Horseshoe Crabs | Camping in New York | Emerald Ash Borer

NEW YORK STATE

Conservationist

JUNE 2011

Beautiful Predators

Dear Reader,

All around the state, we are breaking out our bicycles, kayaks, backpacks and fishing gear, ready for summer's warm weather to rejuvenate us. Nature calls us to embrace outdoor experiences, reminding us once again that New York's environment is a jewel with many facets—from majestic forests bursting with new growth, to abundant streams and lakes teeming with fish, to inspiring peaks beckoning us to the summit.

DEC is proud to offer world-class outdoor recreation opportunities for nature-lovers of all kinds. Stay at one of our fifty-two campgrounds in the Catskill and Adirondack Parks where you will find both solitude and basic amenities and provisions. Our six day-use areas offer everything from white sand beaches to mountain views within minutes of major highways and nearby communities. Or venture onto a well-mapped trail into the backcountry of the Forest Preserve, which will bring you back to nature and create a lasting memory of the discovery of a special place.

You can plan the fishing trip of a lifetime, taking advantage of DEC's fishery management programs in lakes and streams across the state. Check out our website for fishing access sites—both on shore and with boat launches—to bring you closer to your trophy catch. You can also drop in at our hatchery facilities to see how the science of raising fish helps DEC support the great outdoor sports industry that drives the upstate economy through the summer months.

And along the route of your adventure, your travel dollars will be well-spent on local businesses that provide more than food and fuel, lodging, equipment, or entertainment. Helping people enjoy the great outdoors is job one, not just for DEC staff, but for restaurant owners, B&B operators and outdoor gear suppliers whose local knowledge and friendly culture will ensure you get the most out of your vacation.

So when it comes to planning a summer vacation, the old adage rings true in our great state: there is no place like home! With so much to see and do, we're sure you will enjoy your New York State vacation and treasure the memories for years to come.

Enjoy!

Commissioner Joe Martens

NEW YORK STATE **Conservationist**

Volume 65, Number 6 | June 2011

Andrew M. Cuomo, Governor of New York State

DEPARTMENT OF ENVIRONMENTAL CONSERVATION
Joe Martens, *Commissioner*
Michael Bopp, *Acting Director of Communications*
Laurel K. Remus, *Director Public Affairs & Education*

THE *CONSERVATIONIST* STAFF
David H. Nelson, *Editor*
Eileen C. Stegemann, *Assistant Editor*
Megan Ciotti, *Business Manager*
Jenna Kerwin, *Staff Writer*
Jennifer Peyser, *Art Director/Designer*

DIVISION OF PUBLIC AFFAIRS & EDUCATION
Frank Herec, *Artist/Designer*
Jim Clayton, *Staff Photographer*
Bernadette LaManna, *Contributing Editor*
John Razzano, *Contributing Editor*
Elaine Bloom, *Contributing Editor*
Elizabeth Borysewicz, *Staff Assistant*

EDITORIAL OFFICES
The *Conservationist* (ISSN0010-650X), © 2011 by NYSDEC, is an official publication of the New York State Department of Environmental Conservation published bimonthly at 625 Broadway, 2nd Floor, Albany, NY 12233-4502.
Telephone: (518) 402-8047

Manuscripts, photographs and artwork will be accepted if accompanied by SASE. Please write to the above address with an author's query or to request a Contributor's Guide. The publisher assumes no responsibility for loss or damage of unsolicited materials.

TO SUBSCRIBE:
$18 per year, $24 for two years, $30 for three years. Outside the U.S., add $27 per year with a check drawn on a U.S. bank. All orders must be prepaid.

Please allow 6 to 8 weeks for new subscriptions or changes of address. Periodical postage paid at Albany, NY, and additional mailing offices.

Send check or money order payable to:

Conservationist
NYSDEC
625 Broadway
Albany, NY 12233-4502

or call: **1-800-678-6399**
Visit the Department's website at:
www.dec.ny.gov

The New York State Department of Environmental Conservation does not discriminate on the basis of race, national origin, disability, age, or gender.

POSTMASTER: Send address changes to:

Conservationist
NYSDEC
625 Broadway
Albany, NY 12233-4502

Printed on recycled paper. Please recycle this issue. ♻

Find us on: facebook


See page 12

USFWS/Greg Breese

June 2011 Volume 65, Number 6

Contents

What is it?

See pg. 16

Departments

Front cover: Lace-tipped darner by Jeremy Martin **Back cover:** Near Tirrell Pond by Carl Heilman II

common green darner
(Anax junius)

flying jewels of New York

by Erin White, Vici Zaremba and Stephen Diehl

Photos by Stephen Diehl and Vici Zaremba unless noted

Creeping along the water's edge, poking through vegetation and looking under rocks with our hands immersed in the cool water, we couldn't help but smile. It was the first warm day in early June, and we'd come seeking dragonflies. Our quest: to find and document the generally dull-colored, flattened aquatic nymphs, as well as the spectacular multi-hued bodies of the adults, their wings glistening in the sun.

We arrived mid-morning at the Upper Hudson River, outfitted with the tools of our trade: sweep nets, dip nets, rakes, waders, field guides, GPS units, magnifiers, bughouses and viewing trays. Self-proclaimed odonate (dragonfly and damselfly) enthusiasts, we'd anxiously waited for a day such as this, when dragonfly nymphs emerge from their aquatic nursery to begin the last, brief chapter of their lives.

We were part of a larger group of staff and volunteers with the New York Natural Heritage Program (NYNHP) and NYS Department of Environmental Conservation (DEC), out to survey the state's dragonfly populations. While our backgrounds range from landscaper to photographer, dog groomer to biologist, we have one thing in common: we are all dedicated dragonfly naturalists. And that day, we were in our element.

Watching a dragonfly transform from nymph to adult, "ugly duckling" to "flying jewel," is a tremendous thrill.

Motivating the group was the rich diversity and large numbers of riverine dragonflies that can be observed at this site. Six species of snaketails tend to dominate the scene in early June, but others, such as clubtails, cruisers, and darners, are also present. Watching a dragonfly transform from nymph to adult, "ugly duckling" to "flying jewel," is a tremendous thrill.

The fun began as we, our legs clad in neoprene, waded into the "refreshing" waters, searching for nymphs. Yells and shouts traveled the shoreline as bugs were found and identified; laughter rose as cold water topped waders and nymphs crawled up roots, deciding conditions were not quite perfect for adulthood, and so re-submerged. Many hours later, fatigue set in and the group retired to a local ice cream stand to compare notes, share stories, and plan our next adventure. All agreed it was a great day.

saffron-winged meadowhawk
(Sympetrum costiferum)

Prehistoric looking, dragonflies and damselflies have been part of our landscape since long before dinosaurs. Evolving from ancestors with 2.5-foot wingspans, today's odonates range in size from the one-inch-long sphagnum sprite to the 3.5-inch-long swamp darner. While most people are not familiar with the names of individual species, young and old alike are enchanted by dragonflies and damselflies. Many people can relate stories of these insects landing on them—being tickled by the tiny barbs on their feet (tarsi), being fascinated by the hair on their bodies, and being enthralled by their large, colorful, compound eyes. Few are aware of the three smaller simple eyes (ocelli) atop the head. Those barbs that tickle are used to capture and secure prey. Black flies, mosquitoes and deer flies all become victims of these flying, eating machines.

Beautiful predators, dragonflies and damselflies are essential components of the food web, both as nymphs and adults. During the course of its lifetime, a large darner can consume thousands of mosquitoes and other insects. Some of the larger dragonflies eat while flying; those with "table manners" land to dine.

Of the slightly more than 400 odonate species documented in North America, 193 have been found in New York—the second highest richness of any state, behind only Texas! New York's huge expanse and numerous wetland types contribute to this wealth of species. Wherever sufficiently clean water is found—bogs and fens, ponds and lakes, rivers and streams, marshes and seeps—you'll find damselflies and dragonflies. Nearby fields and trees provide foraging and roosting areas. Because these insects reproduce in fresh water, water pollutants, shoreline modifications, increases in sediment loads, alteration of natural hydrology, and other disturbances adversely affect their populations.

calico pennant
(Celithemis elisa)

Jeremy Martin

four-spotted skimmer
(Libellula quadrimaculata)

blue dasher
(Pachydiplax longipennis)

Jeremy Martin

variable dancer
(Argia fumipennis violacea)

Like many insects, odonates are relatively short-lived. Adults only fly for a single warm season, usually one to three months; long enough to mate and begin the life cycle again. Most of their lives are actually spent under water in the benthic neighborhood among crayfish, caddisflies, mayflies and stoneflies.

Female dragonflies and damselflies deposit their fertilized eggs in or near water. Eggs hatch into aquatic larvae when conditions are favorable; some eggs overwinter. Depending on the species, the newly hatched larvae (nymphs) develop for a period of a few months to several years, going through multiple aquatic larval stages (instars) during that period. When ready to emerge as adults, the larvae leave their watery environs and crawl onto the shoreline, emergent vegetation, rocks, or a bridge abutment to shed their skin. This process, in which the change is gradual and lacks a pupal stage (such as a cocoon or chrysalis), is called incomplete metamorphosis.

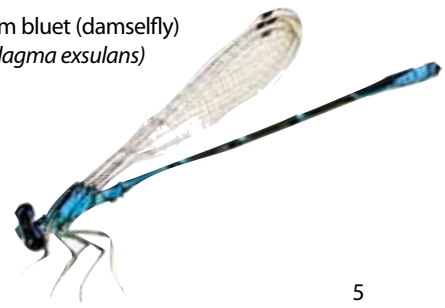
Newly emerged odonates are soft-bodied with shimmering wings. Until hardened and able to fly, they are highly susceptible to predators such as birds,

eastern pondhawk (dragonfly)
(Erythemis simplicicollis)

dragonfly or damselfly... which is it?

While many people commonly refer to any toothpick-shaped insect with four wings as a dragonfly, there are actually two types—dragonflies and damselflies. Both have large multifaceted eyes and belong to the order Odonata (hence the name "odonates"), but there is an obvious difference in the way they hold their wings at rest: dragonflies hold their wings open flat horizontally, perpendicular to their bodies (see photo above), whereas damselflies hold their wings over their backs, either closed (see photo below) or in a v-shape. As their front and rear wings are not linked together, both dragonflies and damselflies can operate them independently.

In addition, dragonflies generally have stocky bodies with stiffer wings, while damselflies have more slender bodies and are delicate in appearance. Both are impressive fliers, capable of amazing aerial acrobatics. However, damselflies are a bit weaker and usually stay close to the ground, while dragonflies will zoom high up into the air.



stream bluet (damselfly)
(Enallagma exsulans)

spiders, ants and reptiles. Some also perish from low temperatures and wind.

From 2005 through 2009, the NYNHP, in cooperation with DEC, coordinated the NY Dragonfly and Damselfly Survey (NYDDS) to study New York's dragonfly and damselfly populations. More than 300 participants braved heat, humidity, and bites from black flies, deer flies, horse flies and the occasional leech to conduct almost 4,400 surveys at approximately 2,170 sites. Participants counted more than 18,000 individual odonates, including five species not previously known to the state: the doubled-ringed pennant, horned clubtail, broad-tailed shadowdragon, four-spotted pennant, and the zigzag darner. The group also encountered other unique species including the subarctic darner and the elfin skimmer (North America's smallest dragonfly). There were also twenty-three species of small damselflies known as bluets identified, as well as a number of species whose populations were identified as relatively rare in our state, such as the comet darner and arrowhead spiketail.

With so many damselfly and dragonfly species found in New York, you don't need to be a dragonfly expert nor travel far to spot and identify these fascinating, flying, eating machines. Many species are readily seen during the warmer months. The variable dancer, powdered dancer, ebony jewelwing and

lance-tipped darner *(Aeshna constricta)*

Searching for Dragons Finding Myself

By Bill Chase

For several summers I volunteered to collect specimens for the NYDDS. My task was to collect specimens in my hometown of Oakfield, Genesee County, and also in neighboring Orleans County. I have always been an insect enthusiast and so when my mom saw an ad for the survey in our local paper, she cut it out and gave it to me. What made the project exceptionally appealing to me, however, was the discovery that "dragons and damsels" often stayed still long enough for me to take detailed digital photos of them. I was hooked.

Working on the survey, I traveled throughout the counties, documenting all the species I saw. I took tons of great photos—more than 100 of nearly 30 different species—and also discovered two new finds for my county—known species, but never reported here before.

Volunteering for the NYDDS rekindled my spirit of discovery. My days afield gave me new vision, a sense of accomplishment and a renewed determination to grow and discover. I'm excited to go forward and continue studying nature with my camera. Nature is full of endless opportunities for discovery and adventure.

blue dasher *(Pachydiplax longipennis)*

Bill Chase

common green darner *(Anax junius)*

Bill Chase

hudsonian whiteface
(Leucorrhinia hudsonica)

lancet clubtail are frequently spotted near rivers, and the Canada darner and a number of species of skimmers frequent wetland habitats. In addition, it's hard to miss the twelve-spotted skimmer and Halloween pennant with their distinctively marked wings.

Linda LaPan

arrow clubtail (*Stylurus spiniceps*) transforming from nymph to adult

While the NYDDS is over, the work continues through the New York Odonate Group, in conjunction with the Adirondack All-Taxa Biodiversity Inventory. Dedicated surveyors continue to focus efforts on flyers (adults) which can be observed from mid-April with the arrival of the common green darner (one of only a few migratory species), through mid-November when red or gold autumn meadowhawks are still flying even after the first frosts.

Science and surveys aside, the next time you see a dragonfly or damselfly, consider this: you are, in a way, witnessing what the dinosaurs saw: insects of ancient lineage, resplendent in color, with aerobatic skills honed through millions of years of evolution.

Erin White (pictured above) is a zoologist with the New York Natural Heritage Program and coordinated the NYDDS from 2006-2009. **Vici Zaremba** and **Stephen Diehl** volunteered for the NYDDS and are professional photographers. Stephen also teaches photography at RIT.

Note: the authors would like to recognize Jeff Corser, Paul Novak, Matt Schlesinger, and Jan Trybula for their assistance with this article.

More About Dragonflies and Damselflies

Next time you're out on a warm summer's day, be sure to notice those spectacular, flying, eating machines. The best time to spot them is from 10 a.m. to sundown, especially on or near water. And when you do see them, you may find it useful to have some close-focusing binoculars and a field guide, as well as a digital camera so you can capture their image, making them easier to identify later.

For additional information on dragonflies and damselflies, visit:

www.dec.ny.gov/animals/31061.html
www.odonatacentral.org
www.dragonflywebsite.com

Family Camping

By Ellen Bidell

Susan Shafer

I remember camping trips as a child. Everyone loaded into the station wagon, slept on the ground in thin sleeping bags, ate hot dogs around the campfire, and swatted bugs. I've changed since then and camping has "grown up" too. Now you can enjoy the outdoors in style and comfort. Today's camping families bring boats, fishing tackle, sporting equipment, and comfortable sleeping gear (the invention of the air bed has revolutionized tent camping). More people use "campers" and small RVs, while others still prefer to "rough it" in tents. There are a variety of campgrounds to choose from, many attracting visitors with similar interests, such as serious hikers, anglers or kayakers. Camping food has evolved from cooking hot dogs over the fire to preparing gourmet meals in a Dutch oven. Food draws people together, and neighboring campers sometimes share impromptu meals.

Susan Shafer

If you haven't been camping in a while, why not consider a trip for your family's summer vacation? If you are new to camping, take a look through the *New York Camping Guide* (see page 10) to find a destination that piques your interest. Best of all, camping is economical (most sites cost $20-$22 per night) and a great way to reconnect with your family and nature. DEC runs 52 campgrounds and seven day-use areas that are visited by more than 1.6 million visitors each year. These campgrounds are located in rural and sometimes remote areas in the Adirondack and Catskill Forest Preserves, but that doesn't mean that civilization is far away. Both areas offer a multitude of activities and events within an hour or two of DEC's campgrounds.

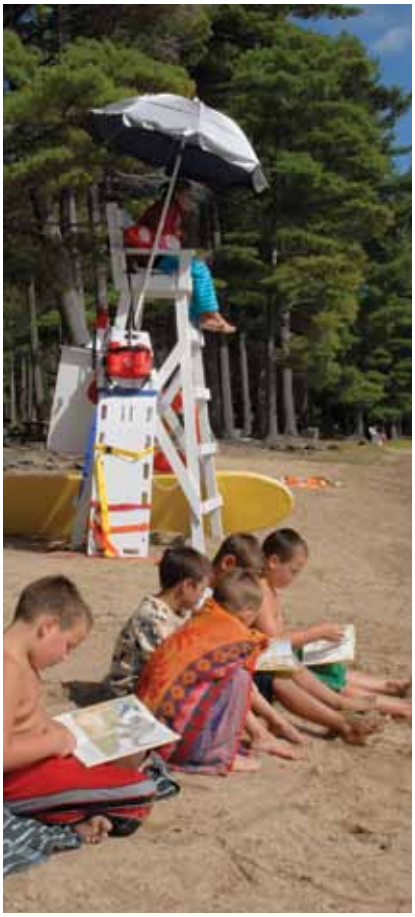
Susan Shafer

Activities at DEC Campgrounds

DEC's campgrounds offer on-site activities to make sure you and your family have a great experience. Boat rentals are available at a number of campgrounds if you want to explore the pristine lakes. About half have swimming beaches to cool off on hot summer days. Most have hiking and nature trails to explore without getting too far into the wild. Some of the larger campgrounds have recreational programs for children, including daily hikes, canoe trips, orienteering and team sports. Larger sites also have the Junior Naturalist program, where students participate in individual and family activities, and earn a patch upon completion.

Out and About

While vacationing in your own state may not sound glamorous, there is no limit to the exciting activities and events that the Adirondacks and Catskills have to offer.



Susan Shafer

James Clayton

The Adirondack Park covers more than six million acres (larger than the state of Vermont). The High Peaks are some of the most beautiful in the country, but there are also many mountains that are easy enough for novice hikers to tackle. You can hike to the summit for a panoramic view or just take a walk through peaceful forests. There are more than 3,000 lakes and ponds to kayak or canoe, and many have trophy fishing opportunities. Two thousand miles of hiking trails take you through hardwood forests, alpine meadows, by picturesque waterfalls and hidden caves. Nature trails are a great way to view wildlife in its natural habitat.

The Catskill region may be smaller, but the adventures can be just as big. While Mount Marcy in the Adirondacks is the state's highest peak at 5,305 feet, Slide Mountain in the Catskills is still a pretty good climb at 4,180 feet. There are four major river systems in the Catskills—the Delaware, Hudson, Mohawk and Susquehanna—and numerous tributaries. These excellent fishing opportunities helped the southern Catskills earn the moniker "birthplace of American fly-fishing."

Scaroon Manor

DEC's newest campground

Located on the west shore of Schroon Lake at Taylor's Point in the Adirondacks, Scaroon Manor first opened to the public as a day-use area in July 2006. A former resort, it is the first new public recreational facility constructed in the Adirondack Forest Preserve since 1977. The facility has a 200-foot-long supervised beach and swimming area, picnic pavilions and picnic sites, boat docks and a fishing pier. Many of the amenities are accessible for people with disabilities. Beginning this July, and running through early September, camping will be allowed at sixty newly constructed campsites.

James Clayton

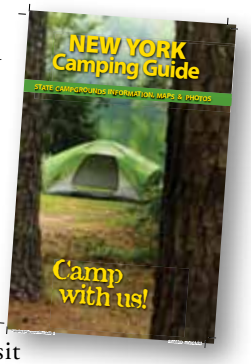
For those who prefer a different kind of adventure, the Catskills and Adirondacks have world-class museums, performing arts centers, colonial forts, amusement parks, art galleries, antique shops, farmers' markets and plenty of shopping. There are hundreds of events scheduled throughout the summer to keep campers busy. Festivals, fairs, concerts, war re-enactments, theatre performances and athletic competitions draw people from around the Northeast.

For more information about events and activities in the Adirondacks and Catskills, click on the "Events" link under the "What to Do" tab at **http://visitadirondacks.com**, and the calendar link at the top of **www.visitthecatskills.com**.

Jonathan Drezner

Information/Reservations

The *New York Camping Guide* provides detailed information about all the state's campgrounds, including activities, amenities and photos. For more information about camping rules, regulations and rates, or to get a copy of the guide, please visit DEC's website at **www.dec.ny.gov/outdoor/camping.html**.



If you are interested in making a campground reservation, please visit the ReserveAmerica website (**http://newyorkstateparks.reserveamerica.com**), or phone 1-800-456-CAMP. Campers who like to make their plans early can reserve a specific site up to nine months in advance. Those who are more spontaneous can take their chances with unreserved sites that are available on a first-come, first-served basis.

Ellen Bidell is a citizen participation specialist in DEC's Division of Public Affairs.

James Clayton

Regulations currently prohibit the importation of firewood into New York unless it has been heat-treated to kill pests. This regulation also limits the transportation of untreated firewood to within 50 miles of its source. It is best to leave all firewood at home; do not bring it to campgrounds or parks. See "Tiny Beetle Big Problem" on page 24 and also visit **www.dec.ny.gov\animals\28722.html** for more information about firewood and invasive insects.

Wally Haley

Camping Makes Dollar$ and Sense

By Douglas Bernhard & Jessica Tompkins

Ask a seasoned camper what the value of camping is and you'll likely hear stories of self-sufficiency and "roughing it," or getting close to nature and spending quality time with family. Ask that same question of a store-owner near any one of DEC's 52 campgrounds in the Forest Preserve and you'll likely hear a different answer, one based in economic opportunity.

Located in rural and sometimes remote areas in the Adirondack and Catskill Forest Preserves, DEC's public campgrounds and day-use areas are visited by more than 1.6 million visitors annually. When campers arrive, local business owners take notice.

"The campground is an economic engine for the local community and it gives us a regular, dependable customer base that we can count on each summer. This allows us to employ local people, further helping our community," says Joe Cavallaro, owner of Twilight General Store in Haines Falls, New York.

Numerous studies have shown that the further people travel to get to their vacation destination, the more money they will spend in that area. During camping, essentials like firewood, ice, food, marshmallows and bug spray are often purchased at local businesses. All totaled, these items add up to big revenue—between $28 and $57 million dollars annually.

But some of the benefits that campgrounds bring can't be measured in dollars. A Parks & Trails New York study noted "The State Park System generates significant additional economic benefits to the state, including maintaining the natural environment, providing an escape for millions of New Yorkers and others from around the world, and protecting the state's heritage for future generations."

With more and more people looking for less expensive ways to recreate, camping is becoming a more popular alternative for the family vacation. DEC campgrounds make great vacation destinations. Each location is unique, and so are the experiences to be had. There truly is something for everyone, including island camping, tent and trailer camping, boat launching facilities, hiking trails, beaches and day-use areas. Plus, when you visit a DEC campground, you're supporting the local businesses and economy, and that makes dollars and sense!

For more information on DEC campgrounds, please visit **www.dec-campgrounds.com**.

Doug Bernhard is the assistant director for the Division of Operations, and **Jessica Tompkins** is a conservation operations supervisor with the Bureau of Recreation.

GIANTS *at our feet*

—New York's horseshoe crabs

By Lee Roscoe and Eileen Stegemann

They bumble up from the muck of the subtidal zone, swimming on their backs. Using their hinged body and long, spear-like tail, they flip over and float or walk to the high tide line. They are somewhat ungainly in their movements and look like cobblestones, polished smooth and shiny with salt water. They are horseshoe crabs: secretive bottom-dwelling creatures that have been around for more than 240 million years.

It's June and they're here to mate. The universal scent of algae and salt, of bubbling rumpled ocean mixing with sand, abounds. The smaller males find the females both by scenting their pheromones and by sighting them with one or more of their ten eyes. Females deposit their eggs into holes they dig about a hand's length down into the sand, while the males fertilize them. Migrating shorebirds, including red knots, dunlins and sandpipers, take advantage of the bounty, eating as many horseshoe crab eggs as they can find, while numerous fish species take their share as well. As such, though an individual female horseshoe crab may lay 80,000 or more eggs in a season, fewer than a dozen will live long enough to mate and lay eggs again.

The horseshoe crab's large size (females average 12-15" wide), hard shell and sword-like tail give it a formidable appearance. While there are four species worldwide, only one, *Limulus polyphemus*, is found in North American waters—from Nova Scotia in Canada to the Yucatan Peninsula in Mexico. In New York, horseshoe crabs occur year-round in Long Island Sound, the Atlantic Ocean, and in other areas along the coast. During the spawning season (May and June), thousands can be seen along the shorelines of the bays of Long Island, with peak numbers occurring at night around the times of the new and full moons.

Milling around the spawning creatures are biologists and volunteers, marking out transects to conduct a census of the population. Working in teams of two to three, they mark down the time, place, weather, approximate wave height, cloud cover and temperature, and then count the crabs. They note the genders, how many are mating, and how many are solitary. For some individuals, the width of the carapace (top of the shell) may be measured.

Some crabs have plastic recapture tags affixed to their shells. The teams checking the crabs record the data on the tag, which is then forwarded to the U.S. Fish and Wildlife Service. The crews also outfit some new crabs with tags—up to 20 new crabs of each sex.

Biologists hope that the information they collect will give them a fuller understanding of the biology, health and migration patterns of horseshoe crabs. Do they migrate far or stay local? So far it would appear that these slow and oddly endearing beings don't go very far, but are tied to their natal spots. However, a few crabs have traveled as far as Cape Cod Bay and Delaware Bay after being tagged on Long Island.

Although they have a hard shell and claws, the word "crab" is a misnomer as horseshoe crabs are not true crabs but are

in a class of their own (Merostomata), and are more closely related to spiders and scorpions. Horseshoe crabs have seven pairs of leg-like appendages under their shells which are used for gathering and eating food, as well as for moving. Reminiscent of spiders, the two small appendages with pincers that are located near their mouth help usher in food.

Horseshoe crabs eat while walking right-side up on the sand, both below the ocean waters or on the beach. Their legs have spines at the base, which help to grind up food. They eat a variety of marine worms, mollusks, and other small marine animals.

While they are growing, horseshoe crabs must shed (molt) their shells. New shells grow under the old shells and when exposed, remain soft for up to several days. During that time, horseshoe crabs are more vulnerable to predation. By the time horseshoe crabs reach maturity, at about 8 to 10 years of age (for males and females, respectively), they may have gone through 15 to 17 molts. While no one knows for sure, it is believed that these unique creatures may live for 20 years or more.

Horseshoe crab numbers have steadily declined during the past few decades, particularly in Delaware Bay. This is due in part to the fact that horseshoe crabs do not move far from their birth place and so are vulnerable to disturbances. Building wharves, dredging beaches, and dragging the sea bottom all disturb breeding. Pollutants and stormy weather also negatively affect them. In many areas around Long Island, development has replaced the open shoreline where horseshoe crabs once frequented, and they are a rare sight in New York Harbor. But despite this, they hang on in the waters of Connecticut, New Jersey and New York, around Sandy Hook and Raritan Bay, the New Jersey Estuary, and in Long Island Sound. They come ashore at

The horseshoe crab's large size, hard shell and sword-like tail give it a formidable appearance.

James Clayton

With a hard shell and spear-like tail, the horseshoe crab is a formidable-looking creature that has been around for more than 240 million years.

Staten Island's Great Kills, and Midland Beach at Wolfe's Pond Park, and around Long Island at sites from Montauk to Sag Harbor, and from Jones Beach to Jamaica Bay.

Horseshoe crab numbers have also been affected by humans harvesting them. The Lenape made bowls, bails, hoes and spear tips out of horseshoe crab parts. Colonists, and those who followed, ground up the crabs to make fertilizer (when eels ran short) and for use as fowl feed. Since the 1920s, scientists have been capturing horseshoe crabs to examine their eyes (two lateral compound eyes on either side of their shell with a smaller eye behind each one; one central "endoparietal" eye on the shell surrounded by two small ones, as well as two eyes located on the underside near the mouth; and multiple photoreceptors on the tail which combine to form the last "eye"). This led to insights into how light hits the optic nerve and then is transmitted to the brain.

Since the 1990s, horseshoe crabs have been captured to use their blood for medical testing. Horseshoe crabs' blue blood contains the clotting factor LAL (limulus amoebocyte lysate), which clots when toxins are encountered. This is very useful in alerting medical personnel to possible dangerous reactions to blood transfusions, vaccines and medicines.

Horseshoe crabs are also used as bait to capture whelks and eels, largely for the Asian market. To this end, millions of crabs were harvested in the past two decades.

Recently, however—prodded in part by concerned citizens beset with nostalgia for the creatures they saw during their youth and now only occasionally encounter—people have changed their attitudes, and scientists are looking closely at the state of horseshoe crab populations. In 1998, the Atlantic States Marine Fisheries Commission developed a coastwide plan that instituted state-by-state commercial harvest quotas. In New York, the recreational harvest of horseshoe crabs is restricted to five per day. Additionally, New York harvesters must have state permits, and some areas are closed to harvest. Fire Island National Seashore, for instance, is off limits to any harvest as per the U.S.

While no one knows for sure, it is believed that these unique creatures may live for 20 years or more.

USFWS/Robert Pos

Children are fascinated by this armor-plated crustacean.

National Park Service's protection of "national seashores." Other restrictions regarding open seasons, permits and harvest regulations can be obtained by contacting DEC's Bureau of Marine Resources.

There are a number of groups that have made it their mission to watch over horseshoe crab populations. The New York Horseshoe Crab Monitoring Network is a cooperative effort between Cornell Cooperative Extension and DEC. Each May-July, they organize the event described at the beginning of this article, whereby participants visit specific identified beaches throughout New York's Marine District and assist with the collection of scientific data. To find out more about this event, visit the network's website at **www.nyhorseshoecrab.org**.

There are several other efforts that also benefit the state's horseshoe crab populations, including: New York Audubon's IWASH (Improving Wetland Accessibility for Shorebirds and Horseshoe Crabs), which looks at the effect of litter on birds and crabs; the Long Island Horseshoe Crab Network run by a professor at Dowling College, which monitors 64 sites in Queens, Long Island and Brooklyn; and Friends of the Bay at Oyster Bay, Friends of Flax Pond in Stony Brook, and Friends of Little Neck Bay, which all keep tabs on horseshoe crabs. In addition, New York Harbor School's Marine Science and Technology Center currently being built on Governor's Island has plans to reintroduce local marine ecosystem animals long gone, such as *Limulus*, to New York Harbor.

To me, horseshoe crabs represent my youth. Late spring and early summer were defined by this creature scrabbling into the near surf. My friends and I spent hours watching and playing with them, fascinated by their armor-plated looks and lumbering movements. They held such a sense of wonder. Today, the sight of a shed shell washed up on the beach still thrills me, and I will often stop and collect them. The fragile molts of the youngest make nifty gilded objects for crafters, and their "Darth Vader helmets" and "swords" are great playthings for children. I have faith that these icons of beach lovers will continue for generations to come, and look forward to sharing their discovery with others.

Lee Roscoe is the author of numerous articles on wildlife. She is also a playwright and longtime environmental educator. To contact Lee, visit **www.capecodwalks.net**. (Note: She wishes to thank Brenda Boleyn, a founder of The Horseshoe Crab Conservation Association of Cape Cod.)

Conservationist Assistant Editor **Eileen Stegemann** grew up watching horseshoe crabs on the Jersey shore and Cape Cod.

USFWS/Robert Pos

USFWS/Robert Pos

Stevie Thorsen/American Littoral Society

(top and center) During the spawning season (May and June), thousands of horseshoe crabs can be seen along the bays of Long Island's shoreline.
(bottom) Biologists affix plastic tags to some horseshoe crabs' shells as part of a mark-recapture study.

James Clayton

WHAT IS IT?

If you guessed the photo on the Table of Contents was a close-up of the underside of a horseshoe crab, then you were right! As you can see from the photo, parts of the underside bear a resemblance to a spider—specifically the small appendages with pincers that help push food into the mouth.

Horseshoe Crab Facts:

The horseshoe crab (*Limulus polyphemus*) is often referred to as a living fossil, and is thought to have evolved more than 240 million years ago!

Its name refers to the horseshoe shape of the largest part of its shell.

Despite its name, it is not a true crab but is more closely related to spiders, ticks and scorpions.

The horseshoe crab has seven pairs of leg-like appendages: five pairs of walking legs; one pair of legs with leaf-like structures and spines that aid in moving sediment and crushing food; and one pair of small appendages used to guide food into their mouths.

Horseshoe crabs have 10 eyes—two main eyes and 8 others that are used to link images together.

These prehistoric creatures can grow to about 18 inches in width, and are thought to live as long as 20 years.

They can swim upside down.

Contrary to popular belief, a horseshoe crab's tail (telson) is not used as a weapon or stinger. Instead, the tail is used as a rudder during swimming, and to right itself if it gets flipped over. (Note: Never lift a horseshoe crab by its tail, you might injure it. Instead, lift it by the large part of its shell.)

Horseshoe crabs eat while moving, feeding on a variety of marine worms, mollusks, and other small marine animals.

Their eggs are an essential food source for many migrating shorebirds, including red knots, semipalmated sandpipers, sanderlings and dowitchers; and their eggs and larvae are consumed by many fish, such as American eel, killifish, weakfish, silversides, summer flounder and winter flounder.

The horseshoe crab's blood is blue (caused by the presence of hemocyanin; human blood is red because of the presence of hemoglobin), and it has unique bacteria-fighting abilities. It is used by pharmaceutical and biomedical industries for important medical research and testing.

Wild Geranium

(Geranium maculatum)

By Barbara Nuffer—photos by author

In late spring, the delicate, rosy-purple flowers of the wild geranium brighten up the sun-dappled edges of New York's roads, woods and meadows. Seeing them can remind you of the common annual red, pink and white flowering plants so often used in window boxes and planters.

Members of the same family as "true geraniums" (Geraniaceae), wild geraniums are North American natives, found in acidic soils from Maine, south to Georgia, and west to Kansas. They are perennial wildflowers that reach one to two feet in height and have one-inch-wide, five-petaled flowers in shades of pink and purple. The plant's leaves are deeply cut and palmately lobed, referring to the leaf's shape resembling a person's hand with the fingers spread out.

An interesting feature of wild geraniums is that the petals change color as they age. The petals also have transparent lines on them that act as nectar guides, leading insects to the center of the flower. In addition, the pollen is a beautiful blue color, and the leaves turn into beautiful stained glass-like shades of red and orange in the fall.

Wild geraniums have a unique method of seed dispersal: as the seedpod dries, it curls and shoots seeds into the air. Each small brown seed has a tail, which curls when dry and straightens when wet, moving the seed along the ground and eventually enabling it to burrow into the soil. Germination can take several months. The shape of the pointed seedpod gives the wild geranium its common name, cranesbill.

Native Americans used dried wild geranium roots on bleeding wounds to promote coagulation. Tea made from roots was used to treat sore throat, thrush, mouth ulcers and diarrhea. The plant's medicinal properties are due to the high level of tannic acid in the root, which is high enough that the root was even used to tan hides.

This year, as you walk through a colorful meadow in New York, take note of the elegant blossoms of the wild geranium. Or, consider treating yourself to one of the many garden varieties of geranium to enjoy at your home all summer long.

Flower and gardening enthusiast **Barbara Nuffer** recently retired from DEC's Division of Air Resources in Albany.

Carl Heilman II

More than a Working Forest

Conservation easement protects Upper Hudson Woodlands

By Connie Prickett

Last December, news of New York State's purchase of an 89,000-acre working forest conservation easement made quite a splash. Why wouldn't it? The properties, which fall into 27 rural upstate towns mostly within the upper Hudson River drainage, are equivalent in size to six Manhattan Islands. The acreage represents more than half of the land once owned by paper manufacturer Finch, Pruyn & Co. (now called Finch Paper), largely concentrated within the central lake and tourist region of the Adirondack Park and prized for its immense conservation values.

Broadly speaking, the easement is a legally binding agreement that stays with the property in perpetuity, ensures that the forests will never be developed, requires that they be managed sustainably, and will one day provide new and exciting public access opportunities. It achieves significant ecological protections of forest and freshwater resources while also supporting the timber industry, as well as boosting recreation and the tourism economy.

Managing the Forests

Wayne Tripp, New York's regional manager for the forest management consulting firm, F&W Forestry, has worked in the forest products industry for more than three decades. Since 2009, he's managed the conservation easement lands, which are known as the Upper Hudson Woodlands.

During Tripp's time in the business, patterns of forestland ownership have undergone a fairly dramatic change—not just in New York, but across the United States—largely due to global market forces. All of the well-known timber giants, for instance, exited the Adirondack Park between 1997 and 2007, and sold off more than 700,000 acres of industrial forests. The Upper Hudson Woodlands that Tripp now manages were part of this wave.

If not for the conservation easement, Tripp believes "there would be no guarantee down the line" that the property would be available for

timber harvest, nor would it stay in large intact blocks. He speculates that at some point, it would have gone to a private interest and subsequently been divided into smaller tracts.

Managing the Upper Hudson Woodlands revolves mainly around servicing a fiber supply agreement with the Finch Paper mill in Glens Falls. The easement conditions and two "green" certifications provide the handrails for sustainable harvest operations. Tripp's client, property owner ATP Timberland Invest, is committed to sustainable forestry and views Upper Hudson Woodlands as a long-term investment.

Green Certification

Third-party green certification is a way to assure consumers that forest products have come from landowners who manage their forests sustainably. Three of the most prevalent and nationally recognized forest certifications are the Forest Stewardship Council (FSC), Sustainable Forestry Initiative (SFI), and the American Tree Farm System (ATFS). Through a third-party verification entity, a forest landowner is required to provide independent auditors access to their lands, staff, and forest management policies and procedures in order to ensure the landowner's forest practices meet the applicable FSC, SFI or ATFS standards. As a result, forest products coming from green-certified lands may be marketed with that certification system's logo, hopefully creating a greater demand for these green-certified products. For more information, visit the following websites:

www.fsc.org
www.sfiprogram.org
www.treefarmsystem.org

Note: Readers will be happy to know that *Conservationist* is printed on paper from an FSC-certified paper source, which supports responsible forest management.

Tripp and his small team of foresters, who work out of F&W Forestry's Glens Falls office, mark the timber stands and oversee a handful of loggers at different sites on the property. They are working now to remove the "low-grade fiber" to let the higher value timber continue to grow. Their work is not all about trees, however; they also oversee a private recreational leasing program involving hundreds of hunters and anglers who pay for exclusive use of sections of the property. Given the high costs of owning and managing land, a forester working for a large landowner can expect lease management duties to be part of the job.

Where There's a Will

For some people, snowmobiles are synonymous with adventure. They offer opportunities to explore the unique beauty of winter landscapes. To some rural Adirondack towns with struggling winter economies, snowmobiles look a lot like money. When 161,000 acres once owned by Finch, Pruyn & Co. changed hands in 2007, some local leaders and interest groups recognized the potential for new economic and recreational opportunities.

Newcomb Town Supervisor George Canon, Indian Lake Supervisor Barry Hutchins, and the New York State Snowmobile Association's Jim Jennings and Dave Perkins had at least one wish-list item in common for the former Finch lands: to make existing snowmobile trails permanent and create new community connector trails.

For as long as anyone can remember, access to snowmobile trails on these timberlands had been available through one-year leases. Maintenance was shared by local towns and snowmobile clubs, but the tentative nature of the agreements made the parties hesitant to invest in and rely on the trail network. That all changed following the state's conservation easement purchase.

The Upper Hudson Woodlands easement may be the single-most important advancement toward establishing a snowmobile network linking the communities of North Hudson, Newcomb, Long Lake, Minerva and Indian Lake. Under the easement, nearly 30 miles of privately leased trails were converted to public trails. A new trail following old logging roads now connects Indian Lake and Newcomb. Even more trails are in the works.

Carl Heilman II

The Upper Hudson Woodlands encompasses some spectacular vistas and includes three of the 100 highest peaks in the Adirondacks.

John Bulmer

Preserving a Legacy

Since purchasing 161,000 acres once owned by paper manufacturer Finch, Pruyn & Co., The Nature Conservancy worked with DEC to develop a plan for the future of the property. The final agreement reflects extensive consultation with local government officials and other stakeholders, and balances economic development, recreational needs, and ecological protection. Key elements of the plan call for more than 89,000 acres of working forest, approximately 68,000 acres of public lands, and 1,100 acres to be set aside for community purposes in Newcomb, Long Lake and Indian Lake. The conservation easement acquired by New York in December of 2010 marks a major milestone in moving the plan forward.

The Upper Hudson Woodlands property contains some of the wildest land remaining in the Adirondacks, and accordingly, is home to some of the state's most impressive plant and animal diversity. A biological survey conducted in 2001 found 95 significant species, 37 of which are rare in New York, about 20 uncommon in the state, and 30 rare or uncommon in the Adirondacks. Featuring 16,000 acres of wetlands, 300 lakes and ponds, 90 mountain peaks, and 48 miles of Hudson River banks, the Upper Hudson Woodlands provide habitat for moose, otter, bobcat, and countless migratory birds that forage and live in the Adirondack Forest.

For more information on the Upper Hudson Woodlands conservation easement, visit: **www.dec.ny.gov/lands/71954.html.**

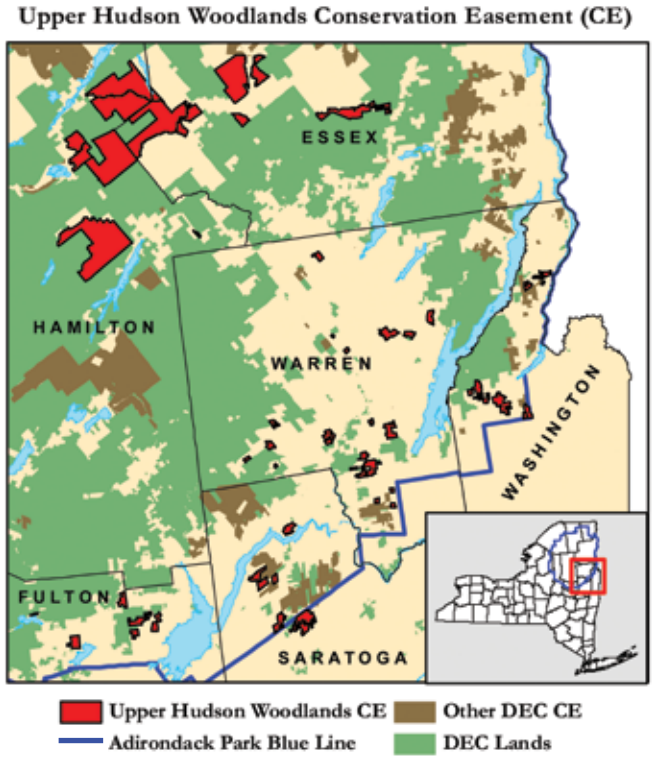
The Nature Conservancy
Protecting nature. Preserving life.™

"This easement is a step toward making Newcomb a central hub for snowmobiling and winter recreation. It's pretty great to get some real economic benefit from it," said Canon.

"Indian Lake has been paying to lease snowmobile trails on an annual basis," said Hutchins. "We see these trails as permanent and valuable assets that can help our struggling winter economy and our town budget appropriations."

"If you look at a statewide map of the trail system, there's a hole in Essex County...The trails we can now use because of this conservation easement are helping to fill that gap in a big way," said Dave Perkins, former executive director of the New York State Snowmobilers' Association.

Those benefits were evident during a 64-mile round-trip ride this winter. The group I was with rented sleds from a dealer at one end of the new trail in Indian Lake and stopped for lunch at a new diner and gas station at the other end in Newcomb. The trail, the diner and the dealer were abuzz with activity, and the town supervisors we met for lunch were pleased that the conservation easement is doing much more than keeping forests in timber production.



Lofty Goals, Adventurous Souls

Pioneers of their day, Herbert Clark, George Marshall and Robert Marshall were the Adirondack's first "peak-baggers." On August 1, 1918, they ascended Whiteface Mountain and climbed each of the Adirondack's 46 highest peaks between then and June 10, 1925, the day they reached Mt. Emmons. No matter that in subsequent years corrected survey information showed that some of the peaks fell a little short of 4,000 feet, they inspired thousands of hikers to follow suit. The Adirondack 46er website lists more than 7,000 on its 93-year roster and it's anyone's guess as to how many more have climbed the same peaks but neglected to submit an official record of their ascents.

Spencer Morrissey is number 5,320 on the official list, with a "w" after his number to indicate that he earned his 46er stripes by climbing the peaks in winter. That's not all he has climbed. A graduate of the State University of New York College of Environmental Science and Forestry, Morrissey has a thing for forests and mountains. In the Adirondacks alone, he has climbed the 46 highest plus the next 54 highest to make it an even 100, and bagged about 500 others for good measure.

In 2007 Morrissey, who grew up in Long Lake and now lives in Lake Placid, New York, published *The Other 54: A Hiker's Guide to the Lower 54 Peaks of the Adirondack 100 Highest*. It turns out that three of the 100 highest (Panther, Buell and Dun Brook Mountains) are in the Upper Hudson Woodlands in the Town of Indian Lake. The state acquired the public access rights to them as part of its conservation easement purchase in December 2010. That means the state is removing the landowner-permission hurdle any goal-oriented hiker would have to clear to be able to attain the "other-54" or "full-100" badge. (The easement will also improve access to some of the highest 46.)

Using the 100-highest as a goal can be a helpful motivator; however, it's important to mention that these peaks are fun for non peak-baggers too. After all, hiking is one of a multitude of outdoor activities that makes the Adirondacks a magnet


courtesy of TNC/Connie Prickett

Nearly 30 miles of privately leased snowmobile trails were converted to public trails under the easement agreement.

for solitude and adventure seekers. "I like the challenge and to know what's up there," Morrisey says. "When bushwhacking, you can never do the same route twice," adding that it's imperative to have a map and compass with you, even if using a GPS.

Morrissey plans to update his guidebook and will be working with the regional forester to identify new access points and potential parking areas to help the public gain access to those of the hundred highest that can be found on the Upper Hudson Woodlands.

Working Forests & More

New York State's investment in the Upper Hudson Woodlands conservation easement is an investment in people as much as it is in forests. It supports timber jobs, bolsters the tourism economy, and provides recreational opportunities. Importantly, it protects critical wildlife habitat and freshwater resources at the same time. As a newly protected swath of private land, it adds real value to the blend of private and public lands that defines the Adirondack Park as a world-treasure and hopeful story of forest recovery and restoration.

Mark Godfrey

The Upper Hudson Woodlands easement ensures that more than 89,000 acres of former Finch Pruyn lands will remain a working forest for timber production and harvest.

Connie Prickett is director of communications for The Nature Conservancy's Adirondack Chapter in Keene Valley.

SOMETHING FOR EVERYONE

Public access will extend from the Upper Hudson Woodlands to many other parts of the Adirondacks—for hiking, snowmobiling and other outdoor pursuits. Here are some highlights that will become available over time (check with DEC for details):

Essex County: new fishing access along the scenic Branch River in North Hudson; new campsites and cross-country ski trails north of Goodnow Flow in Newcomb and Minerva; additional access to Allen Mtn., Hanging Spear Falls and other sites in the High Peaks Wilderness, which attracts more than 100,000 visitors annually.

Hamilton County: new fishing access to idyllic Fishing Brook and fishing/paddling on County Line Flow in Long Lake; new hiking access in Indian Lake to Panther, Buell and Dun Brook Mountains (three of the 100 highest peaks in the Adirondacks), making it more attractive for hikers to climb the "other 54" beyond the 46 highest peaks.

Warren County: new access to High Nopit Mtn. in Bolton and to English Brook in Warrensburg; opportunities for new campsites in Stony Creek.

Saratoga County: new access to Clute Mtn., overlooking the Great Sacandaga Reservoir in the Town of Day; full public access rights to include hunting, camping, fishing, and paddling on the 2,000-acre Lake Desolation Road tract, which features the lake called Archer Vly, in Greenfield.

Fulton County: new trails for cross-country skiing in Mayfield; future access across easement land to (pending) forest preserve land in Bleecker.

On Patrol

Carl Heilman II

Real stories from Conservation Officers and Forest Rangers in the field

Contributed by ECO Lt. Tom Caifa and Forest Ranger Lt. John Solan

Raccoons Aren't Pets—Tioga County

Recently, ECO Stan Winnick received an anonymous complaint about a woman with a pet raccoon in Owego. The complainant was concerned for the safety of the woman and her other pets. At least seven cats greeted Winnick when the woman answered the front door, and he saw the raccoon and several more cats inside the house. The officer informed the woman that keeping wild animals as pets is illegal and asked her to put the raccoon in a pet carrier so it could be taken to the local veterinarian. Winnick then stepped outside to make a phone call and when he returned, he saw several deep, bleeding wounds on the woman's forearms—the result of trying to catch the raccoon. He also noticed the raccoon had very little fur. Later, at the Owego Veterinary Hospital, the veterinary tech explained that the animal didn't have much fur because of a bad flea infestation. Fortunately for the woman, the raccoon did not have rabies.

Dull Dumpers—Orange County

In early April, Lieutenant Martin Townley and ECO Michael Buckley were checking anglers at Jay's Lake in Wallkill when two men in a pickup truck filled with garbage drove directly past them and continued up a dirt road that ended at a vacant lot. Evidently the men didn't notice the officers because later they came by again, this time with an empty truck. Lt. Townley and ECO Buckley pulled the truck over and questioned the men. At first, the two swore they didn't do anything wrong and couldn't believe the officers were implying wrongdoing. The two polluters finally admitted to dumping the garbage when Lt. Townley asked what happened to the old tires, carpeting and other garbage that was in the back of the truck. Both men were issued tickets for illegal disposal of solid waste, fined $1,000 each, and ordered to clean up the area.

Don't Test the ECOs—Suffolk County

Recently, Long Island ECOs teamed up with DEC fisheries staff to help stock freshwater lakes and rivers with trout. In addition to assisting with traffic control for the stocking truck, undercover ECOs fished alongside enthusiastic anglers. ECO Mark Simmons was fishing at Lower Yaphank when he watched one man catch his limit of five trout and place them in the trunk of his car. Instead of calling it a good day, the man continued fishing. Soon he caught another four fish and placed them on a stringer. ECO Simmons contacted ECO Josh VerHague, who came down to the lake with ECO Chris Lagree. The officers confronted the man, who was stunned they knew about the nine fish. They issued him a summons for possessing more than the daily limit of trout and seized the four extra fish. A short time later, ECO Simmons observed him catch two more trout and hide them in the woods. ECOs VerHague and Lagree issued the man another ticket for possessing more than his limit of trout, told the man to give it a rest, and sent him home.

Intoxicated Campers—Fulton County

At approximately 12:10 a.m. on a Saturday in May, campground staff at the Northampton Beach Campground asked if rangers could quiet down a campsite. Lt. Stephen Preston arrived at the site and informed the occupants of the quiet hour regulations. He indicated that if the noise and obscene language continued, they would be ticketed and evicted. Though this calmed the site for a time, the noise problems continued sporadically throughout the night. Lt. Preston determined an eviction was warranted, but since the occupants were highly intoxicated, it had to wait until morning. When Ranger Art Perryman was carrying out the eviction process the next morning, one camper became belligerent and combative. After a short wrestling match, Ranger Perryman handcuffed and arrested the subject. The man was brought before the Northampton Town Justice where he pleaded not guilty to resisting arrest and was released on his own recognizance, to appear back in court at a later date.

ASK THE ECO

Q: Am I required to have a lifejacket for every person on board my boat? Are children required to wear a lifejacket while on board?

A: There must be one U.S. Coast Guard approved personal flotation device (lifejacket) for every person on board any vessel. This includes canoes, kayaks and rowboats. All children under the age of 12 must wear a lifejacket while the vessel is underway (unless they are in a completely enclosed cabin). If the vessel is a personal water craft (PWC), the lifejacket must be worn at all times when the PWC is in operation. From November 1 to May 1, lifejackets must be worn by all persons on all vessels under 21' while they are underway. Visit **www.nysparks.com** for more information on lifejacket regulations.

Joshua Payette

EAB larva tunneling under bark

James Clayton

holes made from emerging adult beetles

Joshua Payette

EAB adult emerging

Tiny Beetle

BIG PROBLEM

DEC battles the emerald ash borer

Joshua Payette

adult emerald ash borer beetle

By Maria King

We all knew and feared it was coming. It was only a matter of time. Then on June 15, 2009, two alert U.S. Department of Agriculture scientists stopped to inspect some suspicious-looking dying ash trees near a highway exit in Randolph, Cattaraugus County. Their suspicions were justified when they found tiny, glittering green beetles, which were immediately sent to a lab in Michigan for identification. Two days later, everyone's worst fears were confirmed and New York joined the growing list of states infested with the invasive ash tree killer, emerald ash borer (EAB).

A quarantine was quickly imposed, restricting the movement of ash trees, ash products, and firewood of all wood species from Cattaraugus and Chautauqua counties. Nevertheless, that initial find would be overshadowed only a year later, when six new infested counties were discovered in June of 2010. The quarantine expanded to 18 counties to include nearby "high risk" areas. As insect traps and visual surveys detected new infestations, it became clear: The summer of 2010 would be the summer of "the Emerald Plague."

Though look-alikes exist, no other insect in New York State is the exact color, size and bullet shape as EAB. At only one-half inch long, the tiny, metallic-green insect doesn't look like an insidious killer, but don't let its small size and flashy looks fool you—EABs will relentlessly attack a large, healthy ash tree, killing it in only two to three years. These tiny bugs have already killed millions of valuable ash trees in the United States since 2002, when they were first discovered in Michigan. Officials believe this unwelcome guest was brought to the U.S. from Asia on infested ash wood used in shipping pallets.

As with most invasive species, EAB is not a pest on its native continent, Asia. This is because in Asia, the borer, its host trees, and predators have evolved together over time. Native predators control its population, and host trees have developed resistance to the insect. In North America, woodpeckers and certain wasps will prey on EAB, but not enough to control their populations. And our ash trees have no resistance to the insect, so there is essentially 100 percent mortality for infested trees.

DEC, along with other state and federal agencies, non-profits and universities, has been working over the past several years to fight emerald ash borer.

All ash species are susceptible to EAB infestation. White, black and green ash are the most common species in New York State. In summer, each adult female beetle lays an average of 80 eggs on ash trees. After the eggs hatch, the larvae inflict their damage, tunneling beneath the bark of the "host" tree. Before long, these tunnels completely cut off the tree's flow of nutrients and water, essentially starving it to death.

Will ash be wiped out?

Losing New York's 900 million ash trees would be a major environmental, economic and cultural blow to the state. Ash wood is used to produce a number of wood products, including cabinets, furniture, and handles for rakes and other tools. Ash is also the wood of choice for professional baseball bats, and Native Americans use black ash in traditional basket making. In addition, a variety of wildlife feed on ash seeds. Should enough ash be killed that they can no longer be used for bats, maple would be the most likely replacement. Unfortunately, another deadly invasive insect, the Asian longhorned beetle, favors maple! So far, the Asian longhorned beetle has not been found in upstate New York's forests, but infestations in the New York City area and Massachusetts are an ever-present threat to our hardwoods.

As with many tragedies, decimation of ash by EAB is not without irony. When Dutch elm disease destroyed the majestic elms once common along America's main streets, ash became a common replacement. So, some towns in other states have had to go through the painful removal of their valuable street and shade trees not once, but

Rob Cole

Checking an ash tree for signs of EAB damage.

twice within the past 50 or so years! This sudden loss of street trees left residents with treeless yards and cost property owners and local governments millions of dollars to remove the dead trees before broken limbs caused injuries.

As destructive as it is, EAB is not solely to blame for its ruinous reputation. Although it has wings, it is not a strong flier, and the vast area over which it has spread in less than a decade is mostly the result of the unwitting assistance of people. The main way the insect moves to new areas is on infested firewood. Nursery trees and logs have also been found to carry the pest, but not as often as firewood.

Because the borer's larvae live beneath the bark, they are very difficult to see on firewood. If this isn't bad enough, they can live for up to two years in a piece of infested wood. So, a person who moves infested firewood from one area to another could unknowingly be inviting ash-tree devastation into the woods near their home, hunting cabin, or favorite campground.

Fighting Back

When EAB was first discovered, foresters tried to totally eradicate it by removing all ash trees within a half mile of infested trees. But all-out war proved too difficult and expensive, and so was replaced with a more measured approach known as Slow Ash Mortality or SLAM. SLAM uses a veritable Swiss army knife of tools and techniques to slow the spread of EAB, including removing infested trees, more precisely defining infestation boundaries, and researching insecticides and biocontrols (organisms that kill pests). The hope is that current research will lead to new ways to suppress EAB populations, minimize their spread, and delay the death of ash trees. It is also hoped that SLAM will buy time for communities and forest owners to prepare for the EAB threat and potential financial impacts.

In conjunction with other state and federal agencies, non-profits and universities, DEC has been working over the past several years to fight emerald ash borer. In 2007, when the "Don't Move Firewood" campaign began, few had heard about EAB or understood why moving firewood could be a danger. Today, after seeing billboards, public service announcements, programs at campgrounds and parks, presentations to target groups, and exhibits at fairs and conferences, many New Yorkers know what EAB is and how they can help stop it from spreading.

To further combat EAB and other invasive forest pests and diseases, New York State created a regulation in June of 2009 restricting the movement of firewood. Since then, many other states have followed suit. The regulation limits the movement of untreated firewood (firewood that has not been heat-treated to kill pests) to no more than 50 miles from its source. Untreated firewood from sources within New York State must be accompanied by a label, receipt or self-issued certificate stating its source. (You can find the Certificate of Source form on DEC's website.) In addition, untreated firewood cannot be moved into New York from other states. Firewood that is "heat-treated" as specified by the law—that is, to a minimum core temperature of 160°F for at least 75 minutes—can be moved into and around the state without restriction. This heating method kills any insects

DEC photos

The damage from EAB has caused some communities in other states to remove their beautiful street and shade trees.

What is the Ash Tree?

USDA Forest Service

Branches and buds are directly across from, or opposite each other.

Paul Wray, Iowa State University

Bark has distinct pattern of diamond-shaped ridges.

Paul Wray, Iowa State University

Leaves are compound, and composed of 5 to 11 leaflets.

James Clayton

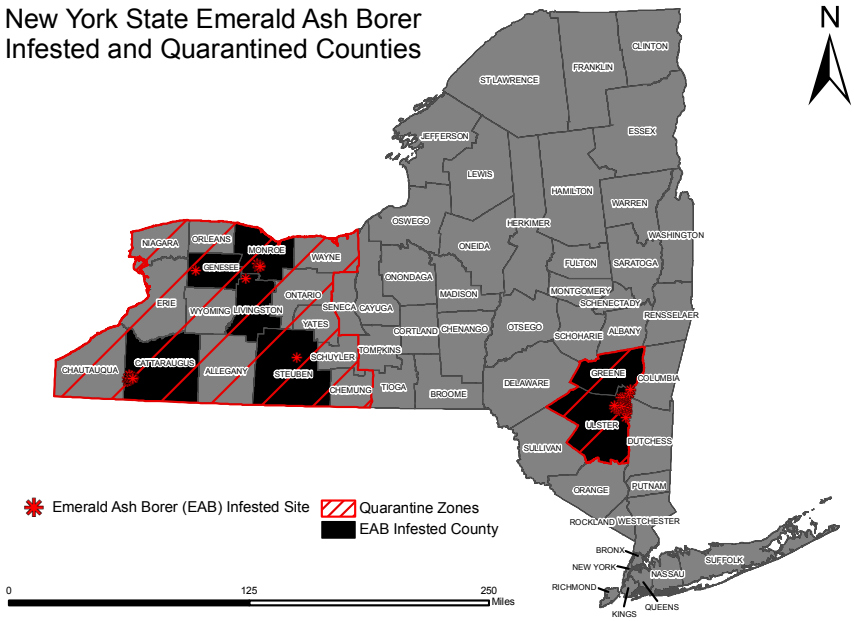
Q: What are those purple, wedge-shaped things hanging in the trees?

A: They are emerald ash borer traps, also known as "purple prism" traps. The traps are used for early detection and boundary marking of EAB infestations. Unfortunately, they don't catch enough beetles to control populations, but their use in early detection is crucial, as the sooner an infestation is found the easier it is to manage.

Hung high in ash tree branches, the traps contain a lure which smells like a stressed ash tree. The lure, and the trap's purple color, draw in the beetles, which get stuck in the very sticky glue that coats the outside of the trap. When the traps are inspected throughout the summer, any EABs, or look-alikes, are collected and sent to a lab for identification.

In 2010, all of the new infestations were first detected via the purple traps. More than 8,000 traps were set in New York State in 2010, primarily within a 100-mile radius of known EAB infestations and in high risk areas, such as campgrounds. Additional traps were hung for research purposes.

Don't worry if you have purple prism traps on or near your property. It doesn't necessarily mean that your area is under attack by EAB. It's just a precaution. But if you do suspect you might have EAB, call the hotline number listed to the right.



or diseases that may be inside the wood. Heat-treated firewood must include a label stating that it meets New York's standards.

Hope for the Future

With all the talk of EAB spreading and ash trees dying, it would be easy to give up. But there is hope. Research may provide us with a way to stop or more successfully control EAB. Communities can develop EAB response plans, so they can act at the first sign of an infestation. The public can become more aware of the health of their trees, and even survey for EAB damage and report their findings to DEC or Department of Agriculture and Markets. Concerned organizations can continue to spread the word and increase awareness. And of course, everyone can use local firewood, which supports the local economy and can slow the spread of EAB and other invasive insects and forest pathogens. It is only with constant vigilance that we can hope to minimize and perhaps one day eliminate the damage caused by EAB and other insidious invasive pests to the invaluable forests of New York.

James Clayton

DEC is working with other state and federal agencies, as well as non-profits and universities, to identify areas affected by EAB, and to battle its spread.

Maria King is an outreach coordinator for the Division of Lands and Forests forest pest outreach program.

Helpful Information:

DEC's EAB page:
www.dec.ny.gov/animals/7253.html

Nature Conservancy's "Don't Move Firewood:"
http://dontmovefirewood.org

EAB information by the USDA Forest Service and several universities: **http://emeraldashborer.info**

National EAB site:
www.stopthebeetle.info

New York State's Toll-free Forest Pest and Firewood Hotline:
1-866-640-0652

BRIEFLY

Compiled by Jenna Kerwin and Eileen Stegemann

WANTED: Lake Ontario Bass Anglers

DEC is looking for bass anglers to volunteer in the Lake Ontario Black Bass Angler Diary Program. The annual program provides DEC with valuable information on fishing quality experienced by anglers fishing for smallmouth and largemouth bass in Lake Ontario and its tributaries. Other information collected includes size, sex, and other characteristics of bass caught. The diary program begins at the start of the traditional open season on the third Saturday in June and concludes at the end of September. Visit **www.dec.ny.gov/outdoor/65533.html** for more information on the program and how to participate.

E-Waste Recycling

On April 1st, the new Electronic Equipment Recycling and Reuse Act went into effect. The new law requires manufacturers that sell electronic equipment to register with DEC and establish a convenient program for the free collection of electronic waste from all consumers. The law also requires manufacturers to create a public education program to inform consumers how to return products such as televisions, computers, keyboards, DVD/VCR/DVR players, and other consumer electronics. In addition, beginning January 1, 2015, individuals and households will no longer be able to dispose of any electronic waste in a landfill. Visit **www.dec.ny.gov/chemical/65583.html** for more information on the new law.

DEC E-Newsletter

To keep up with happenings related to New York State's environment and natural resources, subscribe to *Environment DEC*, a free, monthly, electronic newsletter covering the spectrum of DEC activities. A recent issue, for example, included an announcement about re-opened Long Island shellfish beds, a short piece on cormorants on Oneida Lake, a request for volunteers to help monitor eels, a call for applications for Environmental Excellence Awards, and a heads-up about migrating salamanders. Go to **www.dec.ny.gov/environmentdec/newsletter.html** to read the latest issue, and to subscribe to get free e-mail notification when each new edition is posted.

Deer Management Plan

DEC is developing a five-year deer management plan for New York, and is expecting to have it available for public review and comment in early June. The plan will address all aspects of deer management, from setting deer population objectives and hunting quotas to deer-related damage and ecological impacts. The plan will be available at **www.dec.ny.gov/animals/7211.html**, but check out the link now for preliminary information about the deer management plan.

National Trails Day

Saturday, June 4, 2011 marks the 19th annual National Trails Day. Launched in 1993 by the American Hiking Society, National Trails Day is a celebration of our country's trails and the countless opportunities for recreation and enjoyment they provide. What was once a small celebration has grown so that now each year, every state holds a number of events. You can even register your own events to celebrate trails. Visit the American Hiking Society's webpage at **www.americanhiking.org** to learn more and to register your event. Also, visit the New York-New Jersey Trail Conference website at **www.nynjtc.org** to find events and information about New York trails.

James Clayton

BRIEFLY

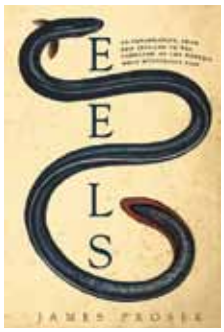
Keep Cats Inside

As young wildlife venture out this summer, DEC, The Wildlife Society, American Bird Conservancy and other non-profit organizations want to remind cat owners of the risks posed by their feline friends. Even well-fed domestic cats—outdoor and partially outdoor—may be serious threats to defenseless, young animals. Roaming cats can spread harmful diseases to other wildlife and are huge predators of birds and small wildlife. Additionally, outdoor cats tend to live harsh lives, frequently falling victim to disease, car strikes and predation by coyotes and dogs. Keeping cats indoors, or at least on leashes or in outdoor enclosures, can keep them safe and also reduce the impact they can have on wildlife. You can visit the American Bird Conservancy's website at **www.abcbirds.org**, and The Wildlife Society's website at **www.wildlife.org** for more information on the effects that outdoor cats have on wildlife.

REVIEW by Chris Bowser

Eels: an exploration, from New Zealand to the Sargasso, of the world's most mysterious fish

by James Prosek
Hardcover, softcover; $17.15, $11.19
Harper Collins Publishers
www.harpercollins.com; 212-207-7000



In New York, we're familiar with the seasonal parade of nature: shadbush blooming in spring or the crimson tide of maple leaves each autumn. Many of us are not aware of another phenomenon that happens in almost every New York coastal river and stream each spring: the arrival of thousands of tiny "glass eels."

The eel is a fish that many people have heard of, but few people know. In his book *Eels: an exploration, from New Zealand to the Sargasso, of the world's most mysterious fish,* author James Prosek travels far into the eel kingdom to shed light on this secretive fish.

Prosek covers much of the requisite historical, conservation, and culinary topics often seen in this type of armchair ichthyology (see Kurlansky's *Cod*, McPhee's *Founding Fish*, and Greenberg's *Four Fish* for excellent examples). What *Eels* really excels at is uncovering the strange, endearing, and even mythical relationships people have with this seemingly modest animal.

The eel is the star, but Prosek runs into a unique cast of real-life characters. There's Ray Turner, one of the last great eel weir operators on a Catskill reach of the Delaware River. Ray is a rugged individualist; part commercial fisherman, part spiritual hermit who reveres eels far beyond their dollar value. On the other hand, a shady but likeable Japanese eel trader globe-trots from Maine to North Korea after the strangest of commodities: juvenile eels that can sell for as much as $7,500 per pound. Prosek notes that "even in an average year, glass eels are the most expensive food fish in the world."

The eel story gets deeper into culture and spirituality in the South Pacific, home to several freshwater eel species closely related to our east coast *Anguilla rostrata*. In a scene that could be from an ancient folktale, we watch giant eels slither out of a New Zealand pond to gently eat from the hand of a young Maori woman. She is a graduate student in eel biology, delicately bridging the worlds of science and tradition in her community.

Throughout his book, Prosek constantly asks: Does studying this creature strengthen or lessen its mystery? Does the sum of all the research and data and charts really equal the truth of the eel, and what it means (or can mean) to people all over the world? *Eels* demonstrates that there is a place for wonder and philosophy in science.

Reading this book is to rediscover the mystery of nature, of science, and of something more, all wrapped up in a slim, sleek fish that continues to swim through the waterways all around us.

Reviewer **Chris Bowser** coordinates a citizen-science eel project for the NYSDEC Hudson River Estuary Program and National Estuarine Research Reserve, in partnership with Cornell's Water Resource Institute. For more information, check out: **www.dec.ny.gov/lands/49580.html**

LETTERS Compiled by Eileen Stegemann and Jenna Kerwin

Future Conservationist

This is my granddaughter Grace looking at the April 2011 *Conservationist*. She loves the pictures of the animals. I don't know how many times she has gone through this magazine; it's already pretty worn!

Brenda Todd
Bath, Steuben County

What a wonderful photo! It's always a pleasure to receive pictures of our future conservationists.
—*Conservationist* staff

Hitchhikers

I'm not sure what type of spider this is, but I happened across it this summer. It appears that the newly hatched spiders are hitching a ride. I have never seen this before.

Kim Kiefer
Remsen, Oneida County

This is a female wolf spider (family Lycosidae) carrying her freshly hatched spiderlings on her back. Almost all lycosid females carry young on their abdomen, and during this time the spiderlings do not feed. These spiderlings have just hatched from a spherical silken egg sac, which the female dragged around behind her, attached to her spinnerets (wolf spiders do not make a permanent web). The spiderlings are nourished by remains of the yolk from their eggs. After about a week, they shed their skin, molt into a larger size, and set out on their own.
—Cole Gilbert, Department of Entomology, Cornell University

Nineteenth-Century Remake

I enjoyed your article on the Adirondack Museum's exhibit of Arthur Tait's work and his life in the Adirondacks. Here is a photo taken at a lean-to during a camping trip on the Raquette River. Consider this the modern version of "A Good Time Coming." Amazingly, this shot wasn't posed!

Scott Miller
Norwood, St. Lawrence County

We passed this photo around and agree: This is certainly a humorous and enjoyable picture. We even noted the dog in the modern photo!
—*Conservationist* staff

LETTERS

Young Wildlife

June in New York is the time of year when many people come across young wildlife. A number of our readers sent us photos of their encounters and we thought we'd share them with you. Note that fledgling loons (as well as other water birds, like mergansers and grebes) will often hitch rides on their parents' backs!

—*Conservationist* staff

Playing for the Camera

These gray fox pups spent a couple nights under my tool shed. There were a total of five, but I couldn't get them all in a photo.

Dr. Michael J. Walawender
Moravia, Cayuga County

Hidden in the Lilacs

Walking amongst the lilacs during the Lilac Festival, I noticed a groundhog eating or smelling the flowers, and these babies in a hole nearby.

Jack Phillips
Rochester

Lake Loons

I thought you might enjoy this picture I took of loons on Peck's Lake.

Robert Van Alstyne
Fultonville, Montgomery County

Ask the Biologist

Q: While I was out fishing, I saw this jelly-like blob in the water. What is this?

A: We are often asked this question. The official name for this slimy "blob" is a bryozoan (*Pectinatella magnifica*). Also called moss animals, they grow in colonies on submerged objects (usually logs) and are often misidentified as frog eggs. They are more than 99% water, and can be as large as two feet across, but are usually under a foot in diameter. One jelly-like mass can contain thousands of individuals.

Bryozoans have been around for at least 100 million years. They were once restricted in range to the eastern United States, but are now found throughout the country. Bryozoans prefer shady areas, and have been found in lakes with both good and poor water quality.

—Joelle Ernst, DEC Fisheries Biologist and Scott Kishbaugh, DEC Water Engineer

Editor's Note: *President of the North American Bluebird Society John E. Ruska sent us a letter regarding the photo of the bluebirds in our "Discovering New York's Wild Side" article (April 2011). Mr. Ruska wanted to point out that the best design for a bluebird nesting box should not have a perch or wooden post, as these allow easy access for predators. You can find plans for building bluebird houses on New York Bluebird Society's website at* ***www.nysbs.org****.*

Write to us

Conservationist Letters
NYSDEC, 625 Broadway
Albany, NY 12233-4502
or e-mail: magazine@gw.dec.state.ny.us

On Top of the World

by Elie Bilmes

My father and I celebrated the summer months by going on hikes. Whether it was a relaxing walk to the crest of a hill downstate, or a full day's journey to a taller peak elsewhere, there was something exhilarating about the cheerful stillness of the woods in the summertime. On the trail, the problems and realities of the outside world lifted with the morning mist and were replaced by a serene equality. Trudging along the Appalachian Trail with a stick in my hand, I felt like just another seasoned hiker—the type I saw with the month-old beard and eyes pointed toward Katahdin.

On these trips, my father and I wouldn't say much. Instead, we conversed through nature's sweet smells and sounds, the postcard-ready sights, and the rustling of the animals we disturbed along the trail. At the summit, especially if we were the only ones there, it felt as if we had the whole world to ourselves. My father, a whiz at geography, would point out the highlights far below.

Gradually, but inevitably, the natural high of the hike would be replaced by a gentle burning in my calves. Later, sitting in the car for the ride home, the burn would turn into a steady ache. The next day, lest I forget the previous day's experiences, the soreness was still there to remind me.

As I grew older, I made less time for hiking. I was busy playing competitive tennis and maintaining a course load that I hoped would be enough to earn me admission to Cornell University. Never a fan of cold-weather hikes, I wasn't motivated to go on a single lengthy hike during my four years in wintry Ithaca.

Yet, even on days when I ran five miles or played three hours of tennis, I was never able to replicate that comforting, sore feeling in my legs that I experienced after hiking.

After college, I left the familiarity of the Northeast to join Teach For America's efforts in Saint Louis. It's been a rough start to my first year of teaching. As expected, I teach students who are far below grade level in a decrepit, crumbling building.

My first day of school was certainly hectic. I chased down students who walked out of class, addressed innumerable episodes of misbehavior, and spent the whole day on my feet. After the last class had departed, I slumped in my classroom's secondhand desk chair and instinctively reached down to massage my calves. Just as they had been after seven hours of hiking, after seven hours of teaching, my legs were in pain. That old, familiar feeling, not experienced since my early teens, was back.

On these trips, my father and I wouldn't say much. Instead, we conversed through nature's sweet smells and sounds...

Now, after a full day of teaching, there is something comforting about this soreness in my legs. It serves as a reminder of a simpler period in my life, before the stresses of teaching. The cacophonic voices of students are replaced by the gentler sounds of birds and the wind through the trees; the grim scenery of the inner city is replaced by the blanket of greens and browns around me.

After a long day dotted by frustrations and setbacks, this feeling reminds me of a time when, as a boy, I stood with my father on top of the world.

A 2010 graduate of Cornell University, **Elie Bilmes** teaches social studies at Sumner High School in the Ville neighborhood of Saint Louis, Mo.

FREE FISHING DAYS

Susan Shafer

JUNE 25 & 26, 2011

Each year, the last full weekend in June is designated as Free Fishing Weekend in New York State. During those two days, anyone can fish the state's waters without a license. This event began in 1991 to give people an opportunity to sample the incredible fishing New York has to offer. Panfish, bass, walleye, pike, salmon, trout and musky are just a few of the many freshwater fish species that you can fish for during New York's Free Fishing Days. And since no license is required, it's the perfect time to introduce a friend or relative to the sport. In 2011, New York's Free Fishing Weekend is Saturday and Sunday, June 25 and 26.

In addition to Free Fishing Days, there are a number of "Free Fishing Events" held in various locations across the state. Usually occurring between April and October, Free Fishing Events are DEC-sponsored events (such as family fishing clinics) in which participants get hands-on experience while learning about topics like fish identification, fishing equipment and techniques, fisheries management, angling ethics and aquatic ecology.

To find an event near you, or for more information about Free Fishing Days, check out DEC's website at **www.dec.ny.gov** or contact your DEC Regional Fisheries Office.

DEC Photo

Susan Shafer

Carl Heilman II

See page 18

Subscribe today!
Call 1-800-678-6399

Visit online:
www.TheConservationist.org

Find us on:
facebook®