Spring 2006

Myosotis Messenger

FORGET-ME-NOT

Celebrating 75 years
Edmund Niles Huyck
PRESERVE
1931-2006

P.O. Box 189, Rensselaerville, NY 12147
Tel/Fax: (518) 797-3440
Www.huyckpreserve.org

Volume 30, Number 1

Newsletter Contents:

E.N. Huyck Preserve: Celebrating 75 Years

The Edmund Niles Huyck Preserve turns 75 years old this year. We hope you'll celebrate with us. See pages 24-25 for planned activities and events.

Members of the 75th Anniversary Committee--made up of board members, local residents, representatives from other organizations, Huyck and Van Antwerp relatives, researchers, staff, and others who have been affiliated with the Preserve – have been working collaboratively for more than a year planning activities, collecting photographs, interviewing people about their Preserve memories, developing informational materials, and more, to get ready for 2006.

Local children (Jack Gordon *seated*, Bo Searls, Nancy Chase, Kitty Gordon, Joyce Searls, Robert Searls, and Dick Chase *standing in back*) at the top of the Rensselaerville Falls, early 1930s.
From the collection of Nancy Chase

And in case you haven't heard, 2006, marks the 200th anniversary of the Conkling Farm house on Albany Hill Road in Rensselaerville; the 200th anniversary of the Catalpa House; the 200th anniversary of the hamlet Potter Hollow; the 100th anniversary of Conkling Hall as a community center; the Preserve's 75th; and the 10th anniversary of Preserve's Com.En.Art (natural history artists-in-residence program). There are sure to be lots of celebratory events planned throughout the year to commemorate all these anniversaries.

Laura Stephenson Carter
Chair, 75th Anniversary Committee
Chair, Board of Directors

75 Years of Change

The celebration of the Huyck Preserve's 75th year has caused me to reflect on the changes that have occurred over that time period. Over the years, the human population tripled from about 2 billion to 6.4 billion, the landscape was altered through deforestation followed by reforestation, and field sciences advanced from natural history and personal and museum collections to ecology. All of these changes are reflected in activities and events on the Huyck Preserve.

Following the death of Edmund Niles Huyck in 1930, Jessie Van Antwerp Huyck, relatives and friends, established the Huyck Preserve with an initial gift from Jessie's 490 acres. When I arrived on the Preserve in 1986, there were 1600 acres, and over the last 20 years the Preserve has grown to 2000 acres.

Lake Myosotis from Stonecrop, early 1900s.
From the collection of Laura Stephenson Carter

We have pictures of the landscape around the Preserve from roughly 1900 and they reveal a landscape that is almost treeless.

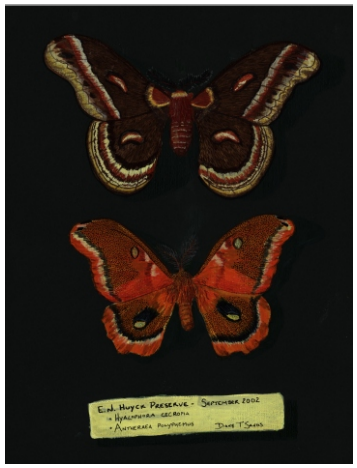
Beginning around 1780, settlers arrived in Rensselaerville and began to clear land to farm. They cleared forests to make pasture for grazing of sheep and cattle. They also cut trees to make charcoal for area iron smelters, for tree bark for the tanning industry, and to burn trees for potash used in gun powder.

In 1870, Waterbury and Huyck established a felt mill at the base of the Rensselaerville Falls. Fleece from area sheep was then in demand, and many farms converted to raising sheep. Unfortunately, the mill only lasted until 1878 when the side of the gorge collapsed, destroying the water supply to the mill. The top of the falls was dammed and water diverted along the top of the western wall of the gorge. A spring freshet in 1878 so saturated the earth on the gorge top that the earth slipped down into the gorge, destroying the ability to bring water to the mill. The mill moved to Albany. Many of the farms were then deserted as the farmers moved west, leaving behind them a landscape barren of trees.

The Huyck family kept the lands around the falls and Lake Myosotis and during Edmund's life accumulated 490 acres. Before the formation of the Huyck Preserve and during its earliest years, many hundreds of thousand tree saplings were planted, resulting in the mosaic of conifer plantations that exist today. The current deciduous forest has regrown from abandoned pastures and from woodlots that were protected by farmers for heating wood. With few exceptions, this makes the oldest forest around here about 130 years old. Older trees occur along property boundaries and are called witness trees. These may be up to several hundred years old.

The Huyck Preserve formed its biological field station in 1938, and I have written about the first scientists here in previous newsletters (Eugene Odum, Donald Grffin, Edward Raney). Someone I have not written about is Nikolaus Tinbergen. In our files are letters to and from scientists seeking those first positions in 1938. One of these discusses the application of Dr. Tinbergen, a recent graduate. Dr. Tinbergen actually was accepted to be the first resident naturalist here (rather than E. Odum), but the Nazi invasion of western Europe had begun and Dr. Tinbergen was unable to escape. Thus, the position was instead offered to Dr. Odum. Dr. Tinbergen went on to found the study of ethology, the comparative study of animal behavior, and in 1973, he and two others (Conrad Lorenz, Karl Von Frisch) won the Nobel Prize in Physiology and Medicine for their work in animal behavior. Here in the U.S., Dr. Odum founded the study of ecosystem ecology and went on to win the Crawford Prize for his work. (The Crawford Prize is ecology's equivalent of the Nobel, initiated because there is no Nobel Prize for ecology.)

When Eugene Odum was here in 1938 and 1939, the study of ecology was roughly 20 years old. The Ecological Society of America was begun in 1915. Ecosystem ecology did not exist as a discipline. Ecology (the study of homes, homes of plants and animals) had grown out of a long tradition of the study of natural history combined with the collection of plants and animals by upper class society. These collections of everything from bird eggs to butterflies, bones, fossils, and mounted specimens of mammals often formed the initial material of museums in the late 1800's.



Diane T. Sands
Cecropia moths mounted for collection.
COM.EN.ART 2002.

By the 1930's, professional biologists were establishing the footings of ecology with detailed study of how plant and animal adaptations were selected by the organism's environment. Charles Darwin's *Origin of Species* in 1859 had given scientists an important tool to use to try and understand how nature worked. Ecosystem ecology, the study of the fluxes and flows of material and energy through natural systems, began on the Huyck Preserve with Eugene Odum.

The discipline of ecology has changed since then. Now, ecology uses powerful tools of chemistry, atmospheric sciences, geology, history and natural history to explore the workings and importance of ecosystem function. Today, teams of multi-disciplinary scientists must come together with computer scientists to even begin to understand the complexity of living systems.

Across Pond Hill Road from our Eldridge Research Center, Trout Creek burbles through the rocky remains of a stonework dam. That broken dam once held back a small pond in which young trout were reared to a size to be released in Lake Myosotis. Lake Myosotis is a warm water lake, which means trout can not breed in it or its tributaries. In the early 1900's, trout were purchased and raised in this pond. Records in Preserve files report that tens of thousands of fish were stocked into Lake Myosotis after the formation of the Preserve. These include white bass (a marine species), yellow perch, yellow bullhead, black crappie, and small and large mouthed bass. Over the years, many other species, including golden shiner (bait), bluegill sunfish, pike, and pickerel, were accidentally or deliberately released in the lake. We do not know what the original fish community was in Lake Myosotis, but it is unlikely that today's community is representative. Just up stream of the old trout pond on Trout Creek is a place we call the Secret Valley. It is a place where change has been different. To access the Secret Valley you must follow Trout Creek up stream by climbing over fallen trees and exposed roots. You will come to a small waterfall maybe 15 feet high that must be climbed to enter. You may leave the small valley by climbing another waterfall about 200 feet up the stream. In the Secret Valley, change has been slow. There are no stumps of previously cut trees. The trees are large and the almost vertical sides of the gorge are riddled with small and medium sized mammal burrows. It seems that this small valley was not accessible enough for the trees to have been harvested. The trees remain as they have been for a long time. This valley reminds me that on all the other land of the Huyck Preserve the current structure of the forest is the result of both changes initiated by humans and by the natural change we ecologists call succession. Researchers, including those on the Huyck Preserve, have shown that a disturbed or harvested forest, if left alone, will succeed back toward its original composition. The process takes a long time, many hundreds of years, but assuming species have not been lost along the way, then the original forest may return.

Trout creek waterfall
Photograph by Chris Schiralli, 2005

Change today occurs in a larger and potentially more serious context, climate change. Because the Earth's 6.4 billion people rely on burning of fuels both fossil and wood, huge amounts of carbon dioxide are released. This gas, along with other greenhouse gases, accumulates in our atmosphere much more quickly than natural processes can eliminate them. These gases trap infrared energy near the Earth, resulting in the warming of the planet. Projections of future climatic regions through the use of general circulation models indicate more change to come, including drier growing seasons in continental interiors and more frequent or more intense storms.

The arrival of new tree diseases and pests also represents change in our forests. These have included chestnut blight, beech bark disease and wooly adelgid of hemlocks. These diseases not only affect the tree species they attack but all the other species that depend on these trees.

Since the Huyck Preserve was incorporated, changes have occurred in its use as well. The numbers of scientists using the Preserve was low during the second World War. Numbers gradually increased in the 1960's and 70's with emphasis on entomology. Now, 30 or more scientists work on the Preserve per year, a couple of thousand visitors visit the falls and hike the trails, and many hundreds of school children have participated in hands-on science education. We have newly refurbished buildings and have grown to 2000 acres.

What changes will occur in the future will increasingly have to do with the direct and indirect activity of humans. The current rapid development of lands around the Preserve will likely have consequences for the plants and animals that exist here. Wise planning may help changes that inevitably occur be less harmful than what would otherwise occur. One thing for certain is that change will continue to occur whether we like it or not. Such is the nature of our world.

Richard Wyman

Shoreline of Lake Myosotis.
Photograph by Chris Schiralli, 2005

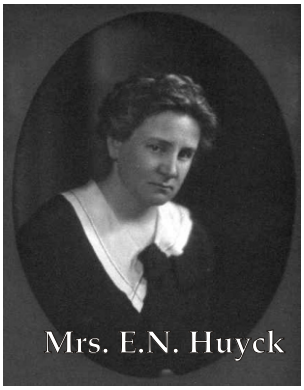
The late Bill Hamilton's reflections on the Preserve

Ever wonder how the Huyck Preserve got to be a biological research station as well as a nature preserve? A few years after the Preserve's 1931 founding, Mrs. E.N. Huyck and the Preserve Board wondered if might be possible to conduct scientific research at the Preserve. Thus, in 1937, they invited mammalogist William J. Hamilton, Ph.D., from Cornell, to do a biological survey. Hamilton was duly impressed and recommended that the Board establish a research station, which they did the following year.

To pass muster with a prominent scientist like Hamilton is no small feat. He received his Ph.D. from Cornell in 1930; served on the faculty there until he retired in 1963; and was concurrently a research associate in mammalogy at the American Museum of Natural History. He studied the life histories and ecology of mammals, feeding habits of vertebrates (animals with backbones), and ornithology (study of birds), and herpetology (study of reptiles and amphibians). He published numerous scientific papers and books, was a member of several prestigious professional societies, and was president of the American Society of Mammalogists and of the Ecological Society of America.

In 1981, Hamilton returned to the Preserve during its 50th Anniversary celebration, and shared his recollections about the establishment of the biological field station. Following are excerpts from that presentation, which was published in the journal Bios.

I don't recall a better friend than Mrs. E.N. Huyck. I was invited to make the survey and I found dear friends among the members of the Huyck Preserve directors: Dick Eldridge, Dr. Lew Eldridge, Dr. Thomas Ordway and many others. I'm sure there was some antagonism to the idea of starting a biological station. Some wanted money to go into recreation, the arts, or anything other than biological research, but when the matter was decided I found myself settled in the campground on Myosotis Lake. The campground was an area in which thirty families from Albany and vicinity were permitted to set up their camps for the summer. They policed the area and kept it in good order, and that was a godsend for me in some ways because there were enough youngsters and old people willing to pull an eighteen and twenty foot seine. They were tickled to see the fish we caught in it but were amazed that I would release them after I had identified what I wanted and saved a few cyprinids and the like.


Mrs. E.N. Huyck

We had no end of fun. I regaled the campers with the size of the pickerel in ten-acre Lincoln Pond. I said some were three feet long and could swallow a small doe, and they believed it.

In the 1930s, there was little money for research, no National Science Foundation, no National Institutes of Health, so we had to develop research out of our own pockets. Following my survey in July and August, 1937, I recommended the establishment of a biological station. Mrs. Huyck asked me to come back the following summer. So we [my family and me] moved in at Lincoln Pond and we had a splendid summer, one I'll not soon forget—we fished, we swam, we trapped a few shrews and marked a few toads, and I prepared a supplemental report.

In the summer of 1939 we had two biologists as resident summer naturalists: one was Donald Griffin, well known for his work with bats, and the other was Ed Raney, now one of the outstanding ichthyologists of this country. Don didn't have the sophisticated equipment [a trailer full of electronic gear for studying echo location in bats] that he now has. He wore great big glasses and a crew cut and he'd go into the village and he'd knock on doors and say: "Ma'am, do you have any bats in your attic?" He started his pioneering work at that time.

The Preserve was extraordinarily fortunate in its first resident naturalist, Gene Odum. He spent three years here and made major contributions to the knowledge of flocking in birds and related subjects. He was an all around, well trained, field naturalist. Gene went on to become one of the celebrated ecologists of the world. Other men have also come at the beginning of their careers: Bill Ingram, who pioneered the study of the life history of slugs and snails, was well grounded in all fields of natural history; Sherm Bishop, who was the state zoologist at one time and later became professor of biology at the University of Rochester, studied daddy longlegs (phalangids). He got all excited when he found that contrary to what had been published, these daddy longlegs were active in the daytime. He used to tell me all about it and I didn't have the heart to tell him that every schoolchild knew that daddy longlegs were active in the daytime as well as at night.

We finally got a resident naturalist in 1959-60—Francis Harper. He was a character if ever there was one. He studied at the Preserve for a couple of years and made real contributions.

In order to establish a preserve properly, we had to have a scientific advisory board. I enlisted G. Kingsley Noble, one of the fine behaviorists of his day, and Ernst Mayr [Harvard evolutionary biologist often referred to as 'the Darwin of the 20th century,' who died in February 2005 at the age of 100] both of whom were at the American Museum [of Natural History] at that time, and some others.

I was always fearful that this wasn't going to be a going concern, that it wouldn't last, that it wouldn't be endowed. I felt a little disturbed about that as did the other directors, so I pleaded with Mrs. Huyck to make certain that when we were gone there would be money funded for the purpose of maintaining the biological station. She turned to me and said, "I've already done that," but I didn't know that at the time.

Little Steps turn into Bigger Steps

When I first began looking at salamanders seriously as a scientific tool to allow me to ask questions about ecology, I began with a small study site on Clausland Mountain in Rockland County, NY. On most weekends in 1975 through 1978, I searched a 1.2 ha (approximately 2.8 acres) plot documenting the presence of amphibian species in leaf litter and under rocks and logs. I wanted to study the population biology of these animals to see if differences in birth rate and death rate among species might help explain the structure of the amphibian community. Like many communities of plants and animals, the amphibian community in any one place is often dominated by one or two species with many other species occurring in fewer numbers. Why is this so?

This study plot is centered around a small ephemeral pool, a depression on a hilltop that fills with water in the spring and that dries out in the fall. These sorts of pools are often used by amphibians for reproduction. By carefully documenting the number and locations of individual amphibians, I was able to document how the distribution of the amphibian community was expanded away from the pool when the pool was filled with water and then how the community spatial distribution collapsed back toward the pool as it dried out.

In the mix of ten species were five salamander species and five frogs and toads. The salamander species distribution on the forest floor was more responsive to landscape drying than were the frogs and toads. Frogs and toads moved to the pond to reproduce and then move away when they then became difficult to find. Several salamander species also utilized the pond for breeding and several others did not.

One species, the red-backed salamander (*Plethodon cinereus)*, represented about 90% of all individuals observed. I have since learned that this species reaches high densities in forests from southern Canada to the Carolinas and west to Michigan. We estimate that there are over 180 billion red-backed salamanders in the range.

My studies of the forest floor amphibian community expanded when I moved to Hartwick College in Oneonta, NY. There, with the aid of students and a new pH meter, I was able to document how the soil pH affected the density and distribution of many of the species of amphibians occurring there. By carefully searching meter square quadrats of forest floor litter in 17 sites in New York, I showed that the red-backed salamander was prevented from occupying about a third of the available forest floor habitat because the soil was too acidic. I was able to publish a major article in the journal Ecology on these studies, and that laid the groundwork for future studies of how acid soils limited salamander distribution.

Now on the Huyck Preserve and with the support of my Board of Directors and the contribution of our membership, my research was allowed to grow. Early on I convinced Dr. Malcolm Frisbie (Eastern Kentucky University) to apply for a Huyck Preserve Research Grant to study mineral balance in salamanders here. He knew from previous research in aquatic habitats that frog larvae would lose sodium from their bodies when the water they lived in became acidic. The more acidic the water, the faster the loss of sodium. Sodium is a very important interstitial ion (an ion in between cells) and is used by animals to help transmit electric messages along nerves and to help muscles contract or relax. When amphibian larvae would lose 50% of their body sodium, which they did at high acidity, they died. Salt is so important for us humans that we have special salt receptors on our tongue that sense salt and tell our brain that it tastes good. Malcolm had done his Ph.D. work at Pennsylvania State University on water beetles and had developed techniques to analyze both sodium concentration in the animals and the rate of loss of sodium. He came to the Preserve to apply these techniques to four species of salamanders here.

We found that when soil pH fell to below 3.8, sodium loss rate in red-backed salamanders greatly increased. We also found that total body sodium concentration decreased at low pH. These analyses allowed us to hypothesize that sodium balance in salamanders living in low pH soils was disrupted and may explain their reduced numbers in such soils.

I learned then of studies being conducted on tree declines in Europe which suggested that loss of small ions (like sodium) occurred in soils when acid deposition (rain, snow and dry deposition) fell onto these soils. These small ions at low pH could not maintain their chemical bonds to minute clay particles (colloid particles) that make up soil. Because they could not bond tightly they would be lost from the soil, moving out of soil attached to other negative ions carried away in leached water. This meant that soils receiving acid deposition could lose sodium over time. My research on the distribution of salamanders along with Malcolm's and my work on sodium balance could now be used to suggest a mechanism for the reduction of salamander populations on acid soils. At low pH (below 3.8), salamanders are in a sodium deficit. This deficit is made worse because the soils in which they live are losing sodium. Thus sodium deficient salamanders are living in a sodium short world.

About this time (1989), Marilyn (my wife) and I were able to attend the First World Congress of Herpetology in Canterbury, England. (As an aside and to illustrate how young our understanding of our Earth and its inhabitants is, I like to point out that this was the first time the Earth's herpetologists had gathered together.) At the Conference we heard startling tales of declining amphibians from around the world. We heard of the disappearance of Darwin's gastric brooding frog in Australia, the loss of the golden toad in Costa Rica, and about declining populations of amphibians worldwide. I was aghast at how widespread the threat faced by amphibians. We now know some 17 years later that a full 38% of amphibian species are in decline, and probably many hundreds of species facing

extinction.

Upon our return to Rensselaerville from England in 1989, I was asked to be the chair of the Northeast Working Group of the Declining Amphibian Population Task Force. This is part of the International Union for the Conservation of Nature, a non-profit established by the United Nations. My job was to summarize the status of amphibians in the northeast U.S. (NY, MA, RI, CT, NH, VT, NJ, and the Del-Mar peninsula). I did this by requesting from each state a listing of their threatened, endangered and species of special concern. Once compiled, I found that 55% of all species of frogs, toads, and salamanders were listed by one or more states. It is not surprising that so many species are having difficulty maintaining their populations because the region is heavily populated by humans and their infrastructure.

Salamander project enclosure

After pondering what I had learned for a while, it dawned on me that while many scientists were working on the causes of amphibian declines around the world, no one was looking at what these declines might mean to the ecosystems in which they were occurring. Hence in 1992 I began a series of experiments to determine what the loss of an amphibian species might mean. I chose the red-backed salamander because it is the most abundant terrestrial vertebrate in the northeast U.S. I figured that if I wanted to determine what an amphibian species might be affecting, I should choose one that was abundant because the odds of detecting an effect would be greater than if I chose a less abundant species.

Today in three forests on the Preserve I have a total of 48 enclosures and 24 plots in which I annually manipulate salamander numbers. One-half of the enclosures have no salamanders. Salamanders are removed from one-half of the plots. Each spring and fall we collected leaf litter invertebrates to determine how salamander predation affects the forest floor invertebrate community. We also annually determine the rate of decomposition (loss of leaf material) in each enclosure and plot. This is accomplished with small mesh bags into which we place a known amount of leaf litter and place the bags into plots and enclosures at the beginning of the year. We collect the bags in the fall and reweigh the leaves to determine leaf litter loss, a measure of decomposition.

What we have found is salamanders consume significant numbers of litter invertebrates that fragment leaf litter by ingesting it. This results, in plots and enclosures with salamanders present, in more leaf material remaining; that is, salamanders indirectly slow decomposition by preventing leaf fragmenters from fragmenting leaf litter. The bottleneck here appears to be the ability of bacteria and fungi to colonize leaf surfaces which they do to break the material down during digestion. Big leaf pieces are more difficult for bacteria and fungi to break down than are smaller leaf pieces because smaller leaf pieces have a lot more surface area available for colonization by microbes than do larger pieces.

We found this effect of salamanders could reduce decomposition by up to 10%. This means that some 10% of litter fall annually remains on the forest floor when salamanders are present in good numbers (roughly ½ salamander per meter square). I then wondered what this effect of salamanders could have on carbon cycling in the forests. We know that about 50% of a dried leaf is carbon. We also know how much leaf material falls on the forest floor each year because we measure it here each month. If I assume that red-backed salamanders occur at sufficiently high densities in 10% of New York State and that salamanders reduce decomposition by 10%, I found that between 0.04 and 0.4 gigatons of carbon could remain on the forest floor per year. That is almost one-half a billion tons of carbon.

You may remember that the most significant greenhouse gas is carbon dioxide, oxidized carbon, and that anything that slows the production of carbon dioxide helps to prevent atmospheric build of that gas. My results suggest that salamanders are significantly slowing the loss of carbon from the forest floor.

If I generalize a bit and imagine that it is not only red-backed salamanders that have this effect, but also all the other predators of leaf litter invertebrates, such as spiders, centipedes, frogs, snakes, forest floor gleaning birds, and others, then these animals appear to be modulating (slowing) the carbon cycle and fighting the greenhouse effect. Clearly this activity appears to be important to our well-being.

This sort of understanding growing out of little steps over a long time is part of what a field station is about. This story also illustrates how science works. We do not know at the beginning of a 20 year undertaking what we might find out. What we know is that by looking and asking questions we will surely learn something new.

Richard L. Wyman

Leaf litter samples from enclesures

Now for the Earthworms

When the last of the Wisconsin glacier retreated between 13,000 and 10,000 years ago they left behind a barren landscape that was gradually filled by species of plants and animals moving northward. We assume that many of the same species that previously occupied the northern U.S. and Canada reinvaded where appropriate environmental conditions allowed. Evidently all of them did not. Earthworms represent a group that apparently did not return because the native earthworm distribution still coincides with the southern limit of the glaciers. It is generally accepted, although still debated that all of the earthworms north of the southern extent of the glaciers are non-native. That is they are recent invaders. All seven species on the Huyck Preserve are from Europe and Asia.

Earthworm

Invasive species biology is an interesting area of study because it often raises many questions especially in the field of conservation biology. How does one define an invasive species? How long must a species be in a location before it is considered native? If 10,000 years is the answer then all species in the northern U.S. are invasives including humans. If we inventory our roadsides and lawns we find the majority of the plants are recent introductions and many of these are from Europe.

The species that most concern conservation professionals are termed aggressive invasives, those species whose rapid advancement into a landscape results in a concomitant loss of previously established species and those whose population build up in some way affects us. Kudzu in the southern U.S. and zebra mussels in the north represent two such aggressive invasives because they impact vegetation and aquatic life, respectively.

Several years ago I noticed, in one of our forest stands where we have been conducting salamander research for some dozen years, that the understory of spring flowers and young sugar maple saplings began to disappear. This phenomenon began in the lower portion of the forest and seemed to move uphill. Over a single growing season the forest floor vegetation disappeared from roughly 500 feet up the hill. Other changes were also apparent. In this forest the soil was composed of distinct layers. The uppermost layer called the organic horizon was thick with some four to eight inches of dead leaves and humus. Under this is a mineral rich layer. Everywhere where forest floor plants had disappeared, the top organic layer was also gone. In its place was well mixed mineral soil and earthworm middens.

When earthworms, such as the night crawler, feed they drag leaves into their burrow and consume the digestible portions. They eject from the burrow the somewhat less digestible leaf petiole and thicker veins of the leaf. This rejected material forms a mound on top of the earthworms burrow. These mounds could be seen everywhere where the understory was absent.

Recent studies by others have shown that when earthworms invade a forest other significant changes occur. There are changes in nutrient cycling with increased losses of carbon and nitrogen. It appears that earthworms may change the forest floor from a carbon sink to a carbon source. This increased release of carbon is significant because without earthworms it was felt that northeast forests might ameliorate the Greenhouse effect by storing huge amounts of carbon. Earthworms appear to reverse this effect.

Thanks to a grant from the NYS Biodiversity Research Institute, we began analyses of some of our past data on forest floor invertebrate communities to see whether we could detect any changes in invertebrate species composition due to earthworms. I analyzed data for 1996, 1997, 2002 and 2004 and found significant reduction in invertebrate species richness and total invertebrate numbers with increasing earthworm density. The invertebrate loss appears to be due to the loss of leaf litter and humus that some of the species consume. To me this observation is significant because the invertebrates are the food of salamanders and other forest floor predators. Obviously the presence of large earthworm populations may be detrimental to salamander survival.

I reasoned that the earthworm activity could have consequences on soil erosion because soils exposed directly to the action of raindrops are known to erode more quickly than soils covered with leaves. Thanks to the help of my daughter Jerrine, I found the Universal Soil Loss Equation online. After taking a tutorial on how to use this equation, I applied the equation to the portion of the Catskill Plateau that supplies water to New York City. In brief I found that earthworm activity has the ability to increase erosion of soils and organic material in the watershed and thus to increase the concentration of this material in the water. This material could increase the turbidity of the water supply. Increases in turbidity are not desirable because toxic compounds may adhere to the particles that make up turbidity and thus these toxic materials may more rapidly enter the drinking water.

Thus far this preliminary research is at the speculative stage where hypotheses are generated. Now we need to conduct surveys of the New York City watershed to document the extent of earthworm colonization and measure erosion.

These activities will be the point of research proposals for some time to come. I am putting together a team of researchers to help with this new understanding. We also submitted a second grant request to the Biodiversity Research Institute (BRI) to get us started in mapping earthworm distribution on the Huyck Preserve and the Catskill Mountains. You can look forward to more on how earthworms are affecting our region.

Richard L. Wyman

Collectibles

Biological specimen collections, commonly known as natural history collections, were some of the first results of scientific investigations. Initial efforts to study the natural world involved identifying, categorizing, comparing, and contrasting different species. Specimen collection and preservation has become crucial to the understanding and dissemination of information about life on the planet. The most famous and extensive collections are found at museums in cities around the world. Nonetheless, many smaller, more locally focused collections are housed in biological research stations worldwide.

Collections of biological specimens are essential to many areas of scientific research. Reference collections are an important resource that scientists use to identify species, which is a crucial aspect of conducting biological research. Specimen collections are useful because items within them are associated with data that documents the genus and species of the specimen, along with where and when it was collected. This information can help researchers track the location and presence of species over time. For example, without the temporal information pertaining to species ranges through history, it would be impossible to conduct research on introduced or invasive species and their effects on native species. Many specimen collections are directly related to research projects and serve as representatives of data sets that can be verified, refined and further investigated in the future. These collections are enormously valuable and irreplaceable sources of biological information.

Natural history collections can take on a variety of shapes and forms. The oldest specimens have been conveniently preserved by geological processes in the form of fossils and represent the earliest evidence of life on Earth. Mammals and birds can be represented by taxidermy or tanned hides and furs, in addition to curated skulls, bones and skeletons. Intact specimens of mammals and birds can also be frozen or kept in preservatives. Entire amphibian and reptile specimens, for example, are often kept in liquid preservative. Most of the invertebrate specimens are pinned and displayed in special drawers. However, some of the soft-bodied invertebrate species, including aquatic invertebrates, centipedes, millipedes, spiders, and larval individuals, must be jarred in liquid preservatives. Vascular plants are dried, pressed, and mounted in herbarium folders. Likewise, specimens of mosses and lichens are dried and kept in sealed packets. Curating specimens to prevent decomposition requires hard work and great care to insure they will withstand the test of time. Collections face a variety of dangers and can be degraded easily. Specimens are meant to outlive their creators and require continued maintenance and special care to maintain their condition.

Many people may not realize that the Huyck Preserve maintains an extensive reference collection of the plants and animals found in the area, as well as many research collections deposited by scientists over the years. The reference collection alone contains almost 13,000 specimens of plants and animals including 785 fossil specimens, most of which were collected in 1929. The research collections, with specimens numbering over a million, consist mainly of invertebrates. The collections at the Huyck Preserve are especially unique because they attest to the legacy of scientific research that the Preserve was founded on. The earliest scientific research conducted on the Preserve involved collecting specimens and creating species lists. Scientists collected and curated many of the specimens over fifty years ago. The collection, initially created in 1939, was described by Eugene Odum to include: a small herbarium collected by himself and Dr. Davis, mammal skins curated by Donald Griffin and Drs. Davis and Ingram and a few fishes contributed by Dr. Raney. The herbarium and mammal skins were later expanded on by Ralph Smith in 1948 and Dr. Francias Harper, his wife and Miss Peasly in 1949-1950. The herbarium was significantly expanded by Norman Russel and his wife Virginia, who collected and mounted over 800 vascular plants during the summer of 1954. Today, these specimens can be found in near pristine condition at the Eldridge Research Center. More than fifty years later I have also had the honor of contributing a new species to the collection: a complete skeleton of a fisher (*Martes pennanti)* I found in spring of 2004. A detailed overview of the current collections at the Huyck Preserve can be found in the table accompanying this article.

Organizations that maintain natural history collections

Collection Group	# of Species	# of Specimens	Identified to Species	
Fossils	28	785		
Mammals/Mammalia	126	106	Y	
Birds / Aves	12	17	Y	
Fishes / Osteocytes	10	54	Y	
Reptiles and Amphibians	20	587	Y	534 Research
Invertebrates	493	3984	Some	
Gastropoda/Snails	39	1984	Y	
Crayfish	4	11	Y	
Aquatic Invetebrates		2439	Vials	
Vascular Plants	500	800	Y	
Mosses		2132	Y	
Lichens	58	58	Y	
Total	1290	12957		
Research Collections				
Salamander Project	Based on 10 year collection period			
Macro-Invertebrates	1500 Jars w/100-200 specimens	150000-300000		
Micro-invertebrates	1500 Jars w/100-500 specimens	150000-750000		
	Total	300000-1050000		
P. cinereus Digestive Tracts	3 boxes	63		
Leaf Litter	2/bag	2880		
Fragmentation	4320/yr	43200		
Mesh Bags	1440/yr	14400		
Soil Samples	72/mo. for 6 mos.	4320		
Pitfall Traps	65 Jars	534		

use them to educate students that participate in educational programs. Preserved specimens provide us with the opportunity to take time and closely examine species that may be too small, fast or rare to see in the field. Biological collections offer a window into the natural world, allowing humans to observe, first hand, species they might never have had the chance or inclination to look at. In addition to being unique educational and research tools, specimen collections can contain species that have become, can become, or are near to extinction. Natural history collections allow future generations to witness and learn from species we have failed to protect. It is hoped that younger generations may utilize biological specimen collections to deal with problems facing the natural world. At the very least, collections may foster an appreciation of nature, encouraging stewardship and efforts to protect the life on the planet that supports us all.

Audrey Kropp

COM.EN.ART Celebrates 10 Years At the Preserve

This year marks the tenth anniversary of the COM.EN.ART (*Community/Environment/Art*) Natural History Artist-in-Residency Program at the Preserve. In celebration, the Preserve will be showcasing the collection at both the New York State Museum and in Rensselaerville, inviting past artists to return, and making available, via silent auction, a select group of prints.

The COM.EN.ART program, founded in 1996, was inspired by the historic interrelationship between artists and scientists working side by side, as well as, a desire to provide artists with an opportunity to immerse themselves in nature, through the lens of science. Each artist has contributed a piece of artwork for the benefit of the Preserve and has had a community program or submitted a journal entry in exchange for their residency. To date, 43 artists have participated in the program documenting a myriad of plant and animal species.

After ten years with artists simply looking out into the Preserve, a story is emerging not unlike the same story told by scientists studying ecology and the disciplines of biology. This visual narrative describes a forested landscape once cleared for farmland or pasture. Remnants of rock walls, though disheveled by time, still stand in the midst of a second growth forest and testify to the local geology. Trees of similar size suggest an era of clear-cutting. While tree roots, struggling above ground, anchor trees in poor, thin soils and camouflage a large ground bird, the grouse. Here, through the eyes of these artists, we witness our own efforts writ large with determination to provide a refuge for plants, animals and humans alike, to regenerate undisturbed.

Paula Franklin
Swallowtail butterfly 2003

As the program has demonstrated, the world of the artist provides an intimate encounter with nature. Artists record what they see; the architecture and anatomy of a single specimen at a particular moment in time. Their results are often beautiful but more importantly provide a link for appreciating the importance of larger issues like environmental stewardship, preservation and conservation.

We invite you to help us celebrate this important milestone. Below are some planned events and activities.

Karen Allaben-Confer Ruffed grouse 1998

- The Edmund Niles Huyck Preserve and the New York State Museum, in partnership, will be holding 10th Anniversary Exhibitions of the COM.EN.*ART* Natural History art collection at the New York State Museum from April 20th- August 31st, 2006 and at the Preserve's Visitor Center from September 8th- December 31st, 2006.
- The COM.EN.ART art collection will be exhibited, downstairs in Conkling Hall September 2nd, 2006 in conjunction with our annual Benefit Dance a Diamond Jubilee Ball.
- A silent auction of select prints will also be held. These prints will be on view in the Preserve's Visitor Center throughout the summer. Date of auction TBA.

Virginia Carter

COM.EN.ART is an artist-in-residency run by the E.N. Huyck Preserve, directed by Virginia Carter board member in partnership with the New York State Museum, directed by staff illustrator Patricia Kernan.

Painted Turtles, Giant Water Bugs, & Salamanders

The natural world is full of unique animals and plants that go unnoticed for the most part. As a field biologist, I have had the opportunity and time to observe some of these creatures and learn from them as well. One of my goals as a researcher and educator is to share my experiences with others who have not had such an opportunity. A number of the various plants and animals of the Huyck Preserve show themselves only briefly. Many of our native woodland plants, for example, are finished blooming by early June, and many of our amphibian species (such as spotted salamanders) are usually only observed on the surface during the short breeding seasons and rainy nights. Over the past year, I have been able to photograph many plants and animals at the Huyck Preserve, and though I believe them all to be of value, here are a few of my favorite experiences that I hope you will enjoy just as much as I have. These small plants and animals have only encouraged me to learn more about the world in which we live and all of those creatures who share it with us.

***

Painted turtle

Painted turtles, one of the most common species in New York State, have probably been observed by anyone who has spent time near a pond or slow moving river during the warmer months. This past spring, however, I was able to witness and photograph nesting behavior of one of these very common turtles. The entire process took nearly 3 hours, starting around 5:30 pm. Along the shore of Lincoln Pond, the rather large (and probably fairly old) painted turtle came onto shore and began the process of site location for nesting.

Once the site was selected, the long task of excavation began. Slowly and methodically, she began to dig with her hind legs, but not in a manner that I expected. I find it is very easy for us to think that animals behave crudely in comparison to humans; however the complete opposite was true with this turtle. Her digging pattern, alternating each leg and never once using the same leg twice in a row, would put even the most obsessive-compulsive human to shame. Periodically she would also release water from her bladder, which helped to soften the soil as her powerful hind legs snapped plant roots.

The nest was funnel shaped in design and about 6 inches deep when completed, about an hour long process. Then the egg laying began, apparently undisturbed by my presence. Contractions were easily noticed right before each of the eight small, white, oval-shaped eggs were laid in the nest. This also took about an 45 minutes to an hour. Finally, when all the eggs were tucked away in their

Painted turtle laying eggs

little nest, she began the reverse process of covering them up, which also followed a similar alternating digging process. When she was done, she slipped quietly into the dark waters, leaving only the slightest hint that a nest was even there.

I flagged the nest and tried to watch it all summer. Though at the end I was tempted to dig it up, I knew that turtle eggs, unlike bird eggs, will die if rotated during the incubation period. I am hoping that the nest will be successful and that this coming spring, numerous small painted turtles will dig their way out and find their way into the protected shallows of Lincoln Pond. It is not uncommon for turtle hatchlings to over winter in their nest in areas with short growing seasons, but this has both advantages and disadvantages. The young turtles will have more time to grow in preparation for next winter, but mortality of young hatchlings over wintering in nests can often be high.

***

Giant water bugs are insects that I've only had the opportunity to see three times in my life. They have two large pinchers mounted on the front of their bodies, which are used for grasping prey, and a breathing tube at the rear of their bodies so they can breathe while being completely submerged. This year, a friend of the Huyck Preserve brought to us one that his cat had caught.

I placed the water bug, battered and bearing several cat tooth-sized puncture wounds, in a jar for about a week. Initially, I had intended to pin and add him to the Huyck Preserve insect collection. When I removed him from the jar, however, I noticed a small amount of movement. Thinking that I had just witnessed the last death twitch that many of us have observed in insects, and since he was such a meaty specimen, I left him on the counter with the rest of my insect specimens to dry before pinning. When I returned about an hour later, it was gone. I set out to locate him, knowing that my co-workers would likely not appreciate having a giant water bug scuttling around the research center. Luckily I found him, as I had since decided that such a robust animal would make a marvelous addition to the fish tank I had set up in

Giant waterbug

the education room.

Since then, I have been able to observe quite closely many of this large insect's feeding and hunting behaviors. I was able to get him to take strips of fish meat which I, using tweezers, wiggled in front of him. Using the two massive pinchers, he grabbed the fish meat and then pierced it with his long stabbing mouth parts, extracting liquid nutrients. Disgusting as this may be, I have found that he has become quite tame and receptive to feeding and is a remarkable animal in his own right. Completely camouflaged in their natural environment, these animals lie and wait motionless for hours on end, just waiting for meals to swim into striking range. They also carry their eggs on their backs until they hatch. Toe biter, as I have so aptly named my specimen, can be viewed by the public in our education room at the Eldridge Research Center, and I invite anyone who is interested to come see this amazing animal.

***

Red-backed salamander eggs in which larvae are visible.

As many of us know, much of the recent research at the Huyck Preserve has focused on a small salamander species known as the red-backed salamander. This year, I was able to look into a part of this animal's behavior I had never seen before. During the research season, I stumbled across several nests of eggs with females guarding them In some of the nests, the eggs were suspended to the underside of rocks; in others they were occupying small holes and tunnels that were doubtlessly created by larger animals. I brought one of the nests back to the lab with its female and started to photograph different stages of development. Red back salamanders are in the family Plethodontidae; many of the species in this family have developed the ability to lay eggs on land, a relatively unique characteristic in the amphibian world.

As I watched the young salamanders in their eggs, I was able to see them go through several larval stages, including a period when large bush gills could be seen. The female salamander found with the nest stayed with the eggs the whole time, often coiling her body around them. She did not defend her nest upon my incursions to photograph; usually she fled in to the leaf litter. However, it has been suggested in several publications that females will defend their nests from more suitably-sized threats. It has also been suggested that the skin secretions from the mother salamander may help to protect the eggs from bacteria and fungus that would otherwise harm the eggs. At the end of the incubation period, about a month or so in length, small fully developed red back salamanders emerged from their transparent eggs at about 2.5 mm in length.

Christopher Schiralli

2005 Wildlife Rehabilitation in Review

2005 was not a particularly busy year for rehabilitating animals, though there were some interesting cases. In total, there were about 100 animals; of these, 10% were reptiles, 30% were mammals, and the rest were birds. Most of these were young, with some true orphans whose parents had suffered injury or death. However, many orphans were also created by well-meaning people who, thinking that the youngsters were in need of rescue, would take them in. This happens most frequently with fledgling birds, but also with fawns and cottontail rabbits. Unfortunately, these are babies that are difficult to raise well. Orphan songbirds are demanding in their feeding schedule, cottontails are delicate and easily stressed, and fawns need a lot of space and extra measures to insure that they do not socialize too much with humans. Each species also needs to follow a very specific diet in order to be healthy.

Success in rehabilitation is difficult to measure. Returning animals to the wild is not always a viable option. Some animals come in with such severe injuries that euthanasia is the only humane option. That action should be viewed as a good choice for animals that are unable to return to the wild and are suffering, perhaps with death imminent. Nonetheless, it is a hard choice that must be deliberately made. It is a much more difficult choice when an animal is injured, able to survive, but faces a lifetime of captivity with a less than optimal quality of life.

Once in a while, rehabilitators receive species that we do not see often. It is always interesting to handle different things with different problems. Though we wish no ill will on any animal, some are more pleasant to handle than others. I have not handled a Turkey Vulture in over 10 years, but this past year I received two. One was an adult with a minor wing injury. I had hoped to release this bird before migration, once it gained weight and strength. Unfortunately, it lacked several primary flight feathers on one wing. The bird will be overwintered, and hopefully once it molts, new feathers will grow in. However, the feather follicles may be damaged, in which case the feathers may never grow in. (I had an educational Red-tailed Hawk left with an identical problem after being shot). Lest you think 'how cool, a Turkey Vulture', let me tell about just how big these birds are (BIG), and remind you about what they eat (CARRION), and subsequently of how lovely they smell (GROSS). Let me also tell you of their habit of defecating on their legs (which cools them in summer and keeps bacteria levels down) and of their most endearing habit vomiting up that rotting smelly meal when they are frightened! As rehabilitators, we can only hope that turkey vultures begin to recognize us as caretakers and not as large predators that they need to scare off by throwing up whenever one of us enters their cage with roadkill picked up just for their benefit. The second vulture I took care of was a youngster, still a bit soft and downy with a grayish head, as opposed to the beautiful,

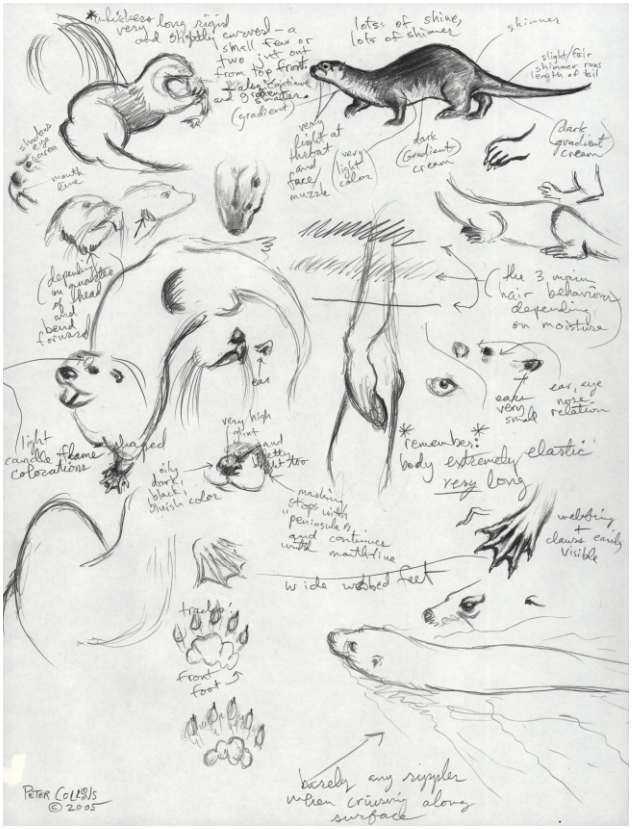
bald red head that adults have. This bird's wing was injured, causing it to droop significantly. I had a skilled wildlife veterinarian evaluate this bird, who confirmed my fear that this was not a good fracture., She also rendered an opinion I had not expected. Since the fracture was high in the shoulder, near the joint, she felt that it could not be surgically fixed. She also opined that this bird would always be in pain, even in captivity, due to its heavy weight, its long wingspan, and its projected long lifespan. I had hoped to keep this bird for education programs if it could not be released. I felt that it could learn to accept life in captivity and thus get a second lease on life. It was not to be.

Squeaker sleeping

Another first for me this year was an odd patient - an orphan gray squirrel with Down's syndrome. This developmental anomaly has been documented in squirrels before, and presents similar characteristics to those found in human cases. He was shaped abnormally and did not develop skills at a normal rate, achieving only a certain amount of typical squirrel behaviors. The little guy was not expected to have a normal lifespan and sadly he died after about only six months.

On a lighter note, there was another "new" for me in rehabilitation. In mid-April, a local resident contacted me about an orphan river otter. I had helped to hand-raise two young river otters in a zoo many years ago, but I have never had a wild one come in for rehabilitation. To my knowledge, no one has rehabilitated one in NY, though many trapped wild ones have undergone captive care in the New York River Otter Reintroduction Program prior to release into new areas. To the credit of the family that found this baby, they did all the right things. They uncovered the den when pulling up flooring in a shed. Their farm had not had much human activity for some time, and no doubt the mother thought it was a safe haven for rearing young. There were two babies, eyes still closed. The family left them alone and observed the mother return the next day and carry one baby away. They left the second one for another night before becoming concerned about its well being. They searched for information about otters on the internet and called the NYS Department of Environmental Conservation to get the number of a wildlife rehabilitator. When I picked up the orphan, she was strong and her eyes had just begun to open, putting her at around one month old. From the beginning her vocalizations sounded like bird squeaks, so we called her "Squeaker". I do not normally name the animals I care for, but, once in a while a name seems appropriate.

It has been an interesting several months with Squeaker. A mother river otter and her young remain together for a year, which is a rather long dependency period. It is difficult in rehabilitation to raise one baby alone, especially a mammal. We always try to place orphans with conspecifics (their own species) to promote healthy socialization. I made many calls to locate another orphan river otter but was unsuccessful. Since she is a playful, social youngster that is dependent on 'mom' for a year, it has been impossible to prevent her from looking at people as her own kind. Due to this behavioral abnormality (I can not guarantee that she would not approach people in an inappropriate manner once released) I am looking into good captive situations for Squeaker. I am currently considering the Adirondack Museum in Tupper Lake. They are building a new river otter exhibit, which is to be their primary mammal focus. I know the veterinarian who will be providing care for the animal collection and I would love for the otter to remain in NY. It is not necessarily a rehabilitation success, but under the circumstances I think it will be the most successful path for this particular animal. It has been a real joy to watch her play and dive in the water, and tunnel and slide in the snow. Hopefully since she is used to people she will be a great exhibit animal and others can enjoy viewing this fascinating species.



Peter Collins
Sketchbook page: drawings of North American river otter
COM.EN.ART 2005

North American River Otter, *Lontra canadensis*

(Order: Carnivora; Family Mustelidae)

Geographic Range - North American river otters once occurred throughout Canada and the United States, except for areas of southern California, New Mexico, and Texas, and the Mohave Desert of Nevada and Colorado. Otters are now rare or locally extinct throughout much of the eastern, central, and southern United States. Many states have implemented reintroduction projects and limited trapping to assist in the return of this species.

Habitat - North American river otters are found anywhere there is a permanent food supply and easy access to water. They can live in freshwater and coastal marine habitats, including rivers, lakes, marshes, swamps, and estuaries. River otters can tolerate a variety of environments, including cold and warmer latitudes and high elevations. North American river otters seem to be sensitive to pollution and disappear from areas with polluted waters. North American river otters build dens in the burrows of other mammals, in natural hollows (such as under a log), or in river banks. Dens have underwater entrances and a tunnel leading to a nest chamber that is lined with leaves, grass, moss, bark, and hair.

Physical Description - North American river otters are semi-aquatic mammals with long, streamlined bodies, thick tapered tails, and short legs. They lack a collarbone, giving them great flexibility in their forelegs. They have wide, rounded heads, small ears, and nostrils that can be closed underwater. The vibrissae are long and thick, reflecting their importance in sensory perception (river otters are nearsighted). The fur is dark brown to almost black above and a lighter color ventrally. The throat and cheeks are usually a golden brown. The fur is dense and soft, effectively insulating these animals in water. The feet have claws and are completely webbed. Body length ranges from 889 to 1300 mm and tail length from 300 to 507 mm. Weight ranges from 5 to 14 kg. Males average larger than females in all measurements.

Reproduction - Males and females do not associate except during the mating season. Males often breed with several females, probably those whose home ranges overlap with their own. Breeding occurs in late winter or early spring. Gestation lasts two months, but the young may be born up to a year after mating because these otters employ delayed implantation of the fertilized egg in the uterus. Births occur from November to May, with a peak in March and April. Females give birth to from 1 to 6 young per litter, with an average of 2 to 3, in a den near the water. They are born with fur, but are otherwise helpless. They open their eyes at one month of age and are weaned at about 3 months old. They begin to leave their natal range at from 6 months to a year old but may remain with the family until until the following spring. Sexual maturity is reached at 2 to 3 years of age.

Behavior - North American river otters can live up to 21 years in captivity. They normally live about 8 to 9 years in the wild. *Lontra canadensis* individuals are solitary, except for females with young. They are known as playful animals, exhibiting behaviors such as mud/snow sliding, burrowing through the snow, and waterplay. Many "play" activities serve a purpose. Some are used to strengthen social bonds, to practice hunting techniques, and to scent mark. North American river otters get their boundless energy from their very high metabolism, which also requires them to eat a great deal during the day. They are excellent swimmers and divers, able to stay underwater for up to 8 minutes. They are also fast on land, capable of running at up to 29 km/hr. These otters normally hunt at night, but can be seen at all times of day.

Home Range - River otters have large home ranges, between 2-78km of waterway, and are constantly on the move within this range. Home range sizes vary considerably and seem to depend on the richness of food resources and habitat quality. Despite these large ranges, river otters are only slightly territorial and generally practice mutual avoidance.

Communication and Perception - North American river otters perceive their environment through vision, touch, smell, and hearing. Their large and abundant whiskers are very sensitive and are important in tactile sensation. These whiskers are used extensively in hunting, as smell, vision, and hearing are diminished in the water. They vocalize with whistles, growls, chuckles, and screams. They also scent mark using paired scent glands near the base of their tails or by urinating/defecating on vegetation. These glands produce a very strong, musky odor. They also use touch and communicate through posture and other body signals.

Food Habits - North American river otters eat mainly aquatic organisms such as amphibians, fish, turtles, crayfish, crabs, and other invertebrates. Birds, their eggs, and small terrestrial mammals are also eaten on occasion. They sometimes eat aquatic plants. Prey is captured with the mouth, and mainly slow, non-game fish species are taken, e.g., suckers. The otter's long whiskers are used to detect organisms in the substrate and the dark water. Prey is eaten immediately after capture, usually in the water, although larger prey is eaten on land.

Predation - North American river otters are sometimes taken by bobcats, coyotes, birds of prey, alligators, and other large predators. They mainly escape predation through their agility in the water and on land, their vigilance, and their ability to fiercely defend themselves and their young.

Ecosystem Roles - North American river otters are important predators of fish and aquatic invertebrates. North American river otters generally do not have adverse affects on humans and are important parts of healthy, aquatic ecosystems. They have been hunted for many years for their attractive and durable fur. Otters are still an important source of income for many people in Canada and the western United States. River otters also eat "trash fish" that compete with more economically desirable game fish.

Kelly Martin

Dragonflies

I'll never forget the day that the dragonfly emerged. It was a beautiful, late spring morning. The air was full of the voices of inquisitive school children who were visiting the Eldridge Research Center on a school field trip. The students were participating in our "Tools and Techniques of a Biological Field Station" lesson, which is split between a tour of the field station and a hands-on study of a terrestrial or aquatic habitat. Huyck Preserve educator Barbara Bolster Barrett was standing with a group of students who had just returned from an investigation of the Ten Mile Creek, where they had learned about the many species of invertebrates that inhabit a stream. The group was standing near Lincoln Pond when one child noticed a strange creature clinging to a rock. Excited by this fortuitous find, Barbara called to me enthusiastically.

Dragonfly (half banded Toper)
Photograph by Christopher Schiralli

I walked over to join the group. The students showed me something on the rock, which I first thought was a dead insect. It was only when I noticed a pale, anemic critter lying beside the seemingly dead insect that I realized what had caused all the excitement. The pale being was a dragonfly, which was in the process of transforming from its immature stage to its adult stage. The "dead" insect was the larval skin that the adult had emerged from shortly before it was discovered by the children. It is hard to know who was more excited about this discovery Barbara and I or the students but we all enjoyed checking on our fledgling throughout the day. We were gratified when the young adult gained strength and color, and finally embarked on its maiden flight. We had been privileged to bear witness to an amazing feat of nature metamorphosis.

The serendipitous discovery of the dragonfly could not have been timed more perfectly. The students had encountered many larval insects in the Ten Mile Creek during their stream study. These insects spend the immature stage of their life as aquatic animals before maturing into flying creatures. The students had seen immature dragonflies in the stream and were given the rare opportunity to witness metamorphosis in action.

Dragonflies, like other insects, progress through several distinct stages in their life cycle. Dragonflies and damselflies, both members of the order Odonata, progress through three life stages: egg, larva and adult. The first life stage of a dragonfly is an egg that is deposited in or near the water. Eggs hatch into larva, which are called nymphs or niads. Dragonfly nymphs are impressively armored creatures with long legs and bulbous eyes. Like fish, dragonflies have gills, but dragonfly nymphs breathe oxygen through their anus because their gills are located in their rectum. The rectum is a very useful part of the anatomy of an immature dragonfly. In addition to absorbing oxygen, the rectum allows the nymph to move by jet propulsion. These amazing animals can move water through their rectum quickly enough to propel themselves forward in pursuit of prey or to escape predators. Dragonfly nymphs have other unique adaptations that make them successful predators. They have an enlarged lower lip that can extend as far as one third of their body length to capture food. Dragonfly nymphs eat larva of many insects, including black flies and mosquitoes, and are even capable of catching and eating small fish.

Dragonfly nymphs remain in the aquatic, immature stage for one month to several years, depending on species. The nymphs shed their hard exoskeleton several times as they grow larger. Unlike butterflies, moths and many terrestrial insects, dragonflies do not pupate to transform into adults. The nymphs simply climb out of the water onto a plant or a rock and swallow air until their exoskeleton splits open, allowing the adult to emerge.

The transformation from nymph to adult is a profound change. Adults no longer breathe with gills, and their two sets of wings allow them to fly through the air with great skill. Dragonflies are capable of moving forward and backward and can hover in mid-air. Like the nymphs, adults are premier predators, voraciously eating mosquitoes and other pests. I once was surprised when a dragonfly landed on me on a warm, summer day. My surprise turned to fascination when I realized that the dragonfly was grasping a damselfly and was using my leg as a picnic table, as it dined on the damselfly's head! Dragonflies indulge in fascinating aerial mating behavior in which the male grasps the female and the two embark on a tandem flight to lay eggs in or near water. Adult dragonflies live for just a few months, but their terrestrial life is critical to the continuation of their life cycle.

Dragonflies are one of the oldest types of insects that are still in existence today. They evolved two-hundred and eighty to three-hundred fifty million years ago. When dinosaurs roamed the earth, huge dragonflies flew in the air above them. The physiology of these aerial wonders has changed very little over millions of years. Dragonflies have become much smaller than the behemoths with wingspans that were nearly three feet in length, but otherwise, the

modern insect very closely resembles their prehistoric ancestors. I sometimes like to imagine what Rensselaerville looked like when the giant dragonflies inhabited the Earth. Perhaps dragonflies zoomed over the vast and shallow inland sea that once covered our region. There is no doubt that the perfection of this insect's design has allowed it to survive through the extinctions of many other creatures. Its role as an indicator of healthy aquatic environments makes me hope that it will exist long after humans no longer inhabit the Earth.

Adult dragonflies are one of the most visible indicators of biodiversity in wetlands. The presence of dragonfly nymphs in a stream or pond suggests that the quality of that water body is fairly good. Aquatic invertebrates are fascinating for many reasons, not the least of which is their role as indicators of water quality. Species diversity, as well as the presence or absence of certain invertebrates, can inform the observer of how impacted, or polluted, a stream may be. The presence of three types of aquatic invertebrates that will transform into terrestrial insects, mayflies (order Ephemeroptera), stoneflies (order Plecoptera), and caddisflies (order Trichoptera), is considered a key indicator of stream health. The Benthic Macroinvertebrate Index is a formula that can be used to quantify the presence of pollution tolerant versus pollution intolerant species in order to determine the health of a wetland. In addition to the presence of these key species, the diversity of invertebrates including a healthy population of predators such as dragonfly nymphs helps biologists to determine water quality.

Lincoln Pond, Lake Myosotis and Ten Mile Creek host large populations of a great diversity of species, including mayflies, stoneflies and caddisflies. The excellent water quality in these wetlands is a testament to the success of the Huyck Preserve's seventy-five year effort to protect the watershed of the Ten Mile Creek. The mob of dragonflies that zoom through the air around the Eldridge Research Center each summer are just one of the rewards of wise stewardship of our natural resources. The efforts of Huyck Preserve to protect the Ten Mile Creek watershed benefit not only the people who drink its waters, but the vast diversity of wild animals, from the tiniest nymph to the largest predator, that depend upon its water for life.

Sometimes our efforts are rewarded with unexpected gifts. The schoolchildren who visited the Preserve on that lovely spring day were amazed to learn of the whole world of insects a diverse and vulnerable community that exists beneath the flowing waters of Ten Mile Creek. The discovery of one of these insects transforming into an adult is a gift that will remain with us all for a lifetime. I hope that the gift that the dragonfly gave us that day will encourage these children to continue the tradition of wise stewardship that the Huyck family began so many years ago.

Liz LoGiudice

Muddy Trails

In May of 2003, I was on summer break after my first year of college in Ithaca, and things were not going at all as I had planned. The beautiful sunny weather that had been hanging around for days, taunting us all the way through finals just when we couldn't quite enjoy it, had given way to days and days worth of rain. I had been home in Rensselaerville for a couple of weeks, and had barely seen the sun once, let alone been outside for any length of time at all. I couldn't wait to "run around" in the woods, yet it seemed that I was being thwarted by the weather at every turn.

All the brochures and current students in the area had raved about all the nature in Ithaca. Indeed, one of the town's main tourist gimmicks, the 25-year-old "Ithaca is Gorges" ad campaign that adorns bumper stickers, T-shirts, and coffee mugs as far as the eye can see, aims to play up the abundance of waterfalls that feed into Cayuga Lake. I was excited to investigate this, having spent my childhood taking the occasional hiking trip in the Adirondacks or the Catskills and with the Preserve as my backyard.

My first trip into Ithaca nature was a short trail through the Fall Creek gorge, off of the Cornell University campus. Everything was beautiful to be sure. The waterfall was impressive, as was the deep, jarring path it had carved for itself over millions of years. Yet, as I viewed this spectacular feat of nature for the first time, from my position on a path lined with a fence and the blue lights that are ever present near a college campus, I felt an immediate pang of homesickness for the Rensselaerville Falls. I imagined myself instead standing on one of the red wooden bridges in the Preserve, either gazing up at the falls, or looking down from above as the water makes its first big drop. The picture in my mind contained no obstructive blue lights or seemingly misplaced barriers.

Months later, in the spring when the weather had warmed some and the snow began to melt, a few friends and I journeyed in the other direction, south of campus to the Buttermilk Falls State Park. Once again, a distant, hollow feeling of disappointment settled, not for lack of nature, but because of its presentation. The trail we were on didn't lead to any place, it simply circled around itself in what seemed like a haphazard fashion. It was perfectly groomed. A chain lining one side kept hikers on the gravel-laden path. I had never felt less in nature.

Thus, that May, I was itching to really get outside, though the rain had other plans for me. When at last, a couple of weeks later, the sun broke through the rain clouds long enough for me to leave the house, I donned my oldest pair of old sneakers and headed off to the trails, determined to hike everything from the Falls to Lincoln Pond.

I couldn't wait to get to the "back of the lake", the stretch of trail that I find to be the least traveled. I have always thought that leg of the path to exemplify the best characteristics of footpaths through the woods. Back there it doesn't lie; it doesn't put on any kind of show pretending to be what it's not. It simply *is*. There is no gravel to ease your step or planks to preserve your shoes from the mud.

Every bit of nature back there is just that natural.

Every trip is wrought with new adventures. Quite soon after the lake comes into view (approaching from the falls), the stream feeds into the lake. Here it is rather wide and shallow, and there is no bridge for convenience. I prepare to cross the old-fashioned way, via stones peeking up through the surface. Though I have been to this spot hundreds of times, I can easily imagine that I have found it for the first. The stone "path" is never the same. This time, it leads me more upstream than normal, as the abundance of rain and subsequent rising water levels have completely submerged a number of rocks that I used last time. I eventually make it across, and into the next leg. Here, at about the middle of the lake, mud is generally in abundance, now more so than usual because of the recent wet weather. As I approach this area I pass two women hiking in the other direction, commenting on all the mud, but not really in a negative way. I get excited. To me, making it through there is very similar to making it across the stream I have just crossed. It isn't hard if you can spot the path; it is really just another kind of stream, where roots and sticks poke through the surface instead of rocks.

It takes me an hour and fifteen minutes to go from my house, around the lake, and back home again. There is so much packed into that length of time that jaunts of a similar length rarely offer. As I explored Ithaca, I noticed much that was similar to the Preserve. They had waterfalls, abundant wildlife, and things to see as well. What their trails lacked though, was the adventure I craved. To me, walking on a perfectly groomed trail was akin to visiting a historical house it was beautiful, it had some interesting things, but what I really wanted to be doing was digging through the dusty attic to see what relics I could find. And so, in that brief afternoon in May when the rain stopped for just a little while, I returned to my house happy, with my shoes just a little bit dirtier.

Katie Barker

Changing Views From a Red Picnic Bench

The two dead white ash trees, about forty yards apart on the shore of Lake Myosotis, have been there for as long as I can remember. I have always found them to be strikingly beautiful, stark in their sharp angles and coloring that contrast the beautiful contours and lush colors of the surrounding landscape. Where these trees stand, on either side of the swimming area, is one of only two areas of the entire shoreline that is accessible by vehicle. The only way to explore the rest is on foot, walking either along the rocky waterline, or on the trails that circumnavigate the lake. The trees are visible from almost anywhere on the trails, standing like sentinels, separating and guarding the domesticated from the wild.

The hundred-acre Lake Myosotis, so named for the abundance of the Forget-Me-Not flower (*Myosotis sylvatica*) that canvasses the forest floor of the western shore, lies at the heart of the two thousand-acre Edmund Niles Huyck Preserve. The lake itself is man-made, created around 1800 when the settlers of the area dammed the Ten-Mile Creek (which often ran dry in spots) to ensure a water supply both for the village of Rensselaerville and for the mills that dotted the creek further down. The Huyck family owned the woolen mill in the late 1800s, one of the first felting mills in North America. The felting mill is no longer in existence, though the foundation can still be seen at the foot of Rensselaerville Falls, a five-minute walk into the Preserve from the village. Through the years of the early twentieth century, the Huycks acquired other land within the upper Ten-Mile Creek watershed, which then included the falls, Lake Myosotis, Lincoln Pond (a 10-15 minute walk up the trail from the lake), and conjoining properties by the time Edmund Niles Huyck died in 1930. In 1931, Edmund's widow, Jessie Eliza Van Antwerp Huyck, established the Preserve in his memory in order (according to the original charter of the organization) "to preserve the natural beauty of the Rensselaerville Falls, Lake Myosotis, Lincoln Pond and the land around them…and to increase the general knowledge and love of nature". What began as 500 acres of land that encompassed these specific areas has since grown to 2,000 acres, including more of the outlying land. In addition, the Huyck Preserve's focus has expanded over the years to include research programs and facilities, including grants to support existing scientists and Ph.D. candidates, and a Biological Research Station located on the south shore of Lincoln Pond.

The Huyck Preserve has been an integral part of my life since my family moved to the village of Rensselaerville in 1987, when I was three years old. As its trails are a mere five-minute walk up the street from our house, I hold the Preserve partially responsible for helping to develop my love of nature. Some of my earliest memories involve hiking along the several miles' worth of trails with my family, scouting out raspberry bushes with my father, taking part in Nature Study and Swimming Lesson classes offered by the Preserve, and swimming at the lake for the pure enjoyment of it. My love of nature hasn't waned as I have gotten older, merely intensified. During the summers in middle and high school, I would often find myself grabbing a sketch pad and heading off into the woods for hours at a time. Even now that I'm in college, when I go home for breaks I often find that the Preserve is the first place I go.

Naturally, when the Preserve found itself short on lifeguards for the summer of 2000, I jumped on obtaining the necessary certification. What could be better, I thought, than getting paid to spend my complete summer at the lake, amidst all that natural beauty and the company of neighbors, where I would have found myself anyway? I was also uniquely qualified for the position compared to lifeguards that had been hired for the past few summers, simply because of my familiarity with the waterfront and the swimming area's underwater topography. I know from experience, for example, that the bottom drops off in the southernmost corner of the wading area. I know

how to gauge what conditions are like at the dock under given circumstances, because I spent so much time out there during previous summers. And I know the patrons, the rules of the waterfront and, importantly, the whys behind them.

Being a lifeguard at Lake Myosotis has redefined my summers ever since. This past summer marked my sixth as the weekday guard. Eight hours a day, five days a week, from mid-June to late August, I sit on a red picnic bench on the east shore of Myosotis, doing my very best to watch the patrons and to prevent potential safety hazards. Yet, because of the small size of the surrounding area's population and a policy of only issuing beach permits to those living within a two-mile radius of the Preserve (the New York State Health Department imposes restrictions on numbers because it is the drinking water supply for the town of Rensselaerville), I sometimes find myself in a welcome solitude during my work day. It affords me the opportunity to keenly observe my surroundings, to truly appreciate the gem of a place in which I find myself.

Patrons enjoying the Lake

It is an opportunity like no other, to be able to observe a place so static and peaceful, seemingly cut off from the rest of the world yet so close, day in and day out. You become sensitive to the changes that all manner of conditions bring. You can see the wind's effect on the surface of the water as it comes from different directions. It can be playful or harsh, depending on the speed. You can watch the sky in its various stages. After a few weeks, for example, I can almost always guess what time it is within fifteen minutes or so, based solely on how much shade my umbrella is giving me. I see the difference in the appearance of the water. On sunny days, the water glistens, reflecting the sun's rays and the dazzling blue color of the sky. On overcast days the water is subdued, its gray color allowing it to reflect the trees on the shoreline. You can note all the elements that compose the place trees, water, sky, birds, animals and how they react to all manner of conditions. In short, a place that seems the same from day to day really isn't at all.

The people who visit, whether they are swimmers, picnickers, or just hikers passing through, add another dimension. Many complement the natural setting. The hikers are appreciative of the beauty, and often curious about the flora and fauna of the area. Picnickers often come armed with field glasses, eager to observe and identify. Swimmers sometimes seem invasive in their presence, splashing about and making noise, but every so often the observant lap swimmer will watch and comment, or the curious child will turn over rocks in search of crayfish.

The subtle variables of Lake Myosotis, whether natural or human, are what keep the place interesting. When I arrive at noon to open up, I can never be sure who I will see, or what they will do, or even how much time I will have to spend to myself. The weather, with its sudden changes, has the power to quickly alter everything around me. Indeed, no day is the same at the lake, if you are willing to see the changes. The only constants have been me, the water, the dead trees vigilantly standing guard, and the only visitors I can count on seeing every day of the summer the Canadian Geese (*Branta canadensis*) who call Myosotis home.

***

The sun was sinking further in the west. As the day drew quickly to a close, the last rays of light cast a warm glow over the lake. The last people had just driven away. I heard the sound of tires against the rocky dirt road fade into the distance, and I checked my watch 7:30. No one else would show tonight; I could close at a leisurely pace. I looked to my left, noting the mound of bright orange snow fence rolled up in the bushes. It was as good a place to start as any.

The geese have been a perennial problem for as long as any of the local residents can remember resurfacing every year sometime in August. When we were little, our parents would constantly call, "watch you don't set it in goose poop," as we would drop our towels and race towards the water to swim. We would learn to heed these warnings in time, once we got sick of having to go towel-less because of the large, dirty patches on their undersides. Although goose feces are an aesthetic problem, scientific evidence has never substantiated the claim that their presence poses a risk to public health. No cases of illness in humans have been associated with the natural presence of Canadian geese. However, in the couple of years before I began life guarding, there had been a change. In the past the geese had started their season at Lincoln Pond moving to Myosotis only as they fledged their young. Now the goose population had significantly increased and returning geese were migrating to the Lake. Their season now extended to the entire summer.

In the past, parents with small children (my mother included) had picked up the mess that the geese left every day, simply so that their children would not play with it, or attempt to eat it, or anything of the kind. My first year on staff, however, saw the first official attempts to combat the issues. When people complained, I tried to be accommodating if it was safe to do so. On slow days, I would don a pair of

latex gloves and go up and down the grass with a small bucket, picking up the feces as I encountered them. These efforts, though, were not enough to keep up with the growing problem.

Enter the first "goose fence". The pilot version was a thick, white string that hung about two and a half feet off the ground, knotted around metal garden stakes. The theory, which proved to be somewhat accurate, was that the geese were not quite smart enough to realize that such a barrier could be overcome. The geese, seeing the barrier to the grass in their path, would view it as a lost cause, not even attempting to fly over or climb underneath. This lasted no more than a month, however, for the geese figured out fairly quickly their ability to walk underneath it with no inconvenience to themselves.

I remember very clearly the day that we replaced our meager "fence" with the orange snow fence. A couple of weeks beforehand, John, the maintenance guy, and I came to the conclusion that the "fence" was no longer working. He had heard that the neighboring town of Berne, home to the only other waterfront swimming area in Albany County, had started using the snow fence to keep the geese off of their grass, and that it had been working fairly well. It provided a more solid looking, imposing barrier than our string, and the geese looked upon it as more of a challenge that they didn't want to undertake. We determined it was worth a shot. It was windy and cool out the day we set it up. John erected the thick, wooden posts from which we were to hang the orange plastic that I was simultaneously cutting to size. Later, as we attempted to hang the fence from the nails that stuck out from each post for that very purpose, the wind proved a temporary, yet formidable adversary. Sudden gusts would blow down what we had already accomplished. Once it was fully attached it was fine, as it would resist movement in its taut, stretched state.

The new fence lived up to its expectations, for awhile at least. For one whole summer, the geese stayed away; when I would open at noon, the grass would be blissfully clear of any evidence that they had visited in the sixteen hours since I had last been there. But geese are a constant animal. They mate for life and migrate to the same spots year after year. Because of this they learn the ins and outs of their chosen places, so it is logical that they would eventually learn how to reach their Mecca of grassy knolls, the beach area. The fact that geese have such strong family bonds, too, would ensure that once the fence was figured out, it would be figured out by all subsequent generations of geese to come through. Geese would teach goslings, who would return year after year and teach offspring of their own. One "goose-free" summer was all we got at the Preserve.

Now, as I kicked the roll of fence across the grass, pausing every so often to unhook it from itself when it would stop abruptly I couldn't help but wonder why. Why was I still sacrificing a half hour of each work day (fifteen minutes on each end of the day) and staying late on days that were busy until closing, to erect this fence that was no longer even the least bit effective? The next day was a swimming lesson day, and I already knew how it would go. The beach would fill with curious toddlers, who would pick up the pretty feathers geese had left behind and make presents of them to their family and friends. Meanwhile, their parents would set out blankets, looking around as they did so and asking, "Isn't there anything you guys can do?"

"We do what we can," I would reply, pointing to the goose fence, and powerless to remedy the immediate situation because of the people in the water.

Three more good kicks and the goose fence lay stretched out before me, running the entire width of the beach. I commenced with attaching it to the posts. The final nail was buried in the brush that surrounded the base of the dead tree in which it was bored. As I searched through it, I heard a familiar sound.

I looked up, in the direction of the honking. An army of about fifteen geese were advancing from their position on the lake, poising themselves for action once I left. They swam peacefully, yet I felt a twinge of annoyance come over me at the sight of them, knowing my efforts to be in vain. It was always this way me against the geese and they always won.

***

It was just another day on the job, just like every other day had been during this abnormally hot and humid summer at Lake Myosotis. The sticky weather begged for swimming, but there was none at the moment. Instead, a few dozen swimming lesson families sat on the grass behind me expectantly, as we listened for the rumbles of thunder far off in the north-west skies to subside.

The rumbles were relentless. At first, there were a few minutes between them. Most of the swimming lesson children had already occupied themselves otherwise, running on the grass or engineering creations in the shaded sand pile. Several of the more impatient kids occupied themselves instead by asking me every so often, "is ten minutes up yet?" Even they, however, began to give up, and they joined the other children elsewhere as the skies in the west continued to darken, and the rumbles of thunder grew louder and more frequent.

All around us, nature was preparing for the storm that, at this point, seemed inevitable. The leaves on the trees had begun to turn over, foreshadowing the onset of rain. It gave the landscape around us a much paler hue, as the grayed-out greens of the undersides of the leaves began to dominate. The birds seemed to know that something was coming as well. Many of them fell silent, lending an ominous feel to the air around us. One of the gulls, on the other hand, let out a caw as it flew in to assume its usual perch on the end of the diving board.

When the mating pair of gulls flew in a few years ago to make their summer home, no one knew what they were doing here, so far from the ocean.

All can agree, however, that they absolutely adore inclement weather. Whenever skies are gray and rain seems a plausible threat, one of the gulls can be found on the dock, waiting for the storm. Such conditions suit them perfectly. On a gorgeous, blue-skied day, the gulls, with their bright white coloring accented with gray and black, can be spotted somewhere on the lake. But, at this particular moment, when the lake reflected the muted tone of the sky, it blended in perfectly with its surroundings.

The flock of geese were in the distance, swimming on the far shore of the lake. We were all sitting on their grazing ground, the only area of open grass anywhere around the perimeter of the lake, and they always keep their distance whenever people are about. I counted twenty-eight, then twenty-five, now twenty-seven they were hard to count. Though they swam in what looked like a single-file line, they passed each other from time to time, as if they were sharing one lane of a road.

A crack of thunder, the loudest one yet, resounded in the north-west skies. The thunderheads were rolling in fast, and the skies were beginning to take on the eerie, yellow tinge that happens in the calm, just before the lightning strikes and the rain begins to come down. Some of the kids in the sand pile looked up, eyes wide from the startling noise. One of the least shy looked to the sky, then looked at me and said, "Aww, man! Ten more minutes!"

"Yep, ten more minutes," I replied. "It doesn't look too good for swimming, does it?"

"No," he answered.

The geese were no longer as far away. I counted twenty-six, swimming in what looked like the geographic center of the hundred-acre lake, instead of on the far shore like they had been before. One began to honk raucously, inciting several more to respond. Immediately, the gull on the dock turned his head sharply, as if the geese were calling to him. He quickly lost interest though, resuming his stoic demeanor, staring straight ahead.

With no one in the water, I had nothing to do but watch my surroundings and my watch from time to time. It is amazing how the motion of time sometimes seems to cease in the long minutes when there is rumbling thunder and a beach full of people eager to swim. In this situation, there is nothing to do but wait. I became distracted by the sky again, with its thick layer of dark, grey clouds rapidly rolling in. The wind was beginning to pick up, and there was that delicious feel of electricity in the air, another subtle warning of what was shortly to come. My mind began to slowly drift away a bit, lost in the beauty of the surroundings and the coming storm.

"Mama! What's those birdies, Mama?"

My reverie was broken by the toddler's loud interjection into the muddled sounds of conversation on the beach. I followed the child's pointing finger, and found my gaze set once again upon the geese. They were much closer now. The few at the head of the flock were now swimming within the bounds of the swimming area, with the rest of them tailing not far behind.

I was momentarily stunned. The geese had occasionally tried to come ashore on the cool overcast or misty days when no one would dream of swimming and I, as the lifeguard, was the only one on the beach. They never dared to venture this close when anyone else was with me. Whenever I was alone, though, I knew that I could not let them succeed in coming ashore, because the mess of droppings and feathers that would greet me every day at noon only signaled frustration. I cannot turn a blind eye if there is something I can do to stop them, even if just momentarily.

My favored method to deal with the threat of advancing geese has always been to make an exaggerated throwing motion with my arm. Not being particularly bright animals, the geese will usually slowly turn and swim away, never bothering to notice that nothing has broken the surface of the water. Occasionally, however, the geese try to come ashore multiple times in succession, after I have made my initial attempts to stave them off. I then turn to actual rocks, aiming for a spot in the water that is nowhere near enough to hurt them, but close enough for them to notice the splash. It startles them, or at the very least, catches their attention, and they will often give up for awhile.

On this day, however, I knew that my traditional methods would not work out. I could not justify setting that example before so many children. I knew that some of them, excitable and eager to please, would want to help me in my mission by throwing rocks of their own. Little as so many of them were, they may not have been coordinated enough to avoid the geese, which were by this time quite close to grazing their webbed feet on the rocky lake bottom. Others were too young even to understand the concept of trying to aim away. Besides, such an action would severely undermine my "no throwing rocks' rule, which I always strictly enforce to avoid any accidental and unintentional injuries that have been known to result. It seemed, then, that my only option was to walk briskly toward them, scuffing my feet against the rocks as noisily as possible. But for once, the geese were not to be deterred. They were an advancing army, determined to conquer beach territory with its spoils of grass.

I turned and looked around the grass, desperate I think for someone to give me an answer to the problem at hand. Instead, I was met with a vast array of looks, all of them different, none of them the least bit helpful. Across the faces of many of the parents were looks of either horror or disgust. All the kids, on the other hand, were absolutely delighted when four of the flock reached the shore and began to wander around on the rocks.

"No, no, honey, don't do that! Geese can get mean," I heard one mother shout to her four-year-old son as he rushed toward them with a big grin on his face. The warning went unheeded, though; the excitement was simply too great. Other children quickly followed suit, closing in on the group of four birds.

The animals sense when a thunderstorm is on the way. They hear the loud cracks in the sky, feel the friction of the electricity on their

fur or feathers, and often become afraid, allowing their anxiety an outlet in unusual, sometimes frantic, behavior. Squirrels dart up and down trees frantically, with no apparent aim in mind. The birds often squawk loudly, flying in circles and moving in and out of stages of flight in an almost schizoid manner. It is as if the electricity in the air also affects their brains, directing them to do unusual things. As the children neared the geese, coming from three sides, they had a way out of the situation that was wide open back to the water from whence they had come, or even a flight to the skies. For whatever reason, though, this was not to be. The goose in the forefront, on the shore, one that was slightly taller and statelier than the rest, turned his head toward the other three, as if communicating telepathically. In response, the others shook like wet dogs drying themselves off.

The motion was so quick that no one around was prepared. With a determination I have never seen in any other animal, the geese charged toward the children, deftly maneuvering to the other side through the space between them. Once clear, they ran around the beach with the kids in pursuit. All of the kids erupted in happy giggles, the parents in panic. Further up on the grass, the geese were running in wide circles, evading the people in their surroundings.

There were more desperate shouts from the parents as their kids all followed. They looked to me to discipline their children or to take on nature and stave the geese off myself; I wasn't sure which it was. But by now, I was shaking with laughter. But what was there to do? The geese were outrunning them anyway; an attack by an angry goose seemed unlikely at this point. Instead, I sat back and appreciated the ludicrous situation in which we now all found ourselves. After a few more rounds around the grassy area, the geese beelined for the picnic area about fifty yards to the south. As they took off over the thick plant growth that separated the water and rocks from the grass, the first bolt of lightning flashed in the northwest skies, followed immediately by a loud crack of thunder and a single drop of rain. This was going to be quite a storm.

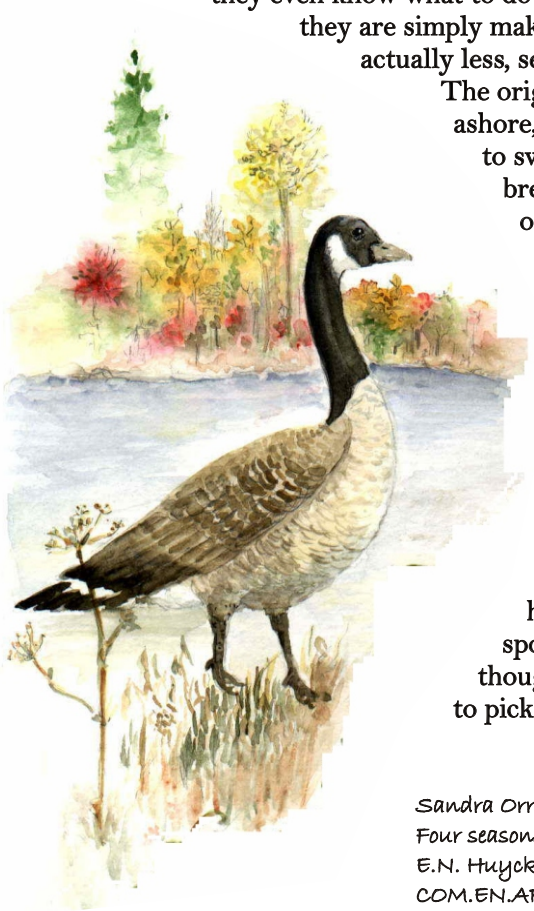
***

It is mid-morning in late summer. The air is still; the water doesn't waver, and there are no rustling sounds from the trees. Muller Pond is quiet, save for a few people reading silently along its edges. Where I am sitting, on the shores of this pond so tiny that it is easily dwarfed by Lincoln Pond, is one of the few serene spots within the confines of the Ithaca College campus. I pull my book out of my bag and join the few in their solitude, enjoying the peace.

Suddenly, a startling loud honking noise pierces the silence. It multiplies as it grows louder. There are six flying in, announcing their arrival. They approach the pond with alarming speed; if they slow down at all, it isn't noticeable. As they near the water, all six of them stretch out their legs almost in unison, positioning their webbed feet for a landing, and arching their bodies gracefully. Their body contours resemble those of a water skier. Indeed, that is their intention. When their webbed feet hit the water, they skim across the surface, producing a sound that is calmer than a splash, but the sound of disturbed water nonetheless. They ski to a stop, and at once, everything changes. The honking abruptly stops and they glide peacefully across the surface of the water; if you hadn't been witness to their arrival, you wouldn't even know that they were there. The change in their demeanors parallels their unique and starkly contrasting coloring. Long, graceful black necks meet dazzlingly white breasts, a contrast that punctuates their predominantly grayish-brown bodies elsewhere as well. The Canadian geese swim as though they own their surroundings they have arrived.

Several minutes later, a new wave of geese arrives in similar fashion. There are eleven in this batch, and the small pond is absolutely crowded. This is nearly as many geese as come to Myosotis every summer, but the difference is amazing. There they have an entire lake at their disposal, more space than they even know what to do with. Here, it is almost as though they are simply making do. Their numbers, though actually less, seem to me to be many more.

The original six take a hint and move ashore, leaving room for the new arrivals to swim. At this point, however, they break into two distinct groups. Four of them stand about six feet from the water's edge, picking at their feathers and at the grass. Their motion is fast and jarring; it reminds me of the song "Pick a Little, Talk a Little" from Meredith Wilson's *The Music Man*, where the melody is very short and disjunct, imitating the motions and the sounds of birds. The geese contort their bodies in amazing ways as they do so. They have no problems picking at any spot they choose to. Suddenly, though, the focus changes as they begin to pick at their feet instead. The switch is



Sandra Orris
Four seasons at the
E.N. Huyck Preserve, detail of Canada goose
COM.EN.ART 1996

incredible. It is as though each activity is overseen and timed. One goose, third from the left from where I am sitting, appears to be leading. It begins to pick at its feet, and the rest follow suit. Even the quality of the motion has changed. Instead of abrupt motions, the geese move much more fluidly, almost resembling a cat when it cleans itself.

Two other geese, which appear to be guarding, stand with the picking four, just the slightest bit apart from the group. Both are standing eerily still on one leg, yet are obviously alert and keenly aware of their surroundings. They remind me of a soldier, standing straight and narrow with their long, black necks completely stretched upward and their white breasts protruding. Occasionally, at the slightest rustling sound or peripheral motion, one would turn his head ever so slightly to investigate, but never once did he waver other than that.

Five geese from those that have just flown in make their way ashore, and there is a changing of the guard. Two of them replace the two that have been standing, as they move to the center of the group and start picking with the rest of them. Meanwhile, the others have found a new activity, quite far (relatively speaking, in this small area) from the other terrestrial group. They are lying in a row nearly at the edge of the water, basking in the sunlight like cats. Indeed, from a distance, they very much resemble sleeping cats, curled around themselves with their heads buried under their wings. These geese are bold, having decided to carry on their lazing about in complete vulnerability, without any kind of guard.

Once they have had their fill of the sunlight, all three of the basking geese rise and move to the edge of the water, in the slight shade of the cattails that line its edge. They bow their necks and take a drink. When they swallow the water, it is like watching them operate in slow motion. The motion is once again led by one goose. He bows is head and scoops the water into the inside of his beak, then stretches his neck slowly outward and tilts his head back to swallow. The other two geese observe and imitate.

At this point the geese are everywhere, engaging in all sorts of behaviors. A few more have flown in, and the small pond and beach are both teeming. I come out of the slight trance into which I had fallen while watching them, and come to a startling realization. This was the first time I had ever stopped to appreciate the geese, simply for being geese. I think about my continual battle-ridden relationship with them at Myosotis as a lifeguard. In my entire experience as such, they had never been more than a nuisance, a pesky species causing all sorts of problems to be dealt with. Yet, here I was, not even a month later, thinking them graceful, peaceful, and beautiful, not an annoyance at all.

My thoughts turn back to Myosotis, and I find my mind's eye canvassing the scene I have come to know so well. In my idyllic picture I am once again sitting on my red picnic bench. It is sunny, but not bright. Patches of blue sneak through the cumulus cloud cover and the water reflects the best of both worlds bright blue in some spots, subdued in others. It is warm with a slight breeze that teases the surface of the water ever so subtly. The geese fly in across the lake, producing a delightful splash as they skim across the water. They swim peacefully, small shapes silhouetted against a backdrop of water and trees. To my right, one of the guards has fallen, felled by a recent storm. The dead tree that had been there for so long, a constant in this scene, is no more. It is symbolic. Time marches on, nature marches on, and things change. There is no constant.

I leave this scene and focus once more on the one before me. At Muller Pond, the geese have assumed control of the spot. A smile crosses my face, and I realize that my former perceptions of the geese as pests have fallen away with that dead tree. They too were transient, merely waiting for the right time to quietly disappear. I gather my things and go. After all, I had been watching the geese for over an hour; it was time for *me* to disappear.

Katie Barker

Lincoln Pond Cottage

The back porch of Lincoln Pond Cottage is a sanctuary for the soul. Something about the combination of the cedar-shake siding, the calm water of the pond and the hemlock forest's depths conspire to provide a sense of peace, despite the Earth's relentless turbulence. It is a place of refuge, where the troubles of the world are not forgotten, but contemplated from a safe haven.

I seek the shady relief of the porch that overlooks the pond when the summer's heat is unbearable, or the autumn's air invitingly crisp. During the winter months, the wind assaults the porch wickedly, and the warm wood stove in the cottage's living room provides more suitable refuge for the contemplative soul. But Lincoln Pond Cottage is always inviting; always a place to escape the pressures of the modern day.

Lunchtime on the porch of Lincoln Pond Cottage is a ritual for Huyck Preserve staff. The porch is an active place during the summer months and I have enjoyed the company of scientists, artists, and friends on the porch, with the breeze off the pond bringing some relief from the afternoon heat.

The porch of Lincoln Pond Cottage is an excellent spot for wildlife viewing. Be it a kingfisher in flight, a heron hunting, the slap of a beaver's tail, or a mink plunging through a hole in the ice, a marvelous sighting is nearly guaranteed if one merely sits quietly. A pair of phoebes nest on the porch each year. They tolerate our human presence as they deliver tidbits to their young. I am always enraptured by nestling birds and amazed by their rapid growth and development. The porch is a place where I can observe the dynamics of the phoebe family without feeling that I am an intruder.

Sitting on the porch, looking out over the water to the distant shore, I think of the pond's creator, Mr. Levi Lincoln. I imagine the sense of accomplishment that Mr. Lincoln must have felt as he sat upon this porch well over a century ago, listening to the turning of the paddle wheel as it captured the power of the

water to run his sawmill. Surely, his view of the pond was very different from what we see today. Old photos of the cottage and the mill reveal that much of the land around the pond was denuded of trees, stonewalls jutting out against the barren hillsides.

The mill is long gone, although the dam remains. Mr. Lincoln himself lies beneath the ground in the Wheeler-Watson Cemetery, which is situated on a hill not far from the pond. When Mr. Lincoln was buried, the view from that cleared hillside must have been superb. Visitors to his grave may have even been able to see the pond that bears his name. Today, the hill, like much of the Preserve, has reverted to forestland, the strong roots of trees holding tightly to the soil on that steep grade, preventing erosion and protecting the water quality in the Ten Mile Creek watershed.

Sometimes while sitting on the porch, I think of all the luminaries who have enjoyed it before me. This porch was a special place for Edmund Niles Huyck. The cottage was his fishing retreat and haven for private gatherings. Edmund enjoyed poetry, and I imagine that he found the porch of Lincoln Pond Cottage to be an ideal place to compose verse. Here, removed from the hustle of the day, he was free to pursue his own creativity.

A slim volume of his poetry, entitled *Lincoln Pond and Other Poems* affords a glimpse into the mind of this great man. The first time I opened this little book I was surprised by its content. I thought that I would read lyrical verse that extolled the beauty of the natural world. Instead, I found the ruminations of a man who was very concerned with the plight of humanity. His poems do express a love of nature, but also a great concern for the well-being of his fellow man and reflect his progressive views on justice for all.

Mr. Huyck articulated his philosophy as a businessman and philanthropist in a poem entitled "Along the Path".

Along the path towards human brotherhood
Still lurk "man's inhumanity to man"
Until we wonder are we where we stood
Stark, savage, when the earliest thoughts began?

Ambitions, jealousies, suspicions, hate,
The fierce injustice of competing strife,
The friends abandoned to malicious fate, —
Are these the ladder rungs we climb through life?

We boast our progress toward a better day,
We glory smugly, in a world made free,
Our crimes of selfishness along the way
These are mile-stones that we fail to see.

If education has not banished fear,
If greed for greater gain obscures our goals,
A better chart must bring our harbor near,
A truer compass help to save our souls.

I have often been struck by the relevance of Mr. Huyck's title poem "Lincoln Pond, which was written during World War I. The brilliant juxtaposition of the beauty and serenity of the pond, with the horrible reality of war is as compelling today it was nearly a century ago.

Tired, from the day's dull task I steal away
At evening to a pond where willows grow
Against the taller hemlock's dark array;
And crowning all, great sun-swept hills a-glow.

A little pond where peaceful breezes blow
Catching the sunlight on its rippled face;
Where fleurs-de-lis in green and purple row
Border its margins with their stately grace.

Oh! little flower of France, can it be true
The same world shelters you in safety here,
While in yon land, a-far, hell's blasting crew
Tear you in shreds, and leave all black and sere?

In the clear shallows little fishes swim, -
When suddenly, from deeper darkness glides
An armored monster, wide of jaws and slim,
Designed to kill and live, and nought besides.

Just so, the nation boasting of its might,
Forgetting beauty everywhere unfurled,
Denying all belief in common right
Reverts to brute, and tries to rule the world.

My boat moves slowly, longer shadows fall;
The golden sunset and a single star,
Beauty and peace and stillness over all
'Tis very hard to feel that there is war!

I expect that Jessie Van Antwerp Huyck spent time on the porch of Lincoln Pond Cottage after her husband's death, considering the creation of the Preserve. Mrs. Huyck was a woman of great vision and foresight. Creating the Preserve assured a place of continuity a place that would change only through the whims of nature, not of man that was accessible to all. She went on to ensure the vitality of the place and the spirit of inquiry that still pervades Lincoln Pond today, when she established the field station in 1938. The biological field station has attracted many top-notch scientists over the years, but the early days of the field station was a time of great excitement and discovery.

A photograph of the young scientists Eugene Odum and Donald Griffen, along with Edward Raney and his wife Charlotte, at Lincoln Pond Cottage reflects the excitement and camaraderie of the early days of the Huyck Preserve's biological research station. These young biologists shared a summer at Lincoln Pond, forging a friendship and honing an inquisitive nature that would serve them well in their careers. Odum was the Preserve's first resident scientist. He went on to a brilliant career, and is known today as the father of ecosystem ecology. Raney and Griffen both spent the summer of 1938 at the Preserve, Raney studying fish and Griffen studying bats. It is said that Griffen developed many questions about the capabilities of bats to utilize echolocation as he observed their hunting behavior from the back porch of Lincoln

Pond Cottage. Griffen's study of echolocation led to the development of sonar.

So, as I sit on the porch today, bundled against the cold winter weather, I am inspired by all of those who have come before me. All of those who have forged friendships, asked questions and indulged in creative pursuits as they sat in this very place. Mostly, I think of Mr. Edmund Huyck, whose poems immortalize this little pond, and whose philosophy and philanthropy led to the creation of the haven of the Huyck Preserve.

Deborah Beck
Lincoln Pond Cottage
COM.EN.ART 2000

I will close with one of my favorite poems by Mr. Huyck, entitled "I Know Not How The Myriad Stars"

I know not how the myriad stars are led
On measured courses through the cold, still sky;
Faith grants me no proof we live when dead,
I only know that we are born and die.

Yet I can see that one man shrinks with fear
Or cursing blindly, says he has no soul;
One, meets life's ills with lifted head, eyes clear
And walks serenely toward his unknown goal.

And I have friends so gentle, true and kind
That beauty shines about them as they go.
When I can feel such qualities of mind,
I will not question, thought I cannot know.

Liz LoGiudice

Reflections on Living on a Nature Preserve

I am sanding ceiling joists in the house I will be moving to in the coming months. They are lovely old impressive beams - over a hundred years old - and they deserve to be seen. I sand away the accumulation of time, the patina of life that coats the wood. It makes me reflect on what I have experienced living on the Edmund Niles Huyck Preserve. There are twenty years' worth of wonderful memories to recall. Rick and I, the new executive director and his wife with a science education background, arrived in 1986 with our five-year-old daughter Jerrine in tow. We immediately bonded with Marty Sullivan, who was then the Director of the NYS Museum as well as president of the Board of Directors at the Preserve. Kate, his wife, and their two daughters became our good friends.

Once we settled in, the work began. There were labs to renovate, research to begin, and educational programs to create and ignite the curiosity of nature and science. In 1986, the youth program was comprised of nature study, a few school visits, no camps, and no festivals. The Preserve has since expanded into schools with the Wildlife Alive program, which exposes students to wild animals and fascinating stories about a place where people study nature. We have also had hundreds of junior and senior high students come and spend a day immersed in the meaningful and satisfying experience of exploring nature through the Minds-On programs. Topics have included the link between acid rain and salamanders, tracking change in the forests, applying scientific method in the field, the relationship between art and nature, and how communities make land use decisions. We also created the first college level accredited high school biology course in the SUNY system, the Animal Ecology course, in which students receive 4 college credits. And though over the last twenty years we have expanded our educational programs, which are recognized for excellence, classes still visit the Preserve every spring, searching for elusive salamanders and crawfish. Working with students has been a rewarding experience, and a wonderful layer of my life at the Preserve.

And there are the more personal recollections for me, of the priceless friendships I have formed with the visitors, some of them famous. I have been privileged to meet and get to know Eugene Odum and Donald Griffin, two renowned scientists who established the field of ecology and conducted research on bat echolocation that eventually led to the development of sonar, respectively. I was also able to meet Ryoko Shibuya, Jessie Huyck's Bryn Mawr college summer intern from 1957. All of them had come back to revisit the place where they had also created fond memories. I have also met scientists and visitors from beyond our international borders, such as students from the Chinese Royal Academy of Science, and Xinggua Han, a scholar from Rutgers who studied nitrogen cycling on the Preserve in the 90's. One of the most poignant experiences I have had involved a woman from India who came to the Preserve as part of an international exchange program the same year that I visited her native region. I was profoundly impacted when she gazed on the shores of Lincoln Pond towards the hemlock groves and asked if anyone would be able to find her if she escaped into what appeared to be an endless forest. She did not want to leave.

Finally, I am profoundly grateful for having the opportunity to raise my family where there is a 2000 acre backyard. While at certain times the isolation of where we lived had its challenges, ultimately the positive influences vastly outweighed the negative. My youngest daughter Allyson was born in the Ordway House. Our summers were filled with new friends from all over the world, bringing with them a passion for their own

scientific work and helping us all to understand the wonders and intricacies of the Preserve landscape. For twenty years, my family and I had the privilege of living in the Ordway House, named after Dr. Ordway who was the Dean of Albany Medical School from 1914–1937. Dr. Ordway was a personal friend of E.N. Huyck and they both enjoyed their summer retreats in Rensselaerville. This is part of the history of the house we have called home for twenty years.

And so while we will move away physically from the Preserve, the influences it has had on our lives are imbedded in us, in our memories of the cycles of nature we have come to know so intimately and in the countless conversations on the Ordway front porch or at the picnic table or around the kitchen table in winter nights. The special moments we have shared with family and friends are priceless and will remain forever in our hearts. I look forward to celebrating the 75th year benchmark, and especially to reflecting on my twenty years here and the prospect of sharing in the future of this very special place.

Marilyn Wyman

Walks, Talks and Special Events:

Wildflower Walks
with Chris Schiralli

Spring wildflower walk:
Saturday May 13th 10 am to 12 noon

Mid-summer wildflower walk:
Saturday June 8th 10 am to 12 noon

Late summer wildflower walk:
Saturday Sept. 9th 10 am to 12 noon

We will begin at the Eldridge Research Center with a 20 minute slide show presentation on seasonal blooming wildflowers of the Huyck Preserve. The walk will begin at 10:30 am. We will cover the area around Lincoln Pond and possibly part of Lake Myosotis.

Newcombs Guide to Wildflowers is recommended as a field guide but not mandatory, any other field guides, cameras, insect repellent, water and appropriate attire are also highly recommended. $5 for members/$8 for non-members

Opening Reception
Visitor Center

Saturday May 27th 5–7 pm
Mill House, Main Street

Annual
Bird Festival

Saturday, June 3rd
1–5 pm

Bird walks
Live birds
Displays
Vendors
And more!

Eldridge Research Center
On Lincoln Pond, Pond Hill Road

Annual
Membership Meeting

Saturday, June 17th at 2 pm
at the Eldridge Research Center

Never before told stories about the Edmund Niles Huyck Preserve with Special Guests

Keynote speaker:
Dr. Martin Sullivan, former board president and current CEO and executive director of the Historic St. Mary's City Commission in MD

Diamond Jubilee Ball
Annual Benefit Dance

Saturday, September 2nd
7 pm
Conkling Hall
Methodist Hill Road

Also, don't miss
Photographs of the Huyck Preserve
At Wayout Gallery

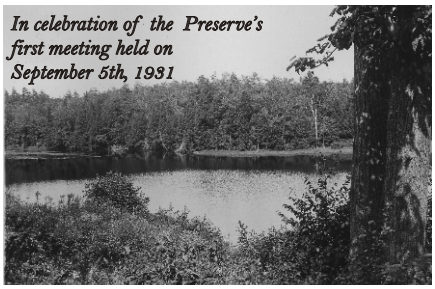
Science Symposium

Saturday, July 15th
All day beginning at 10 am
Guest Speaker: Dr. Susan Beatty

Huyck Hikes

Sunday, July 16th
beginning at 10 am
meet at the
Eldridge Research Center

Afternoon Tea
by the pond



Monday, September 4th
2–4 pm
On the porch of the Eldridge Research Center

World Premiere
Audubon Film
October 21, 2006

Workshops and Summer Programs:

Large Format Photography Workshop with Tom Teich

Saturday, June 10th
at the Preserve - meet at Eldridge Research Center
Sunday June 11th
at Tom Teich's Darkroom/Studio in Freehold, NY
Cost: $125 members/$150 non-members

Come experience and interpret the incredible beauty of the Huyck Preserve on film.

This year's two day intensive workshop will introduce participants to the world of the large format camera and darkroom. **Day one** will include field photography and advanced camera technique. We will create 8x10 negatives and 4x5 Polaroid instant prints at several striking Preserve locations **Day two** will be held at Teich's darkroom facility in nearby Freehold, NY where students will observe firsthand the making of large fine art black and white exhibition prints from the previous days' negatives. Whether you work in color or black and white, this workshop will give you a better understanding of light and contrast control, composition and exposure. We will discuss tools and techniques for getting the most out of your 35 mm or digital camera as well as fundamentals of the view camera.

Participants should bring the camera and film of the choice as well as tripods, extra lenses and accessories. There will be no rain date so come prepared with rain gear, insect spray water and lunch.

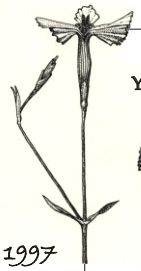
Plein Air Painting in Oil Workshop with Jim Coe

Friday July 7th-Sunday July 9th
Fall Workshop dates TBA
Eldridge Research Center
Cost: $125 members/$150 non-members

Workshops begin Friday evening with a slide presentation. Topics discussed will include a summary of materials and equipment, brief overview of the history of plein air landscape painting, and a slide-by-slide demonstration of Jim's working process.

Jim will start Saturday morning with a plein air painting demonstration. By mid-morning, students will set off to start their own paintings, striving to work quickly and directly from nature. After a break for lunch and a mid-day evaluation, the class will return to try a second painting. Throughout the day, Jim will circulate among the students giving individual critiques.

Sunday will essentially be a repeat of Saturday. Jim will start with a quick demonstration, followed by a class painting session, and conclude in the afternoon with a group evaluation.



Craig Furlong
Dianthus
COM.EN.ART 1997

Environmental Camp

for Middle School Students
Residential or Day Camp options
Monday August 14-Friday August 18
Residential location: Bullfrog Camp
Cost: $400 members/$450 non-members

Explore the natural world through a range of activities designed to challenge the mind and stimulate the discovery process.

Campers attend workshops on science and natural history arts in the morning and enjoy supervised recreation during the afternoon.

Highlights include a mini- Science Symposium and our annual family BBQ picnic.

Registration required for all workshops and summer programs. For registration information please contact Carolyn at 797-3440.

Join or renew your membership today!

Yes I (we) would like to join/renew my (our) membership in the Edmund Niles Huyck Preserve and Biological Research Station. I am (We are) including an additional gift of $_____ which is a :
(Please check the appropriate box)

❒One time gift paid in full with this payment
❒Gift of appreciated stock, real estate or other assets. Please contact me directly for details of transfer.
❒I am interested in discussing a bequest to the Edmund Niles Huyck Preserve and Biological Research Station.
❒My company sponsors a Matching Gifts Program.

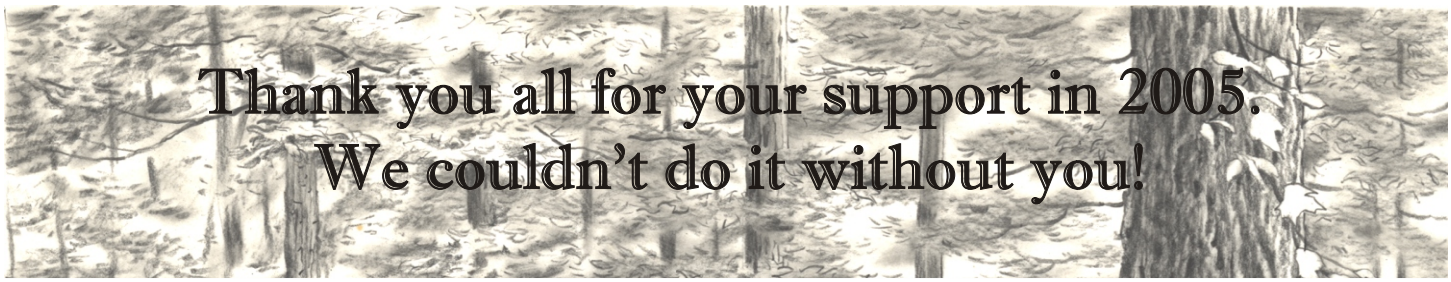
Membership Levels

❒Student $15 ❒Contributing $125
❒Individual $40 ❒Sustaining $300
❒Family $50 ❒Patron $1,000
❒Benefactor $2,500 or more

Name _____
Address _____
City _____ State _____ Zip _____
Phone_____ Fax _____
E-mail _____
This gift is given in honor of/in memory of :
_____
(Provide exact wording here)

Every gift counts, every gift is appreciated.

All gifts to the Edmund Niles Huyck Preserve and Biological Research Station are fully tax deductible according to the laws governing 501(c)3 charitable organizations in New York State. As a donor, you will be acknowledged in our newsletter FORGET-ME-NOT and receive a donor receipt sent directly to you for tax purposes.



Thank you all for your support in 2005. We couldn't do it without you!

2005 Memberships:

Benefactor
Anonymous
Nancy M. Chase
George McNamee
William A. Waldron

In honor of our dearly departed friend George Dudley
William Polk Carey

In memory of Marge Rooney
Susan and Peter Kessler

Patron
Laura and Geoffrey Carter
Dr. and Mrs. Ogden Carter, Jr.
Virginia Carter
Shirley Stevens French
Ann Horowitz
Malcolm and Mary Morris
Alexandra and Charles van Horne

In memory of Katharine Huyck Elmore
James H. Foster

In memory of Edmund Niles Huyck
Susan Schinitsky

In memory of Anne Schrager
Anne and Peter Nadin

Sustaining
Castrucci/DeDominicus Family
Michael Fischer and Ann Siegel
Mr. Steven R. Graham
Mr. and Mrs. John Klingenstein
Jon, Amanda and Finn Kosich
Mike and Cynthia McChesney
Kennard Stephenson, Jr.

Contributing
John Arrighi and Sharon Costello
Robert and Barbara Blum
Arlene Boop and Ken Simpson
Elizabeth Britton
David and Mary Bryan
Larry and Marion Bryan
Elizabeth Campbell
Chris and Patricia Christophorou
James Coe and Karen Scharff
Mr. and Mrs. Almy D. Coggeshall
Mr. and Mrs. Francis P. Coward
Dan and Maureen Driscoll
Camille J. Douglas
Frederick Eames
Nancy Elliott
Matt L. Elmore
J. David A. Enright, IV
Leo and Martha Fishel
Douglas Fraser
Eugenia Grayson
Janet Haseley
Barbara and Randy Heath
Gretchen A. Hodges
Jon and Alice Jacklet
Arthur Johnsen
Robin C. Krivanek
Barry Kuhar
William and Nora Logan
Nancy and Robert E. Lynk
James T. Martin
Joan Leary Matthews
Jay and Sue McChesney
Peter and Kristin McChesney
Marguerite Mullenneaux
Jim Neal
Ellen and Jost Nickelsberg
Thomas and Sarah Klebinkov O'Connor
Mark C. Pangburn
Phil and Lee Pearson
Patrick and Cynthia Pepe
Alden and Cheryl Pierce
Emily Rooney
James Runkle
William Seay and Kathy Walters
Jessica Spacil
Kathie and Greg Speck
Grace Ten Eyck Tagliabue
Peter VA. and Margaret Ten Eyck
Walenta and Clark Agency
Katherine Dieckmann and Brian Wallis
Burton and Bette Weidman

In memory of my wife Revella Benson and friend Julius Jacobson
Herman Benson

In memory of Susan Ten Eyck Bennett
Mills Ten Eyck, Jr

In memory of Marge Rooney
Jennifer Blum
George and Ingrid Robinson

Family
Deborah and Mark Aulita
Nina Bai
Mitch and Shelly Belgin
Stuart Beller
Margaret Bernstein
Lynda Blankenship and Linda Borock
Karen Joy Boazman
DeAnne Bodmer
Dara Boissy
Lynn and Eugene Bowden
Eileen and Michael Bowden
Katherine Bowling
Ralph and Janice Brand
Noel Brennan and Suzannah Lessard
Kathy Mathieu and Sean Brennan
Elizabeth and Donald Britton
David and Suellen Buerle
Joanna Bull
Jeanne Burke
Butler Family
Ronald Calkins and Jocelyn Cole-Calkins
Owen and Wendy Camp
John Cannon and Alta Turner
Penelope Connolly
William and Barbara DeMille
Michael Devonshire
Anna and M. Steven Dickerson
Karen DeWitt and Jeffrey Carlson
Dale Dorner and Thomas Delp
Camille Doucet and Aziz Kommel
Carolyn Watson Dubisch
Sam and Lisa Dudley
Francis and Suzanne Eldridge
Tom Eldridge
Christina Evola
Hugh M. Flick, Jr.
Robert and Valerie Grteenberg
John and Gail Haines
Juliana and Christopher Harris
Joy Heckman
Charles and Rosalind Herlands
Albert and Cynthia Hessberg
Greg Hostash
Thomas and Shelley Howland
Benton Jamison
Jane Holland and Tom Jenik
Arthur and Janet Johnsen
Kammerer Family
Pam and Gary Kleppel
Anna Kuhar
Laura Lehtonen
Karen Brown and John Linnell
Bill and Sue Loetterle
Stephen Lewis
Barbara and Charles Manning
Dorothea K. Martin
Timothy and Linda Miller
Georgette Morfis
Stewart and Maureen Myers
Mary Anne Nicholas
Ray and Roberta Nunn
Timothy and Marie O'Leary
Robert and Martha Olson
Marguerite Pindar
Frank and Cecile Plattner
Paul and Diana Praus
Amy Rasmussen & Family
Robert and Barbara Rau
William and Jeannette Rice
Patricia Riexinger
Richard a and Mary Ann Ronconi
Beth Rosenthal
Anna Papadakis and David Rudloff
Peter and Eileen Ruggieri
Dian Ryan
Steve and Paulette Ryder
Gretchen Schawe and Joseph Beaulieu
Kristopher Scholl
Dennis P. Scott
Kathryn Sikule
Henry Fagin and Shirley Siegel
Janet and Barry Strock
Linda Styer
Nancy Thackaberry and family
Andy Turner
John and Frances Walters
Pamela and Harold Williams
Dennis Winston
Dan and Leslie Yolen

In memory of Ellwood R. Jansen Sr. and Jr.
Josephine S. Jansen

In memory of Toby
Lawrence Tompkins

Individual
Susan Arbit
Betty Lou Bailey
Kevin D. Barron
Susan W. Beatty
Sarah Bensen
John Eldridge
Roger F. Ehlert
Diane Eldridge
Willard H. Elsbree
Rebecca Richman Flint
Hazel E. Ford
Kathryn Henderson
Susan Holmes
Marcia M. Kent
John Kievit
Deborah Kropp
Francis R. Lad
Thomas Lyons
Dennis C. Martin
Peter McCaffrey
Dennis Murphy
Merri Nelson
Dorothy B. Nicholas
Betty Price
Judy Scanlon
Mary Jane Schroeder
James M. Scott
Eric D. Siegel
Bonnie N. Smith
Dorothy Storms
Katherine H. Storms
Steven M. Taylor-Roth
Mills Ten Eyck, Jr.
James Tigner
Peter and Joanne Tobiessen
Robert and Carol Valentine
Dorothy Waldron
Patricia Wilcox
Marion Williams

Ms. Pamela A. Williams
Andrea Worthington

In memory of Aunt Katharine
Neal W. Elmore

In memory of Mr. George Patton, Jr. and Harding O. Bergwall
Mrs. Ruth E. Patton Bergwall

Student
Christopher Mayack

Other
In memory of Marge Rooney
Dennis C. Martin

In memory of Edward Manice
Kathryn Henderson

2004-2005 Annual Fund
Mr. and Mrs. M. Devonshire
Elizabeth Ostrow and Richard Eagan
Christina Plattner Evola
Geoffrey Hall and Patty Spinale
Barbara and Randy Heath
Mary R. Musca
Stewart and Maureen Myers
Marie and Timothy O'Leary
Kristine Osborn
Dian Ryan
Janet and Barry Strock
Melvin Thrash and David Cowell

In memory of Marge Rooney
Mr. and Mrs. Francis P. Coward
Neal W. Elmore
Shirley Stevens French
Dolores DeMeyere and Ernest Kuehl
Dorothea K. Martin
Peter and Kristin McChesney
Shirley Siegel
Fred and Enid Stettner
Andy Turner
John and Frances Walters

In memory of Patricia Hughes Love
Craig W. Love

2005-2006 Annual Fund
Carol Ash
Betty Lou Bailey
Paul Baitsholts and Helene Goldberger
Daniel Bennett
Jennifer Blum
Joanna Bull
Jocelyn Cole-Calkins and Ron Calkins
Elizabeth M. Campbell
W.P. Carey Foundation
Laura and Geoffrey Carter
Nancy Chase
Mr. and Mrs. Almy D. Coggeshall
Robert A. Daniels
Frederick Eames
Suzanne and Francis Eldridge
Nancy Elliott
Neal W. Elmore
Willard H. Elsbree
Cheryl Fiore
Michael Fischer and Ann Siegel
R.R. Fletcher, Jr.
Douglas Fraser
Shirley French
Janet Haseley
Randy and Barbara Heath
Marcia K. Hopple
Joan W. Ipsen
Josephine S. Jansen
William and Lillian Keller
Marcia Kent
Susan and Peter Kessler
John Kievit
Jon and Amanda Kosich
Ernest Kuehl and Dolores DeMeyere
William and Nora Logan
David McCabe
Timothy and Linda Miller
Malcolm and Mary Morris
Maureen and Stewart Myers
Patrick and Cynthia Pepe
Helga Prichard
George Robinson
Dr. and Mrs. J.G. Rozen, Jr.
Victor and Mame Schrager
Dennis Scott
William Seay and Kathy Walters
Eric D. Siegel
Jessica Spacil
Margaret M. Stewart
Janet and Barry Strock
Peter and Margaret Ten Eyck
Helen Tworkov
Alexandra and Charles van Horne
Walenta and Clark Agency

In memory of Agnes G. Marvin
Mary Scahill

In the names of niece and nephews: Lynda Bennett Weismantel, Daniel Bennett, Mills Ten Eyck, William Ten Eyck, Van Antwerp Ten Eyck
Grace Ten Eyck Tagliabue

Beach Memberships
Susan Arbit
John Arrighi and Sharon Costello
Paul Baitsholts and Helene Goldberger
Phyllis and David Bebb
Bensen Family
Margaret Bernstein and Julian Jacobs
Phyllis Bertin
Binder Family
Robert and Barbara Blum
Karen Joy Boazman
Marvin and Laura Bolotsky
Arlene Boop
Yahia Bouabboune
Ken Brand and Family
Ralph and Janice Brand
Christina Brightbill
Elizabeth and Donald Britton
James Brookens
Dave and Mary Bryan
The Buerles
Joanna Bull
Bev and Tom Calistri
Calagero and Maria Carollo
Harry Carter
Virginia Carter
Ron and Stacy Case
Jim Chapman and Cathy Williams
Nancy M. Chase
Charlotte and John Cooper
Marianne DeDeo
DeMille Family
Michael Devonshire and Lisa Lachowetz
Karen DeWitt and Jeffrey Carlson
Dale Dorner and Tom Delp
Sam and Lisa Dudley
Elkowitz Family
Baldomero and Stephanie Fernandez
Raymond R. Fletcher, Jr.
Joshua and Carol Ash Friedman
Michael and Ardis Fritz
Aline and Patrick Galgay
Gretchen Gould and Family
Geoffrey Hall
Janet Haseley
Diana Hinchcliff
Holmes/Heath Family
Kammerer Family
Jon, Amanda, and Finn Kosich
Donna and Tom Kropp
Karen Brown and John Linnell
William and Nora Logan
Rebecca Lubin and Joe Catalano
David McCabe
Peter McCaffrey
Sue and Jay McChesney
The McInerneys
Linda and Tim Miller
Elizabeth and Mustafa Mirza
Steven Misenhimer
Morris Family
Patrick and Bernadette Moxey
Matt and Denise Mulholland
Marguerite Mullenneaux
Musca/Dyer Family
Patrick Nash
O'Connor/Benedict Family
Steven and Marlene Omlor
Brian and Jackie O'Keefe
Timothy and Marie O'Leary
Pawlush/Pellegrino Family
Phil and Lee Pearson
Pierce Family
Platel Family
Robert and Barbara Rau
The Rensselaerville Institute
William and Jeannette Rice
Ragellah Rourke
Rochelle Rowlee
Donna Bartlett Ruot
Dian Ryan
Mary Jane Schroeder
Shook/Wernau Family
Speck Family
Ken Storms, Cynthia Nicholson, and Nicole LaGrone
Lawrence J. Stricker
Robert and Belinda Thompson
Tompkins Family
Dave Vogel
Wachowicz Family
Brian Wallis and Katherine Dieckmann
Kathryn and Scott Wank
James Watkins
Bette and Burton Weidman
Weiss Family
Alan Wilson and Diana Dietrich
Candy Wilson
Glenn and Linda Sue Yelich
Nellie and Douglas Yeomans

Gifts of Stock
Miss Stuart Greene

Benefit Donations
John Arrighi and Sharon Costello
Barbara Blum
Martin Brand
Noel Brennan and Suzannah Lessard
Richard Bryan
Laura and Geoffrey Carter
Nancy Chase
Dieckmann/Wallis Family
Roswell Eldridge, MD
Nancy Elliott
Shirley Stevens French
Janet Haseley
Barbara and Randy Heath
Joan and Peter Ipsen
Susan and Peter Kessler
John Kievit
Robert and Nancy Lynk
Joan Leary Matthews
Mike McChesney
Daniel McNamee
Michael and Ann Eldridge Malone
Malcolm and Mary Morris
Marguerite Mullenneaux
Thomas and Sarah Klebnikov O'Connor
Molly O'Neill
Marguerite L. Pindar
Robert Pondiscio and Liza Greene
Dudley and Betty Reed
Patricia Riexinger
George and Ingrid Robinson
Richard and Mary Ann Ronconi
Beth Rosenthal and David Berger
Jerry and Barbara Rozen
Mame and Victor Schrager
Ann Siegel and Michael Fischer
Kenneth Storms and Cynthia Nicholson
Mills Ten Eyck, Jr.
Alexandra and Charles van Horne
William A. Waldron
John and Frances Walters
Andrew Ward
Marion WIlliams
Richard and Marilyn Wyman

75th Anniversary
William A. Waldron
Huyck Foundation

Other Contributions
Marcia M. Kent (for Wildlife Cages)

The Good Cause Club for 2005 Environmental Camp Scholarship

OBFS for IOBFS

Robert and Shirley French for land conservation

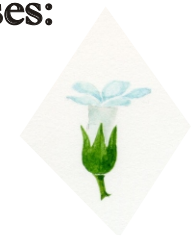
Grants
Huyck Foundation
National Science Foundation
Biodiversity Research Institute

Board of Directors
Laura Stephenson Carter, Chairman
Susan Kessler, President
Ann Siegel, Executive Vice President
Alden Pierce, Ph.D., Vice President
Alexandra van Horne, Treasurer
Robert Pondiscio, Secretary
Martin Brand
Virginia Carter
Nancy Chase
Shirley Stevens French
Juliana Harris Keyser
Joan Leary Matthews
Mike McChesney
Daniel McNamee, III
George Robinson, Ph.D.
Jerome G. Rozen, Jr., Ph.D.
Andrew Ward
Sarah Bellows, Tuck Fellow
William P. Carey, Honorary Director
Roswell Eldridge, M.D., Honorary Director
James Foster, Emeritus

Staff
Richard L. Wyman, Ph.D., Executive Director
Adam Caprio, Supervisor of Buildings and Grounds
Carolyn Barker, Administrative Assistitant
Audrey Kropp, Research Coordinator
Deb Monteith, Development Coordinator
Elizabeth LoGiudice, Education Coordinator
Christopher Schiralli, Research & Education Assistant
Kelly Martin, Education Assistant & Animal Rehabilitator
Barbara Bolster-Barrett, Education Assistant & Water Safety Instructor
Laurie Fischer, Education Assistant & Water Safety Instructor
Katie Barker, Office Assistant & Lifeguard
Ann Henry, Lifeguard

Children's Summer Classes:

Swimming Lessons at Lake Myosotis



Monday, Wednesday, Friday
July 6-August 4
1-3:30 pm
Instructors: Barbara Bolster-Barrett and Laurie Fischer (both Red Cross certified)
Cost: Family level membership plus $15/child,$40 maximum/family

The Edmund Niles Huyck Preserve, Inc.
& Biological Research Station
P. O. Box 189
Rensselaerville, NY 12147

Nature Study

Introduction to Nature and Wildlife

Nature Study Grades K-2
Tuesdays July 11-August1
Jessie Huyck Center on Lake Myosotis
Instructor: Kelly Martin
Cost: Family level membership plus $15/child,$40 maximum/family

Introduction to Research

Nature Study Grades 3-5
Thursdays July 6-27
Eldridge Research Center on Lincoln Pond
Instructors: Preserve Research staff
Cost: Family level membership plus $15/child,$40 maximum/family