes, bobcats, and bears) and hunting (humans as predators).

To help improve soil health we can let fallen trees lie and resist the urge to clean up the forest floor. A messy forest is often a healthy forest, defined by species diversity, plenty of dead logs and leaves to nourish the soil, and structural topography to allow plants and animals to move into new niches in a changing climate.



## Ways to Give

### Make a Gift of Stock

When you transfer ownership of securities to Mianus River Gorge, you may receive a charitable income tax deduction for their full market value. To donate stock, please talk to your broker and ask them to contact us for account details.

### Donate a Vehicle

Mianus River Gorge has partnered with Donate for Charity (DFC) to receive the best-possible donation when they sell your vehicle. Simply call (866) 392-4483 for assistance with your donation.

### Donate Online

Your donation through PayPal or with your credit card is secure.

### Donate by Check

Please send your check to Mianus River Gorge, 167 Mianus River Rd., Bedford, NY 10506.

### Planned Giving

Donate land or a conservation easement, make a bequest in your will, name Mianus River Gorge as a beneficiary in your IRA, or any number of charitable giving options. Please contact MRG Executive Director Rod Christie at (914) 234-3455 to discuss a donation of land or a conservation easement.

## BOARD SPOTLIGHT

### Meet Bill Foulke



Long-time Bedford resident Bill Foulke has served on the Mianus River Gorge board of trustees for over 25 years.

His thoughtful contributions and steadfast support of the Gorge have helped steer the course for these many years.

Bill appreciates the importance of preserving Gorge lands, protecting the river, and properly stewarding this beautiful place to experience nature.

Bill is especially impressed with Rod Christie, Chris Nagy, Budd Veverka, and Jean-Luc Plante's work with schools, universities, and other institutions to amplify the scientific aspect of what we do at the Gorge. Bill believes that scientific and educational programs are key to our future and will

become even more visible and important parts of our contribution to the environmental community.

There is no end to the outdoor activities Bill enjoys – trout fishing, bicycling, swimming, and especially playing with his nine grandchildren. "MRG is one of the most effective, efficient, and least bureaucratic – and most fun – organizations I've ever worked with," said Bill, "and you can quote me."