

Autumn 2011

HUYOCK PRESERVE



Myosotis Messenger

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Message from the Executive Director:



One of the founding purposes of the Huyck Preserve is to "preserve the natural beauty of the Rensselaerville Falls." Preservation of land differs from the concept of remaining static, like a picture or canned tomatoes. The trees grow, birds migrate back and forth, new species arrive while others leave us over time. Change in the land is actually what is constant. Preservation can be thought of as allowing natural processes to unfold in a relatively undisturbed way. Over our lifetime we can take note of fields giving way to shrubs, and then to forest with the old

stone walls standing in testament to the land's past. Gradual change of the flora and fauna of the Preserve is expected and can add to our love of a place, however occasional large disturbances such as gypsy or tent caterpillars are quite jarring.

The flooding from tropical storm Irene in late August was the most intense flooding event in anyone's memory. The shale banks of both the falls and along Ten Mile Creek were scoured by the rushing water and tens of thousands of stones and boulders that were dislodged and tumbled down the creek bed. The top of the falls was further carved out under the western lip. The engorged creek lapped up against and then over the walkway of the upper falls bridge, dislodging it completely to rocket downstream. The water completely eroded the eastern stone foundation piece by piece until the iconic red bridge at the foot of the falls was left supported by only inches of soil and levered by the center stone pillar. In a mere eight hours, from 10 a.m. to 6 p.m. on Sunday, August 28, the powerful flooding had the geologic impact equivalent to decades of typical erosion. While certainly a bit scary (and tragic for our neighboring communities that lost so much), there was beauty in the event. Irene's flooding was a reminder that the Rensselaerville Falls are not a static geologic feature, but our purpose of preserving the "natural beauty" of the falls includes the beauty of the geologic process that has, and continues, to shape this cascading waterfall. Efforts are currently under way to restore and replace the bridges at considerable cost. The end-of-year Annual Fund appeal will be out in November and we truly need your support to fully re-open our trail system and rebuild our bridges.

Speaking of change, I am delighted to welcome Dr. Dawn O'Neal to the staff in the new position of Director of Conservation Education. Dawn will focus on expanding our tuition-based programs, connecting the field station with regional colleges and universities, and enhancing our public and youth programming. Dr. Susan Beatty, our Scientist-in-Residence who was Associate Dean of Natural Sciences at the University of Colorado-Boulder, recently accepted a position to become the Dean of Arts and Sciences at Portland State University, and so while she will continue her research here each summer, she's decided to pass the torch to a new lead scientist at the field station. A search for this seasonal position will begin this fall.

Please take note of the exciting new upcoming winter programs, visit the Preserve for a crisp fall hike and thank you for your continued generous support of this special and unique preserve and field station.

A handwritten signature in dark ink, appearing to read "Chad Jemison". The signature is fluid and cursive, with a long, sweeping underline.

The “Arms Race” in an Acorn

By Lynn Love



Twenty-two years is nothing in evolutionary time, but it is long enough to figure out some things about evolution if you are a diligent scientist. That is exactly what Huyck Preserve Research Associate Joan Herbers did. In the process, she spurred a generation of research on slave-maker ants, expanding the field of co-evolution studies and, along with several of her scientific protégés, made some important discoveries.

Now a professor at The Ohio State University, Herbers was a young assistant professor at the University of Vermont in 1979. A colleague invited renowned biologist Tom Eisner to lecture and from him Herbers learned that there was a hidden gem of a field station just 170 miles away that offered research grants and free summer housing—a boon for any young scientist earning an entry level salary.

She spent that summer and the following one, 1980, poking around the Huyck Preserve with her kitty litter pan “—essential for collecting specimens!”—searching for something interesting to study. Her memory of the “aha” moment is vivid: “When I snapped open that first twig and saw those ants spill out, I knew I had my project.” What she saw that got her excited was a colony of two- to three-millimeter ants, then called *Leptothorax longispinosus*. (Non-scientists know them as acorn ants; Herbers called them leptos.) In one twig colony there were two queens and in another nearby, three. The more she collected them, the more Herbers found the queen numbers to vary. It seemed random, but probably wasn't. She realized that if she simply pursued the reasons why, a substantial project would unfold before her.

By 1981 and for nearly a decade, Herbers explained queen behavior in acorn ants in a series of research publications, all based on work she did at the Huyck Preserve, as well as Mallett's Bay State Park in Vermont and Watoga State Park in West Virginia. Because the leptos in West Virginia never had more than one queen, compared with the multiple queens found in the nests in New York and Vermont, Herbers eventually determined that a combination of hard-wired genetics and variable environmental factors determined how the ants organized themselves. The research earned several

promotions and she eventually left Vermont for a new job in Colorado, with a rich archive of data. She also took on a brilliant young postdoctoral fellow named Susanne Foitzik.

Although Herbers focused on leptos, time and again she found “harpies” in the mix. The harpie is similarly-sized (formerly known as *Harpegoxenus americanus*, now known as *Protomagnathus americanus*) to the tiny acorn ant. Every summer, the two types compete for resources among the forest leaf litter. Food, water, and shelter are basics that all animals seek. In the case of the harpies, add “labor.” The tiny acorn ants, the leptos, with colonies of just 30 to 50, are the prime targets for the harpies. The harpies evolved in such a way that they do not raise their own young or forage for food and water. Instead, they take slaves. They go out and kidnap the larvae of acorn ants, carry them back to their own acorn (or twig or hickory nut), and harness the power of the worker ants once they hatch. The leptos don't even know they were born into slavery.

Foitzik, a young German researcher, was already interested in social insects and had worked on leptos in Europe as a graduate student with Juergen Heinze. She met Herbers in the summer of 1996 on a specimen collecting trip in the United States. “She impressed me,” says Herbers. After a year of staying in contact, Foitzik inquired about doing a postdoc in Herbers' lab, and the two turned their attention to slave-maker ants—the harpies. “I told her I thought the interaction between leptos and harpies could be interesting,” says Herbers. “She was the one who figured out how to ask the right questions and collect the right data.”

Initially, Foitzik explains, the two researchers thought that the slave-maker ants, with their peculiar ways, might be too rare to reveal anything general or important. After the researchers mapped large sections of the forest at the Huyck Preserve over the summer of 1998, however, they found that slave-makers were very common. Things got interesting from that point.

In a series of publications beginning in 2001, Foitzik and Herbers laid new foundation for the understanding of slave-maker ants. They documented large numbers of them at the the Huyck Preserve and compared their presence in Albany County with colonies in Vermont, West Virginia, and

Ohio. The research showed that slave-maker raids took place frequently during July and August. Perhaps most important, Herbers and Foitzik also discovered that where slave-makers live, slave ant populations are powerfully impacted. "Slave-makers raid between five and 10 times a year," says Foitzik. "Host colonies seldom survive these raids."

Slave-makers attack and kill adult slave ants when they invade a nest, then collect the booty – unborn slaves – to take back to their own nest. The raids change the demographics of the slave populations in the areas where slave-makers are active. "We showed that host nests were smaller, had fewer queens and had a higher relatedness," says Foitzik. In other words, the leptos's very survival is compromised by the presence of slave-makers.

Once they documented how heavy the toll was on slave populations, Foitzik and Herbers unwittingly opened another avenue of inquiry. How were the slaves coping with the pressure?

Despite the bleak circumstances for slave ants under siege at the Huyck Preserve, the two species are far from doomed; extinction of slave populations would only mean trouble for slave-makers. Instead, the two species are co-evolving as players in what's known as an "evolutionary arms race." A classic arms race has no other purpose than keeping up. If one player gets an improved new weapon, the other gets a bigger one, or a better defense. The adjustments keep going to maintain a kind of equilibrium. The same is true in nature when the survival of two or more species is closely linked.

Slave-maker ants at the Huyck Preserve are "killing machines" according to Herbers. "They're mean and nasty and leave no survivors." Turns out, slave ants at the Huyck Preserve are also nastier than those found elsewhere. They bite the heads and bodies of the raiding slave-makers at a higher rate than any of the other sites Herbers and Foitzik study. Casualties are high even for the raiding ants.

The same species of slave-makers in West Virginia leave survivors at least half of the time, Herbers explains. The interesting difference is that the raiding ants consistently fail to block the entrance to slave nests when they arrive, which allows some workers and an occasional queen to escape, after which they can join or start a new colony elsewhere. The slave ants there also fight back less ferociously. Why the difference?

One explanation for the unmatched behaviors is that the sites represent different stages of co-evolution. There's probably a longer interaction

between the two species in West Virginia, Herbers explains, perhaps because that land was never glaciated. Slave-makers there already may have reached a point of overexploitation of their host population. The weaker aggression might be the result of both species backing off for the greater good. The Huyck Preserve ants may have not reached that point yet. Like the variation in lepto queen numbers Herbers observed early on, adaptive flexibility is a byproduct of evolution. Studying multiple sites allows for a potential snapshot of the process in evolutionary time.

"The Huyck Preserve is a hotspot for understanding how these two species co-adapt," says Foitzik. Stable conditions in the Preserve's forests mean that the leptos, the slave ants, are at their optimal abilities, she says. They are abundant and healthy. Slave-makers in New York, because of their forcefulness, "represent the very height of the negative impact of a co-evolutionary process," explains Herbers.

Because the site is so robust, and Herbers and Foitzik's groundwork so solid, a new generation of grad students and postdocs continue to arrive every summer to study slave-maker and slave ants. Many come directly from Germany, where Foitzik has a well-established laboratory at the University of Mainz. Their efforts are constantly refining our understanding of the co-evolution of the slaves and slave-makers.

In 2009, for example, Alexandra Achenbach, a student of Foitzik's, revealed an interesting new defense in slave ants. They rebel. The enslaved workers care for slave-maker larvae as if they were their own. At a certain point, however, probably because the developing ants have a stronger chemical signature, or smell, that is different from what the slave ants identify with, they stop caring for them. Then they kill up to two-thirds of the slave-maker brood, either by tearing their developing bodies apart, or by pushing them outside the nest where they die of neglect. The mortality rate is even higher for unhatched queens in the care of slave workers. This sabotaging activity keeps the slave-maker nests smaller, which limits their raiding behavior and therefore their impact on the surrounding slave target nests.

Andreas Modlemeier and Tobias Pamminger, two students who also work with Foitzik, are repeat visitors at the Huyck Preserve. This year, they each published research about the range of behaviors among the slaves. While it's true that slaves at the

Huyck Preserve exhibit more aggressive behavior than slave ants elsewhere, the degree varies. Modlmeier is interested in the evolution of colony “personalities” among the slave ants, and Pamminer is creating a more detailed map of the co-evolutionary arms race by focusing on slaves.

Sebastian Pohl, another grad student, worked on a project at the Preserve, the results of which surprised even Foitzik. Pohl wanted to learn the criteria that drive slave-makers' decision to raid a particular slave nest. When offered the choice of bigger versus smaller nests—and with them, bigger versus smaller risks of fatalities—the slave-makers consistently opted for the bigger risk. The reason is linked to nest size; a larger nest usually contains more larvae, which become the slave-makers' future work force. “I would have thought the slave-makers prefer many battles with smaller nests,” says Foitzik.

Christine Johnson, who had been a postdoc with Herbers, came to the Huyck Preserve for several summers after she discovered a type of slave-maker that had never been seen before in Ohio. She wanted to compare the interactions among slaves and slave-makers in New York to those she examined in Ohio because she specializes in community dynamics—how the ants in one locale behave

differently than those found in other locales. Based on her two summers here, along with her own new data from Black Rock Forest in Cornwall, New York, she has identified some additional factors that contribute to slave ant behavior, she says. Johnson is currently writing up the results for publication.

Finally, the very fact that Herbers and Foitzik have created an enterprising system for studying the co-evolution of leptos and harpies means that young researchers at the Huyck Preserve hail from other labs, too. Julie Miller, a graduate student from Cornell University who conducted her first experiments on slavemaker ants this summer is one example. Modlmeier and Pamminer even steered her in the right direction. “I would have been wandering around the Preserve forever unless they had showed me where to look,” she says. Though only her first season, Miller already wants to return next summer to observe ants, as well as collect more specimens to take back to the lab. “There seem to be some general principles of collective decision-making for raids,” she says.

Lynn Love is a part-time resident of Rensselaerville and a writer whose work focuses mainly on science. She has written for various publications including The Brooklyn Rail, Audubon and The New York Times.

Acoustic Communication: Things that go Buzz in the Night

By Laurel Symes

The natural world is full of plant and animal signals. If you've ever snorkeled on a coral reef, you've probably been dazzled by the diverse and brilliant colors of the fish and coral. Closer to home, the Northeast offers spectacular dawn birdsong, fields of wildflowers that delight and amaze with a rainbow of colors, and warm evening choruses of frogs and insects that can disturb the heaviest sleeper. These are just a few examples of the many different types of plant and animal signals that surround us in the natural world. We may perceive these natural displays as a cacophony of sound, color, and smell, but the plants and animals producing these signals are using them for very specific reasons.

Through my research, I am trying to understand how animals produce and receive signals, how their communication is constrained by other species present, and what causes signals to diverge as new species arise. I am focusing on calling insects to

address these questions because there are many different species all co-occurring in the same time and the same place and it is relatively easy to record acoustic signals to determine how they differ geographically. In addition, I am able to create synthetic acoustic signals that I can manipulate and play to insects to understand how they are using different parts of the song. Although I am working primarily with insects, it is my hope that things that I learn about calling insect communities will inform our understanding of communication in other organisms that are more difficult to study.

When we listen to night insect sounds, we hear chirps, buzzes, zips, and clicks. Most of these noises are produced by male insects that are defending a territory and seeking a mate. While we may perceive this as a medley of untraceable sounds, females of these species sort through this acoustic din to locate males of the same species. In addition, we know that females are often choosing among males of the same

species! This presents several challenges for females. If a female is searching for a male of the same species, one way to do so is to look for a particular characteristic of the calla male that chirps with a specific pattern, trills at an exact rate, or calls with a particular pitch. However, males vary within species in ways that are important to the female. A particular male may be larger, healthier, or in some other way a better mate. To make a choice among potential mates, she has to assess variation within species. How do females look for a precise value that identifies a mate of the same species while simultaneously assessing variation within a species that inform her about the quality of a potential mate?

When many species are present, the risk of responding to a male of a different species is very high. There are several ways that this conflict can be resolved. One possibility is that when many species are present, male calls have low variation and females respond most strongly to this very typical call, giving up information about the quality of potential mates. Another possibility is that some components of the call convey information about the species of the male while other components are physiologically difficult to achieve, have high variation, and are used by the female to choose among males. This outcome is logically appealing because it maximizes the amount of information that females can obtain. However, it requires that the co-occurring species evolve signals that do not overlap in the characteristics used to identify species, an outcome that may not arise or may require very long periods of time.

To determine how communities of species affect the evolution of signals, I am examining the variation in male calls and the preferences that females exhibit for those calls in places with few species of calling insects and places with many species of calling insects. My most detailed studies focus on tree crickets, a genus of arboreal and shruboreal crickets found on six continents. There are more than 20 species of tree crickets in North America and up to eight species can be found in the same time at the same place. At the Huyck Preserve, there are four species: the four spotted tree cricket, Forbes tree cricket, the pine tree cricket, and the snowy tree cricket. While I was at the preserve, I captured individuals of these species and made high quality

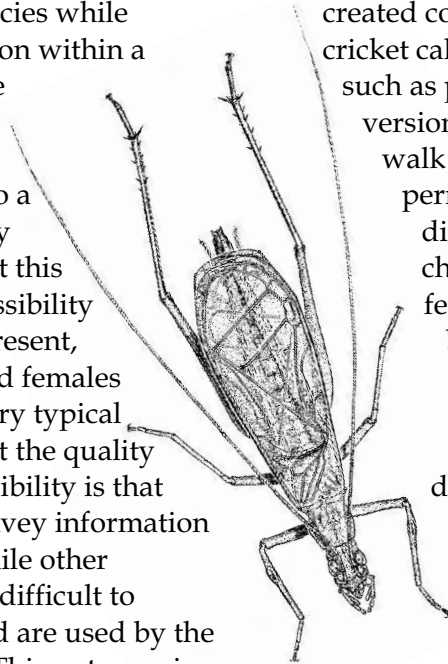
recordings of each male. This winter, after the crickets have died, I will measure the structures used to produce sound and will correlate the physical features of the cricket with its acoustic properties. This will allow me to determine how much variation there is within and between species in the sound and the morphology. I will also sequence DNA from some of the crickets to determine how closely related they are to other species and populations.

I am also examining the preferences of females for the calls produced by the males. To do this, I have created computer software that produces a synthetic cricket call, allowing me to manipulate characteristics such as pitch and pulse rate. I then play different versions of the call to the females. Females will walk toward the calls of preferred males, permitting me to map their preferences for different calls and combinations of call characteristics. By comparing male traits and female preferences among population, I am beginning to learn how the male calls and female preferences vary geographically and how they may be shaped by the presence of other species. For example, do females respond to a narrower window of male calls when more species are present? If so, do they display a narrower preference for some or all of the call characteristics?

Understanding the origins of geographic variation is a crucial component of understanding how new species arise. Since species share a common ancestor, they also share an ancestral set of mating signals and mating preferences. If the descendent species no longer respond to the calls of other species, these signals and preferences would have diverged at some point in their evolutionary history. Understanding how signals and preferences diverge will help us to understand how new non-interbreeding species arise.

I would like to express my gratitude to the staff and patrons of the Huyck Preserve for their hospitality, curiosity, and enthusiasm during my visit! The time that I spent there was made exceptional by the field sites, the facilities, and most of all the people. It was a pleasure to interact with all of you! I look forward to sharing findings from this summer as I continue to process the data.

Laurel Symes is a Ph.D. candidate at Dartmouth College and a 2011 Huyck Grant Recipient.





Students gathered to build a debris shelter in the woods at the Preserve. Pictured above is Barbara Husek's group.

Jean Craighead George Inspires Young Readers

By Chad Jemison, Executive Director

What books or movies helped ignite your or your children's imagination about nature? Odds are good that Jean Craighead George's *My Side of the Mountain* or *Julie of the Wolves* is on your list.

On July 30, 2011, Newbury Medal winner Jean Craighead George, at age 92, made a rare public appearance to speak with local families at the Huyck Preserve. She was accompanied by her daughter Twig, with whom she co-wrote *The Pocket Guide to the Outdoors*. The Georges shared stories of growing up in a family of naturalists, their sources for inspiration and exploration of the outdoors, and Jean answered children's questions about the characters and conservation message in her stories.

The event developed out of the Rensselaerville Library's Festival of Writers: A Sense of Place, to which Ms. George was invited as a keynote speaker

following a staged reading of *On the Far Side of the Mountain*. Much of this novel, which is a sequel to *My Side of the Mountain*, takes place in Rensselaerville and the surrounding hilltowns. In fact, the Huyck Preserve's Rensselaerville Falls are featured prominently in the story, as are the Palmer House Café, the Rensselaerville Library and the Huyck Mill. To set the tone for Ms. George's afternoon event, more than thirty students in local library summer reading groups had a two hour morning adventure building debris shelters in the woods at the Preserve. Over

one hundred people came to meet Jean and Twig, to get their beloved books signed and to pay tribute to the landscape that inspired her. Many thanks to Rensselaerville Library Director Kim Graff and the festival's Steering Committee for all of their help to make this event possible.



Jean Craighead George and her daughter Twig field questions from the students.



Jean Craighead George and daughter Twig signing books at the event.



Library Director Kimberly Graff and Festival of Writers Chair Lisa Jemison with student participant.



Jean Craighead George sharing stories about animals she has known.

From: info@huyckpreserve.org
To: Huyck Preserve Membership and Friends
Subject: FWD: Dawn O'Neal, Ph.D., New DCE



From: Chad Jemison
Subject: Why science and education
On 9/21/2011 3:21 PM Chad Jemison wrote:

Dawn, you're seven weeks into your new position as Director of Conservation Education at the Huyck Preserve. It's been a lot fun welcoming you to the organization and introducing you to the broader community. Many people are intrigued and would like to know more about you. How did you become interested in the natural sciences and science education?

From: Dawn O'Neal
Subject: RE: Why science and education
On Wed, Sep 21, 2011 at 4:13 PM Dawn O'Neal wrote:

I have always been an outdoors person thanks to my parents who took my sister and me on hiking, skiing, and camping trips when we were young. I didn't really get into science though until eleventh grade when my Advance Placement Biology teacher brought in a half a cow for her physiology lesson to give a hands-on lesson on muscles, joints and bones. Up until then science was mostly something cool that you studied out of books, but Mrs. Calo's biology class really changed the game for me. Her ability to make science concrete, making the connection between the natural world (in this case cows) and what seemed to be abstract biological concepts (physiology), really drew me into science. Many years later my experiences as an undergraduate at Mountain Lake Biological Station hooked me on biological field research and since then I have never looked back. I attribute my interest in teaching and mentoring students not only to Mrs. Calo, but to the biology community at IU (especially my advisor Dr. Ellen Ketterson) where I got my Ph.D., and to the professors, postdocs, and graduate students at Mountain Lake who mentored me through my first research project.

From: Chad Jemison
Subject: Field station culture
On 9/21/2011 4:47 PM Chad Jemison wrote:

You mention the importance of your experiences at University of Virginia's Mountain Lake Biological Station, what is it about the culture of biological field stations that you enjoy?

From: Dawn O'Neal
Subject: RE: Field station culture
On Wed, Sep 21, 2011 at 10:44 PM Dawn O'Neal wrote:

Field station culture is awesome for two reasons. First, it is a unique situation where you can be surrounded by scientists 24/7 in a laid back and relaxed manner. There is an amazing sharing of ideas, many opportunities for collaborations, and a constant transfer of knowledge. As nerdy as it sounds, it is absolutely wonderful to be able to sit down at meals or retire to the bonfire with scientists at all stages of their careers and talk shop to flesh out research methods, rework hypotheses for projects, or simply speculate on the state of science and education. You learn so much more, in more depth, than in traditional classroom settings. Second, you get to see professors as "real people." In lectures professors often seem so unassuming, but in the field you discover multi-dimensional personalities. They're people who ballroom or contra dance, enjoy 80s music, sing their kids to sleep, love costume parties and spandex, or can karaoke like no other. Discovering these things makes scientists approachable outside of the lecture hall and makes it easier to ask for advice or about the possibility of working together. Ultimately, the culture of field stations can turn students and teachers into colleagues and sometimes even friends.

From: Chad Jemison
Subject: Job responsibilities
On 9/22/2011 10:22 AM Chad Jemison wrote:

Your job title is "Director of Conservation Education." Can you explain for folks what you will be doing in your job?

From: Dawn O'Neal
Subject: RE: Job responsibilities
On Thu, Sep 22, 2011 at 12:35 PM Dawn O'Neal wrote:

I am responsible for the development and implementation of the Preserve's education and stewardship programs. I will work on the Preserve's informal and formal education offerings for students and teachers, as well as public hikes and lectures,

and summer nature study programs. I am also the course director for the summer high school ecology class (Wildlife Ecology Research). In particular, my job is to make sure these are high-quality programs with a strong base in science, whether that is scientific fact, research, or pedagogy. With respect to stewardship I am responsible for developing scientifically based wildlife-monitoring programs. These programs will provide a basis for the Preserve's conservation-based policies and may help initiate additional research projects. These programs are by no means completely distinct entities, as the fostering of environmental stewardship through education is one of the Preserve's goals. As such, I am working to combine monitoring programs with our educational offerings to provide opportunities for hands-on research that relate to conservation practices.

From: Chad Jemison
Subject: Life summary

On 9/22/2011 1:59 PM Chad Jemison wrote:

Now it's time for the final speed round... in 20 words or less: Tell us about your family. Where did you do your undergrad, grad-school, and postdoc?

What are you secretly a HUGE fan of? Favorite bird?
Three words to describe how you feel about your position.

From: Dawn O'Neal
Subject: RE: Life summary

On Thu, Sep 22, 2011 at 2:30 PM Dawn O'Neal wrote:

Family: Married to Mert Geveci, mechanical engineer
Undergrad: Washington University, Environmental Studies

Grad School: Indiana University, Ecology and Evolutionary Biology

Post-doc: University of Georgia, School of Ecology
I'm secretly a HUGE fan of: It's not really a secret, but I am a HUGE fan of "chick lit", disaster movies, and bamboo cooking utensils.

Favorite bird: The dark-eyed junco (see: Ph.D. thesis)

Three words to describe how you feel about your new position: excited, enthusiastic, ecstatic.

Clearly, I like the letter "e".

Financial support for this position comes from the Environmental Protection Fund and New York State Conservation Partnership Program in collaboration with the Land Trust Alliance and New York State Department of Environmental Conservation. Matching funds generously provided by the W. P. Carey Foundation.

Saturday Events this Winter

Meet at the Eldridge Research Center unless otherwise noted

Full Moon Snowshoe/Hike

Join us for a night hike by the light of the full moon.

Limited number of snowshoes available for adults and children.

If you would like to reserve a pair call 518-797-3440 or E-mail info@huyckpreserve.org.

Dates and Time: December 10, January 7, February 4 at 7:00 p.m.

Christmas Bird Count

December 17 at 7:00 a.m.

Help us monitor our local winter populations. Dress warmly and bring binoculars.

Natural History of Winter Birds

Join Director of Conservation Education, Dawn O'Neal, Ph.D.
on January 21 at 9:00 a.m. for a guided hike.

Dress warmly and bring binoculars.

Winter Festival

Join us for Wildlife Tracking with a Professional Tracker

February 18

Details TBA by E-mail and will be posted on our website,
www.huyckpreserve.org



Research Experience for High School Students Planned for Summer 2012

By Dawn O'Neal, Director of Conservation Education

Though Summer 2011 has recently come to an end, on the education side of things Summer 2012 is just around the corner. And what a summer it is shaping up to be with the re-introduction of the high school field ecology course, **Wildlife Ecology Research**. Formerly known as Fundamentals of Field Ecology, the high school field ecology course has been renamed and updated but ultimately, the goals are the same: 1) rising juniors and seniors will participate in a rigorous program that incorporates genuine field-based research experience with lessons in ecology, and 2) students will be able to walk away from the experience prepared for research and science classes at the college level.

Field-based learning experiences such as Wildlife Ecology Research are both critical and often profound in furthering environmental stewardship and scientific literacy. Wildlife Ecology Research provides such a learning experience by teaching research methods through ecological concepts. Given the opportunity to ask questions, develop hypotheses, and carry out research projects while learning about the various facets of ecology, students will enhance their skills in observation, critical thinking, science writing, quantitative analysis, and collaboration. We believe that such an approach will not only provide students an in-depth perspective of how science is done, but build students' understanding of ecology and its role in professions from education to engineering to conservation. The Huyck Preserve provides an excellent location for this academic endeavor because, as one of the oldest biological research stations in the U.S., it has supported hundreds of scientists and their research for more than 70 years. The Preserve's history as a research institution, coupled with our mission of providing rigorous field-based educational programs, makes us an ideal location for getting students involved in scientific research and connecting them with distinguished scientists.

So what exactly is Wildlife Ecology Research? It is a three-week program that teaches students ecology through hands-on research. The course will introduce students to basic ecological principles through examples taken from guest instructors' own research. These examples will be coupled with hands-on training in the research techniques used to sample and monitor wildlife. In effect, we are taking what may seem to be abstract topics in ecology and placing them into a solid context, an ecologist's actual research and the methods used to complete that research. Students will then incorporate these lessons into research projects of their choosing based on a broadly themed question outlined at the beginning of the program (e.g. "What are the effects of habitat disturbance?"). Students will be responsible for developing their own hypotheses and methods for these projects which they will present to their peers for critique in an initial proposal. During the second half of the program students will implement their research plans, analyze their data, and present their results to the Huyck community at a research symposium. While students are collecting data for their research projects they will continue to attend classroom and field-based seminars on research ethics, ecological management, and conservation; science writing, photography, and illustration; and careers in biology.

Although the syllabus and list of dynamic instructors is still in the works, we are delighted to announce the return of our former Scientist-in-Residence, Dr. Susan Beatty, and the Chair of the Scientific Advisory Committee, Dr. George Robinson as instructors who will join me in teaching students ecological topics such as community, forest, behavioral, and disease ecology. Consider us intrepid guides of an academic expedition of our natural world. We promise a summer filled with fun and science and encourage you to help us spread the word about this exciting opportunity.

Wildlife Ecology Summer 2012

Session I: July 1- 21

Session II: July 25 -August 14

Application and promotional materials available online starting November 1, 2011 at www.huyckpreserve.org

Applications for early admission due: January 6, 2012

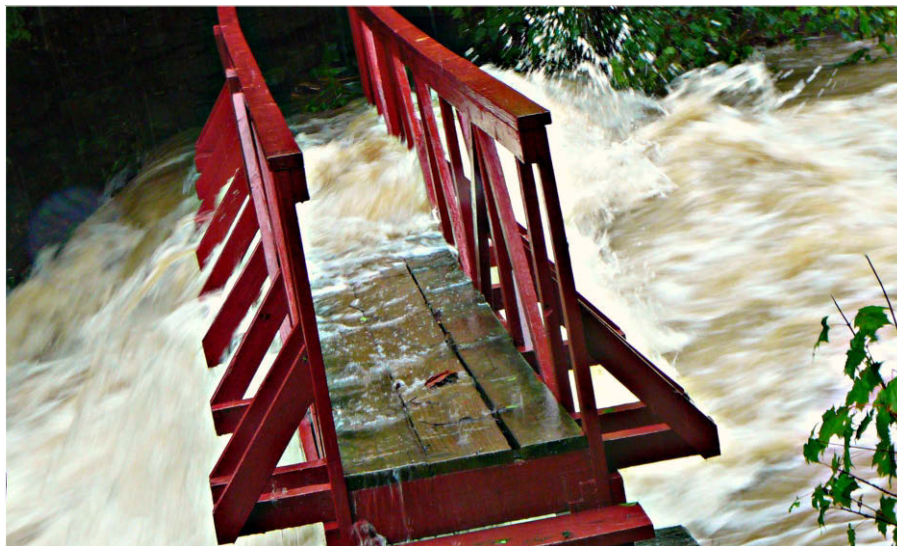
Applications for regular admission due: March 2, 2012

Late applications may be accepted based on available space.

Tropical Storm Irene's Visit to the Preserve

By Chad Jemison, Executive Director

It was in the final hour of the celebratory 80th Anniversary Benefit Gala that the first drops from the tropical storm fell. Little did any of us anticipate that by morning the Preserve (and the entire surrounding region) would experience the most devastating rainfall in those 80 years. Next time just send a nice card, Irene! The Preserve did sustain significant damage from flooding. The beautiful bridge at the top of the falls, recently featured in the *Times Union* 2011 Best of the Capital Region, was completely washed away. The footbridge below the falls is closed for the foreseeable future due to severe undercutting of the right-side foundation. The basement of the Eldridge Research Center flooded two feet and ruined a significant amount of equipment and research materials. Finally, the basement of Lincoln Pond Cottage flooded nearly to the rafters, destroying the furnace, electrical box, and hot water heater. All in all, we suffered tens of thousands of dollars in losses with no direct FEMA assistance available to us as a non-profit.

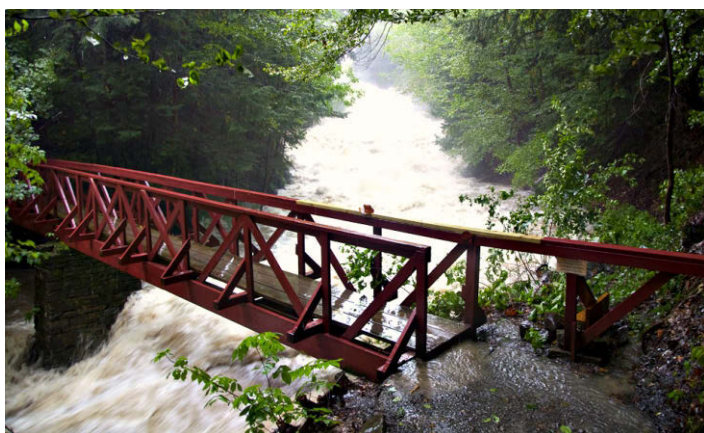


Upper falls bridge moments before it washed down the falls.

We continue to assess the damage and make plans for repairs. The trails are open and re-routed around the closed and missing bridges. In fact, efforts have been made to re-open the middle-falls trail and we're

on track to open the final northern loop of Partridge Path later this fall. Plans are also in the works for re-opening the trail around Lincoln Pond next summer. Many people have reached out to ask how they can help. Your involvement in our Volunteer Trail Days in April, June and October is a huge

help, and of course your generous support during our upcoming year-end **Annual Fund Appeal** will help us to cover these unexpected and necessary major expenses that will put the Preserve back on its feet. Thank you for all of your support and we hope that all of our neighbors affected by the storm are quickly returning to normal. Despite all of the destruction, the one bright spot is that Irene really brought our communities together to support one another.



The foundation of the lower falls bridge was severely undercut and will be closed for the foreseeable future.



Flood waters did considerable damage to Lincoln Pond Cottage basement and ground floor.

HUYCK PRESERVE & BIOLOGICAL RESEARCH STATION

2011 Annual Fund Form

Annual Fund donations go to support programs and fulfill our mission



Annual Fund Suggested Donation Levels

- ☐ \$ 75
- ☐ \$ 150
- ☐ \$ 300
- ☐ \$ 500
- ☐ \$ 1,000
- ☐ \$ 2,500
- ☐ Other \$ _____

Name _____

Address _____

City _____ State _____ Zip _____

Phone _____ Cell _____

Would you like to be added to our e-mail updates?

e-mail _____

Annual Fund Donation \$ _____

This gift is given in honor of/in memory of

Thank You!

The Huyck Preserve is a registered 501(c)3 organization and all gifts are deductible to the extent provided by law.

Connecting people to nature through conservation, research, education, and recreation

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HUYCK PRESERVE & BIOLOGICAL RESEARCH STATION

POST OFFICE BOX 189
RENSSELAERVILLE, NY 12147
(518) 797-3440
WWW.HUYCKPRESERVE.ORG