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NEW YORK STATE

Conservationist

APRIL 2009

INVASION!

NEW YORK'S BATTLE AGAINST
NON-NATIVE SPECIES

Hooked
on fishing

Pest Management
in Schools



Dear Reader,

In the months ahead, we hope you will notice a marked decrease in water bottles littering the roadside, beach, or your local park. That's because after years of intense advocacy by concerned New Yorkers, this year with Governor David Paterson leading the way, the Bottle Bill has finally been expanded to include water bottles.

It's a critical improvement of New York's seminal recycling law.

Since the Bottle Bill's passage in 1982, roadside litter has been reduced by 70 percent and more than 90 billion containers – 6 million tons of glass, aluminum and plastic – have been recycled. The law has also helped fight global warming, saving more than 50 million barrels of oil and eliminating 5 million tons of greenhouse gases — equal to getting 600,000 cars off the road for a year.

But times have changed. When the Bottle Bill was enacted, water made up only a tiny fraction of overall drink sales. Today, water represents approximately 25% of the beverage market. Unlike beer and soda containers, the vast majority of water bottles end up in landfills and incinerators, or as litter in our communities.

Including water bottles under an expanded law will not only have an enormous impact on litter prevention and keep billions more containers out of the waste stream, it will also help us fight climate change. As a result of using recycled materials in manufacturing new products, the expanded Bottle Bill will save millions of barrels of oil, and keep countless tons of greenhouse gases out of our environment.

Last but not least, rather than continuing the current practice of allowing manufacturers to keep unclaimed deposits, the expanded Bottle Bill returns 80% of those nickels – which amount to tens of millions of dollars each year – back to the state to benefit New Yorkers.

Cleaner roadsides, waterways and parks. Reduced pressure on municipal landfills and trash collection. A dramatic reduction in greenhouse gases. More funding for important state programs.

During these difficult times, expanding the Bottle Bill was a no-brainer.

Sincerely,

Commissioner Pete Grannis

NEW YORK STATE Conservationist

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Chinese mitten crab

James Clayton

See page 8

April 2009 Volume 63, Number 5

Contents

2 Eagle Aid

Rehabilitated bald eagle flies again
by Elaine Bloom

6 Lured In

A trout fisherman is born
by Ed Bang

8 Intruders

Battling the spread of invasive species
by Leslie Surprenant

14 A New Prescription

Do not flush your unused drugs
by Scott Stoner

18 Working Out the Bugs

Schools' "green" pest management alternatives
by John Razzano

22 Stalking Sturgeon

Biologists track Atlantic sturgeon in the Hudson River
by Amanda Higgs



Departments

26 Briefly | 28 Letters and Review | 31 On Patrol | 32 Back Trails

Front cover: Asian longhorned beetle by James Clayton Back cover: Red trillium wildflower by Thomas D. Lindsay



Mike Allen

Eagle Aid

by Elaine Bloom

Sometimes DEC wildlife technician Mike Allen looks out his window at the spacious cages that have, over the years, housed at least eight recuperating bald eagles, and thinks, “Gosh, I’ve got bald eagles in my backyard, for crying out loud!”

The idea still astounds him because, 33 years ago when Mike began his professional career, there wasn’t much need to house sick and injured bald eagles. Why? Because there were few eagles left in New York State. But thanks to a ban on DDT, habitat protection, and a program raising and releasing young eagles, New York’s eagle population has rebounded and is now reproducing on its own. In 2008, 145 mated pairs of bald eagles nested here and 573 eagles were counted during the annual mid-winter

survey. Each year, a few of these birds need help, and that’s where Mike’s “halfway house” for eagles comes in.

One of Mike’s recent patients came to him by way of Jamestown, N.Y. veterinarian Bill Seleen. Brought to Dr. Seleen’s clinic in June 2008 by DEC wildlife staffers Dan Dougherty and Bob Lichorat, the eagle had a mangled foot and an infection raging through her emaciated body. A tattered wing tag proved her to be a 21-year-old veteran of Ontario,

New York State Conservationist, April 2009

Canada’s early bald eagle restoration program, released as a fledgling in 1987 and not seen since.

The bird, captured after a week of persistent effort, was too thin and weak to fly. According to Dr. Seleen, it was apparent from her condition that she’d been struggling to survive for some time.

When the veterinarian examined her right foot, he found that several toes were fractured and the hallux talon—the one that faces backward, securing the eagle’s grip on perch or prey—had been ripped off entirely. The wound had formed a mass the size of a golf ball. Dr. Seleen knew that healing a severe injury like that would be a challenge because of the hard, scaly skin on an eagle’s foot.

At between 8 and 14 pounds, with a wing span up to 7 feet, a hooked beak and 2-inch-long talons that can exert a force of 1,000 pounds of pressure per square inch, an upset bald eagle can be formidable. But Dr. Seleen was impressed

The bird, captured after a week of persistent effort, was too thin and weak to fly.

with this bird’s calm demeanor. “She was one of the tamest birds I’ve had,” said the veterinarian, who has treated several bald eagles and countless other wildlife at his clinic.

The eagle turned out to be a good patient, although clinic staff always took care to wrap those lethal talons, sharp beak and powerful wings in a blanket during examinations,

antibiotic injections and force feeding. Dr. Seleen opted to pass up surgery on the deformed foot, not wanting to risk making it worse.

After the wound had mostly healed, the infection gone, and her weight up from 7 to 12 pounds (normal for a female eagle), the veterinarian deemed the eagle healthy enough to leave his clinic, although no one knew when, if ever, she would return to the wild. Was she strong enough to fly? Could she learn to land and balance on a branch using what was left of the maimed foot? Would she be able to feed herself?

There was never any doubt that the best place to find the answers to these questions was in one of the 12-by-12-by-8-foot high flight cages in Mike Allen’s backyard.

Mike has worked on New York’s eagle restoration program since it began in 1975. Led by DEC biologist Peter Nye—considered the father of modern bald eagle restoration—Mike

helped collect more than 150 nestling bald eagles, most of them from Alaska. Peter, Mike and other colleagues brought the young birds to New York, raised them in “hacking” towers, and released them when they were able to fly. “Mike’s work and personal life have revolved around eagles, a cause he has dedicated himself to fully,” says Peter.

Melissa Coleman



Jenny Landry and Mike Allen attach a radio transmitter to P26’s tail feathers.



The eagle's hallux talon had been ripped off, and the wound had formed a mass the size of a golf ball.



Clinic staff were careful when handling the sick eagle, making sure to protect themselves from the bird's sharp beak and talons.



When the eagle perked up, she was moved to Mike Allen's backyard to regain strength and prepare to be returned to the wild.

That's why the injured eagle, known by her Canadian wing tag as P26, found herself in good hands when she arrived at Mike's place one August day. Mike placed the special transport crate inside the flight cage, opened the top and tipped the box. Instead of a hasty exit to the far end of the enclosure or the belligerent display Mike expected, the bird calmly hopped up on the edge of the box, her brilliant yellow eyes fixed on Mike's face, just a foot away.

Mike instantly realized that this bird was a little different from the other eagles he'd worked with. "She could have easily jumped at me. Usually, eagles are pretty defensive and potentially dangerous. Some just go ballistic, screaming at you and flying around when you approach. Their talons can go right through your arm. They wouldn't hesitate to take a chunk of your hand or face with their beaks or talons if they were feeling threatened," says Mike, who bears the scars to prove it.

P26, Mike noted, seemed comfortable and very expressive. She used many of the normal vocalizations an eagle has in its repertoire, but at a greatly reduced volume, "almost like she knew she didn't have to shout," Mike recalls. "Don't get me wrong—there were times when she screamed like a banshee, but those were extremely infrequent." Most of P26's vocabulary consisted of twittering and purring sounds.

The large flight cage allows a bird to regain strength at its own pace without the stress of being pushed to fly. At first, weakened by her injury and the many weeks of cage rest at the vet clinic, P26 couldn't get across the flight cage very well. Flying to the higher perches was a challenge for her, as well. To help her make the transition from the floor to the higher perches, Mike placed a padded sawhorse midway in the cage.

Once she did fly, the bird experienced problems landing. "You could see her trying to grasp with the missing toe," Mike says. "It took a little time for her to figure it out."

As the summer days passed, P26 grew used to Mike's presence and didn't even flush when he approached. The combination of exercise, fresh air and a diet of squirrel and rabbit—roadkill from local highways—with the occasional fish dinner, resulted in an eagle brimming with good health and fitness, and eager to be free again.

When autumn rolled around, P26's demeanor changed, and Mike knew it was time. The eagle was strong, she could fly, and, for landings, she had learned to work around her disability. Eagles are capable of snagging prey with one foot if they have to, and much of their diet is carrion, so Mike felt sure that obtaining food would not be a problem. He scouted an area with large trees and water between two known eagle territories near the Montezuma Wildlife Refuge.

When released, P26 flew off strongly, and when Mike checked the area days later, she had moved on.



Mike Allen

Before releasing the eagle, Mike affixed a short-term transmitter to her tail feathers to allow him to track her whereabouts for four or five months. On October 20, just two months after he got her, Mike and Bill Stewart—Montezuma's assistant manager—flipped the carrier's lid off and stood back. This time P26 didn't hesitate. "She flew like a champ," Mike recalls.

But P26's drama was not quite over. Within five minutes of the release, a previously unknown pair of bald eagles appeared out of nowhere and bombarded the newcomer. Eagles are highly territorial and very aggressive encounters have been observed, occasionally ending in the death of one or both combatants.

"If one of them whacks her," Mike remembers thinking, "she'll come right down." The resident eagles settled into a tree about 15 feet away from P26 and launched an ear-splitting verbal assault. Over the next half-hour, the pair made several close passes at P26, attempting to drive her away. But she held her ground on the branch, dodging each flyby as it occurred. Finally one of the mated pair dove straight at P26.

Just before it reached her, and as Mike prepared to witness a slaughter, the aggressor broke off and the pair retreated, leaving P26 in peace.

Mike can't explain what might have caused the unusual end to the hostility. "I've been chasing eagles for more than 30 years and not one has ever explained what it's doing," he jests. Whatever the cause, he was relieved to return the following day to find P26 in the same tree fishing from a branch overhanging the water.

Two days later, when Mike checked the site, P26 was gone, this time seemingly for good. He could detect no signal from her transmitter either, meaning she was beyond its three-to-four-mile range. "I'd be more concerned if we did have a signal that wasn't moving," Mike says. "I like to think of her out there beeping somewhere. I guess we just have to wait and see if she goes another 21 years before checking in."

Elaine Bloom is a contributing editor to the *Conservationist*. She enjoys observing wildlife and considers herself lucky to have the woods right outside her back door.

One hundred years ago, more than 70 pairs of bald eagles nested in New York State, and hundreds more wintered here. By 1960, only one eagle nest remained. Loss of habitat and toxic contamination had all but erased eagles from New York. Since 1972, New York's eagle population has gone from near zero to booming, thanks to a national ban on DDT, federal prohibitions against taking bald eagles, and the initiation of New York's Endangered Species Program.

Between 1976 and 1988, New York's Bald Eagle Restoration Project re-established a breeding population of eagles by importing young birds from other states and hand-rearing them to independence (a process known as hacking). The hacked eagles thrived, returning to New York to nest and breed.



Bill Banaszewski

Lured In

A trout fisherman is born by Ed Bang

As a young child in the Bronx during the early 1930s, outdoor recreation was often limited to playing in the streets. Though trout fishing in the Catskills was becoming all the rage among well-to-do sportsmen from New York City, fishing was not something I thought about, let alone tried. But that changed when I began to spend holidays and summers at my grandparents' 48-acre farm in East Chatham.

Nestled in the Taconic foothills, the farm was the perfect playground for a curious boy. I soon discovered and explored just about every brook, stream or rivulet within walking distance of the house. The waters were full of horned dace (creek chub), a forage fish that rarely exceeds six inches in length. You can imagine the thrill I had as an eight-year-old boy yanking three- to four-inch fish out of the brook after spending hours on my belly, peering at the fish through gaps in the rough, wooden timbers of the wagon bridge that spanned the stream. My dear, patient Grandma always rolled her eyes when I triumphantly presented the catch of the day.

I often had fishing buddies, assorted cousins or friends from the city that came up to enjoy the fresh air. For fishing gear, we made our own out of materials found on the land.

Our fishing poles consisted of the straightest six-foot-long wild cherry saplings that Grandpa could find. Using his handy (and very sharp) pocketknife, Grandpa would transform them into things of beauty.

Line for the rods was another matter. Monofilament had yet to be discovered, so we'd use the least bulky of Grandma's kitchen string. Thank the Lord for snelled hooks, tied to eight or nine inches of line, which were readily available at Slattery's General Store.

Grandpa greatly influenced my early attempts at fishing. He cautioned that a careful approach to the brook was best, but in our haste to be first to the bridge, we would tread too firmly, simply to be rewarded by a V-shaped wake heading for the nearest cover. Only after harnessing our childish enthusiasm and creeping the last ten or fifteen feet, were we able to grab glimpses of the true trophies in the stream, the wily and elusive brook trout.

To catch these speckled beauties I needed to update my homemade equipment. Though it was nearly 70 years ago, I clearly remember purchasing that first fly rod—a three-piece split-bamboo rod that cost twelve dollars, a princely sum to a child in those days. A Pflueger Progress fly reel,

some oiled fly line, an aluminum leader box, and some catgut leaders completed the basic outfit. Now I was ready to do some serious fishing.

While I enjoyed fishing with my cousins and friends, most were not as enthusiastic as I was about the sport. Enter Charlie Morris, son of the new owner of nearby Tinger Farm. The two of us spent hours visiting the many local spring-fed brooks known to contain native brook trout. Our favorite was Tinger's Brook, which housed decent-sized brookies. I can't tell you how many times we fished together and caught nothing, but then came the day when the dry spell was broken and I became a lifelong trout fishing addict.

The day started out like every other fishing day. With rods already strung and hooks carefully hidden by fat garden worms, Charlie and I carefully walked the streambanks, dropping our baits into any place that looked deep enough to hold trout. At first we had no luck, but then we noticed a small, almost hidden runoff to the right of the main channel. Ten feet upstream was a circular pool, ten or eleven feet across, and ringed with watercress. The water was crystal clear. With no more anticipation than I'd had the previous ten times that day, I lowered a worm into the middle of the pool. As soon as the worm disappeared below the water's surface, a mighty brook trout sped out from the shelter of the watercress, seized the baited hook, and immediately tried to regain the weedy den from which he'd come. A reflexive yank on the rod, and I had the first of my trout treasures flipping on the bank.

Measuring the fish to make sure it was legal, Charlie and I couldn't help but admire the light-blue-surrounded red spots

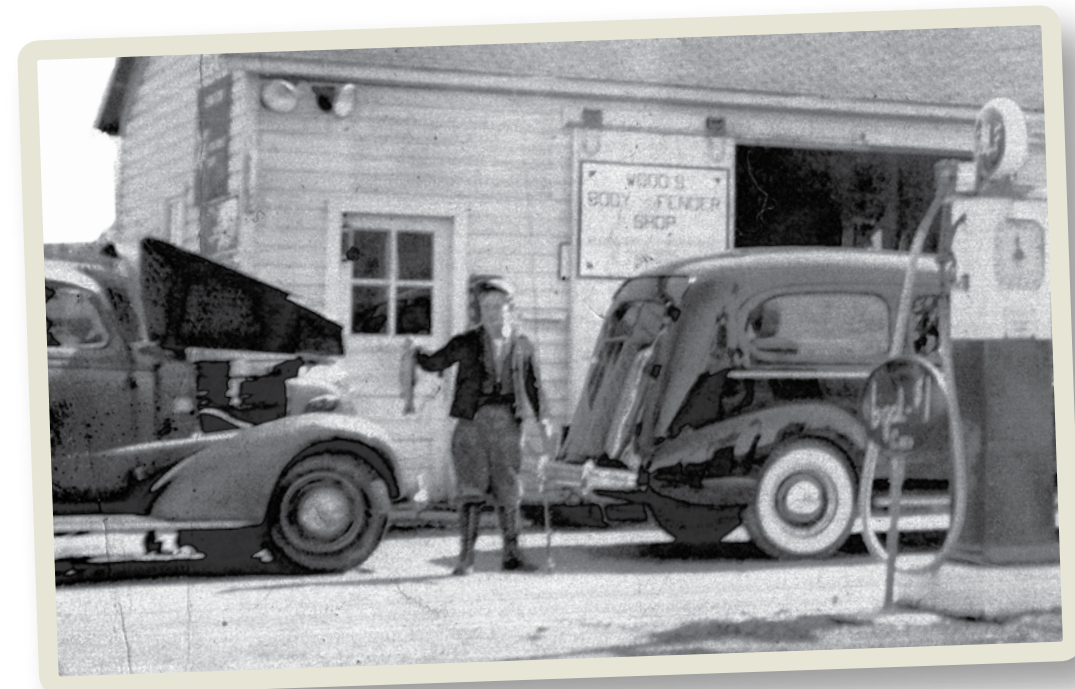
on the sides of our quarry. It was a special moment, made even better by the anticipation of a fine fish dinner.

Funny how I can't remember as vividly the landing of my second, third and fourth trout, but I know that the thrill never lessened. With each outing, I became more adept at approaching the brook, and more proficient at catching fish. This led to many multi-fish days, and one of my first lessons in conservation.

Arriving home one early afternoon with four or five fish on an improvised stringer, Grandpa asked if I'd left any fish in the stream. You see, in the mid-1930s, the idea of leaving a few for the next time wasn't really thought about, and an even harder concept for a kid to embrace after spending so much time and effort to catch the fish in the first place. But the question made me stop and think and soon I found myself releasing my catch more often than not.

When I was in high school, I caught my first really big trout, a sixteen-inch rainbow. Mike Tinger was nearby with his camera to capture me with my trophy. While I've caught and recorded my share of trophies since then, Mike's picture is still one of my favorites because it reminds me of how I got hooked on fishing, and developed a lifelong interest in conservation.

An avid outdoorsman, 82-year-old **Ed Bang** spent many years fishing and hunting on the acreage he and wife Jeri owned in Orange County. Ed continues to enjoy trout fishing, setting aside time to throw a line in Beer Kill and Sandberg creeks during his yearly northern visit from Florida.



The author, Ed Bang, holding up his prized rainbow trout in April 1941.



Susan L. Shafer

Intruders!

New York's battle to stop the spread of invasive species

By Leslie Surprenant

It was late afternoon last May when the phone in DEC's fisheries office in New Paltz began to ring again. It had already been a busy day full of calls from anglers looking for good spots to fish, but this call was different. The caller, a pond owner from Orange County, said he'd caught two strange fish in his pond and was worried they might be snakehead fish—the recent invader from Asia that has found its way into some of our waters and is known for its ferocity and ability to decimate native fish populations. The owner wanted DEC to check the pond to make sure the local fish would be okay.

the pond really did contain snakeheads, there was work to be done.

Gearing up, DEC biologists quickly prepared to go afield. If they could catch the intruders before they could get established, damage to the local ecosystem could be kept to a minimum. A short time later, it was confirmed—the fish were indeed the predatory northern snakehead fish. To determine the extent of the invasion, DEC surveyed the landowner's entire pond and connecting waters, catching three live snakeheads that ranged in size from finger length to two feet. This was not a good sign.

The presence of young fish confirmed the fish were not only present, but reproducing. And because of the pond's location, biologists realized there was a high risk the fish would quickly move downstream into the Wallkill River, giving them access to the Hudson River and the potential to move through the canal system and into the Great Lakes within a few years.

After looking at a number of possible solutions, DEC determined the best chance of successfully eliminating this aggressive invasive was to treat the pond with rotenone, a piscicide (fish

Officially, invasives are defined as non-native species that cause significant harm to humans or the environment. Simply put, invasive species are biological pollution.

It was a call that grabs any biologist's attention, and one that's becoming more common. Another problem invader spotted; another battle about to begin. If

New York State Conservationist, April 2009

Amy Benson, USGS



Karin Verschoor



James Clayton



James Clayton



E. Richard Hoebeke



James Clayton



Top: zebra mussel, garlic mustard, Japanese knotweed **Bottom:** Chinese mitten crab, Asian longhorned beetle, emerald ash borer

killer) derived from Amazonian plants. A number of concerned local volunteers helped DEC conduct the treatment which yielded a surprisingly large number of snakeheads. In fact, the pond and connecting waters held more than 220 snakeheads, most young-of-the-year, but also 13 adults that ranged in size up to 31 inches and more than 11 pounds. The immediate threat was stopped, but everyone wondered how the fish arrived in this Orange County pond.

A popular Asian food, snakehead fish were commonly available in the live fish market, and sold as aquarium fish until they were prohibited from interstate transport in 2002 as “injurious wildlife” under the federal Lacey Act. In New York, State Environmental Conservation Law prohibits possession of live snakehead fish and their viable eggs. Perhaps someone wanted to establish a fishery here, or simply released an aquarium pet that had grown too large, or become too aggressive. Regardless, it’s clear that these fish were intentionally released into the pond; just one example of the many harmful invasive species that humans introduce into the environment each year. Unfortunately, very few people realize that these introductions can spell disaster to the local ecosystem.

Introducing new species is not a new concept. In fact, it has been going on for a long time. Native American tribes widely



Asian longhorned beetle

James Clayton

traded and cultivated non-native species such as corn, beans and squash. Farmers, anglers, hunters, gardeners, collectors, aquarium owners and animal lovers alike have all brought in new species they felt would provide some benefit or pleasure. In some instances, scientists introduced non-native species to either occupy an

way here by accident, carried in packing or ballast water from a foreign destination. It’s possible that one or more new species arrived 400 years ago, aboard the Halfmoon as Henry Hudson plied the river that would be named for him.

Over time, thousands of non-native plants and animals have arrived and taken

The difficulty with invasives is that they typically arrive here without their native predators and diseases that normally keep their numbers under control.

unused habitat or to control another species considered a pest. Intentions were good. No one realized the actions might be harmful.

Not all non-native species were introduced on purpose. Some found their

hold in New York. Most are harmless. Some, like honey bees, are beneficial. Others, like the snakehead, are harmful. Only 10 - 15% of non-native species are harmful invasives—threatening our environment, agriculture or health.

It’s important to make the distinction between non-native species and invasives. While all invasives are non-natives, not all non-native species are invasives. Officially, invasives are defined as non-native species that cause significant harm to humans or the environment. Simply put, invasive species are biological pollution.

What many people don’t realize is that their actions can contribute to the problem. Simple activities such as hiking, camping, boating, fishing, gardening and landscaping can spread invasive species. For example, unsuspecting campers

New York State Conservationist, April 2009



Emerald ash borer

David Capparaert, Michigan State (Bugwood.org)

Milder winters, changing precipitation patterns and warmer summers stress our native fauna and flora while favoring many invasive species, diseases and pests.

transporting firewood are believed to have spread the emerald ash borer (EAB) from its original infestation sites into the forests of Michigan’s famed Upper Peninsula. A small, metallic-green beetle native to Asia, the emerald ash borer probably arrived in the U.S. in wooden packing materials brought into the port cities of Chicago, Toronto and Detroit. Since its arrival, the beetle has killed millions of trees in Michigan and Ohio, and is working its way eastward, rapidly approaching New York.

The Asian longhorned beetle is another insect believed to have arrived here in wooden packing crates. Upon reaching New York City from China, this beetle quickly infested several species of local hardwoods, killing thousands of trees. Like EAB, the Asian longhorned is not a strong flier, but can inadvertently be spread via transportation of infested firewood.

Another contributor to the introduction and spread of invasives is the well-meaning person who releases the unwanted pet (i.e., frogs, turtles, fish, or something more exotic like a big cat) into the local pond or woods. While this may seem harmless, the released animal

can upset the delicate biological balance by preying on local species and competing with them for food and shelter. In some cases, like snakehead fish, they can reproduce, quickly taking over an area to the detriment of local species. Such was the case in a number of Adirondack ponds where unknowing anglers released their unused baitfish into the pond they were fishing. The baitfish quickly reproduced, out-competing and decimating prized native brook trout populations.

The difficulty with invasives is that they typically arrive here without their native predators and diseases that normally keep their numbers under control in their countries of origin. This automatically gives them an advantage over native species that have these controls in place. Left unchecked, the introduced species are able to flourish, generally at the expense of our native species.

The introduction of non-native pathogens is another type of biological pollution facing New York. Since our native species often lack resistance to these new invasive pathogens, the results can be disastrous. For instance, West Nile virus, which likely arrived



Zebra mussels

DEC photo

through global travel, has sickened and killed humans and birds. Likewise, viral hemorrhagic septicemia, which probably arrived in ballast water and spread by the live bait trade, has killed tens of thousands of fish in New York and other Great Lakes states.

Ship ballast water is considered the likely vector for a number of other invasive introductions, including zebra and quagga mussels which clogged intake pipes and removed microscopic plankton, the base of the aquatic food web. Zebra and quagga mussels spread quickly, likely carried in boats, bait buckets and live wells. Since first introduced into the Great Lakes, these mussels have spread into the Hudson River and several inland waters.

The Chinese mitten crab is another troublesome invasive, thought to have arrived here via ballast water, or possibly through the international live food trade. Mitten crabs are catadromous, reproducing in the ocean, with their young moving into freshwater tributaries where they remain upstream until adulthood. They burrow into stream banks, causing bank instability and collapse, resulting in lost habitat for native species. Mitten crabs compete with native crabs and other aquatic animals for food, and are able to move tremendous distances along stream bottoms. The first mitten



Chinese mitten crab

James Clayton

New York State Conservationist, April 2009

crab reported in New York was an adult caught in a crab pot in the lower Hudson River in June 2007. By autumn 2008, they had spread into many tributaries and were being trapped in crab pots in Catskill, nearly 100 miles upstream. In California, mitten crabs severely harmed commercial and recreational fishing by tearing nets, pinching netted fish and taking anglers' bait. Additionally, these crabs may carry Asian lung fluke, a human parasite.

Our desire to create or duplicate showy exotic gardens and landscapes, or to use and grow new herbs and spices is responsible for introducing a number of non-native plant species to the state. Nurseries and garden centers make it easier by selling these new plants. While many of these introductions have had minimal negative impact, a number of invasive plants have escaped gardens and



landscapes. Garlic mustard, introduced for culinary uses, can rapidly invade hardwood forest understory. Japanese

knotweed, introduced for beauty and ease of cultivation, can spread thickly along stream banks, but offers no erosion control. Giant hogweed was introduced as an ornamental garden plant. An aggressive competitor, its large size and rapid growth enables it to quickly out-compete native plant species. Contact with its sap can result in severe blistering, permanent scarring—even blindness—upon exposure to sunlight (see August 2003 *Conservationist*).

Didymo, or rock snot, is a recent invader of New York's waters. It is an unsightly algae, forming dense wavy mats that may harm fisheries habitat in flowing coldwater streams. Because didymo cells are microscopic, it can spread by a single drop of water, easily hitching a ride on felt-soled waders.

Once an invasive species has arrived, successful eradication depends on early detection. As was the case with the snakeheads in the Orange County pond, early detection and quick action may have prevented its spread. Once a species spreads, eradication or control through conventional techniques is difficult. Occasionally a pest or predator of the invasive species is discovered. Often, these "biological control" species are also non-native species



Didymo, or rock snot

Don't aid the invasion

- **Learn and teach others about invasive species.** Check DEC's website (www.dec.ny.gov/animals/265.html). New York's Invasive Species Clearinghouse <http://nysis.info/> is a new online library of invasive species information.
- **Always use native or non-invasive plants for gardens, landscapes and ponds.**
- **Check, clean/disinfect and dry boats, live wells, waders, life jackets and fishing equipment.** Quaternary ammonium compounds found in many household disinfectants are effective in controlling many aquatic invasive species, fish viruses and pathogens.
- **Do not move bait or other fish from one water to another,** and don't release unused baitfish and worms. Instead, dispose of them in closed containers.
- **Purchase baitfish from retailers selling certified disease-free fish.** (Refer to DEC's baitfish regulations at www.dec.ny.gov/outdoor/47282.html).
- **Report plants, animals and insects you recognize as new or out-of-the-ordinary.** You may contact your regional DEC office, the Office of Invasive Species or a Partnership for Regional Invasive Species Management (PRISM).
- **Don't move firewood.** New restrictions to protect our forests from insects and disease prohibit moving firewood more than 50 miles from where it is grown and prohibits importation of untreated firewood from out of state (www.dec.ny.gov/regs/4079.html#44382).
- **Don't release any animal, plant or seed into the wild** including reptiles, aquarium plants & fish, and mammals. For more information, go to www.habitattitude.net.
- **Don't stock ponds with exotic fish, frogs, crayfish, snails or other organisms.** Any fish stocking requires a stocking permit; contact the DEC regional office in which your water is located (www.dec.ny.gov/about/50230.html).
- **Join a PRISM (www.dec.ny.gov/animals/47433.html).** These partnerships are involved with invasive species management, education, early detection and rapid response and are a great way for citizens to get involved.

and so researchers must proceed carefully, demonstrating that the control will not harm similar native species. This uses precious time and is costly.

With new invasive species discovered each year, effectively monitoring and controlling them are difficult tasks. Further complicating and challenging this is climate change. Milder winters, changing precipitation patterns and warmer summers stress our native fauna and flora while favoring many invasive species, diseases and pests. Several New York State agencies are engaged in coordinated state, regional and federal invasive species management and prevention efforts. To aid in early detection, New York has partnered with the New York Natural Heritage Program to develop a reliable, accurate online invasive species database (iMapInvasives.org). Available to the public, this will greatly assist tracking and responding to any invasions. With New York's diverse landscapes and wide variety of ecosystems, tackling the issue of invasives is best approached through a coordinated regional effort. Eight Partnerships for Regional Invasive Species Management (PRISM) are being formed across the state to provide volunteers with training in invasive species monitoring, eradication, control, education and outreach. For example, Adirondack Invasive Plant Partnership is a ten-year-old, award-winning PRISM serving the Adirondack region (<http://www.adkinvasives.com>).

Successfully controlling invasives will ultimately require everyone's help. Like the gentleman who called to alert DEC to the presence of snakeheads in his pond, we all need to be responsible in our individual choices and actions. We can start by recognizing how our everyday activities may contribute to the invasion, and then act to prevent or slow the spread. While we will not stop all invasions of harmful non-native species, we can work together to help ensure future generations of New Yorkers will enjoy our forest landscapes, healthy ecosystems and productive agricultural lands.

Leslie Surprenant is the invasive species management coordinator in DEC's Office of Invasive Species Management in Albany.

A New Prescription

Do not flush your unused drugs.

By Scott Stoner

Pharmaceutical contamination is now emerging as a potentially significant environmental problem. Pharmaceuticals can reach our waters from a variety of sources, including the flushing of unused drugs by households and institutions, discharge from drug-manufacturing facilities, and via drugs that pass through our bodies, largely unchanged. Typical wastewater treatment is not designed to remove pharmaceuticals, and is only partially effective at doing so.

Scientists have learned that when aquatic and amphibian species are exposed to only small amounts of pharmaceuticals and personal care products (collectively known as PPCPs), there can be serious effects. The risk to aquatic life from PPCPs in water is perhaps of greater immediate concern than human health impacts. Because they spend their entire lives in the water, including sensitive developmental

life stages, fish and other aquatic animals and invertebrates are exposed continuously to contaminants found in water. Species exposed to these products have shown decreased reproduction rates, delayed development, and even additional appendages in some species. Also, pharmaceuticals in the water may lead to bacteria that are resistant to antibiotics. In 2002, 80% of streams sampled (139 rivers in 30 states) by the U.S. Geological Survey showed evidence of drugs, hormones, steroids and personal care products such as soaps and perfumes. While a number of human health concerns (including endocrine disruption and an increase in antibiotic-resistant bacteria) have been raised about the presence of pharmaceuticals in

Awareness campaign focuses on keeping pharmaceuticals out of New York's waters.

drinking water sources, the risks posed to humans by long-term consumption of small amounts of these substances are unknown.

New York's water bodies are among the state's most valuable resources, vital for people, industry, commerce and transportation. To protect this critical resource, DEC and the New York State Department of Health (DOH) are actively working to educate the public about safe drug and pharmaceutical disposal. Because of the potential risks from the disposal of pharmaceuticals "down the drain" into wastewater treatment systems, Governor Paterson recently announced a new Don't Flush Your Drugs campaign. In announcing the campaign,

New York State Conservationist, April 2009



Ken Allen

To keep New York's water bodies healthy, the state is working to prevent pharmaceuticals from entering our waters.

Governor Paterson stated, "Because of concerns about potential impacts of long-term exposure to low-level pharmaceuticals, we should take a precautionary approach to reducing discharges of drugs into the state's waterways." He called on New Yorkers to do their part by safely disposing of unused pharmaceuticals.

The initial goal of the campaign is to reduce the intentional disposal of drugs in wastewater by flushing or pouring into drains. DEC has launched a website (www.dontflushyourdrugs.net) to educate the public about the environmental problems created by flushing pharmaceuticals, and to provide proper disposal methods for prescription and over-the-counter medications (see sidebar on page 16).

Research indicates that a significant amount of pharmaceutical contamination in our waterways stems from

New York's water bodies are among the state's most valuable resources, vital for people, industry, commerce and transportation.

institutions, such as long-term care facilities and nursing homes, which routinely flush unused medications. To address this issue, an interagency work group is developing new guidance for hospitals and institutions to promote environmentally sound practices for the disposal of unused pharmaceuticals.

DEC is encouraged by a number of regional, voluntary "take-back" programs for unused pharmaceuticals. To date there have been six such programs in the state, two sponsored by pharmacy chains and four by counties. Several other counties are in the process of planning pharmaceutical collection events for their residents. In central New York, DEC is working with local governments and other stakeholders

to further expand pharmaceutical collection opportunities. To demonstrate the need for, and feasibility of pharmaceutical collection programs, DEC is also seeking federal funding for additional pilot projects such as "mail-back" programs.

Other options for managing pharmaceutical waste include studying successful European and Canadian practices of product stewardship developed in conjunction with drug manufacturers. These programs require that manufacturers develop convenient collection, or "take-back" programs for unused pharmaceuticals. For example, in British Columbia, pharmaceutical companies finance a system in which 98% of the pharmacies take back customers' unused drugs.

New York State Conservationist, April 2009

DEC's long-term strategy includes working with pharmaceutical industries to clean up production sites and reformulating drugs so that they will break down more readily in the environment. DEC will also promote efforts to improve water treatment technologies that might remove these and other emerging contaminants at the "end-of-pipe."

We need to act now to protect our waterways, before pharmaceuticals pose a significant health threat. It's clear that a precautionary approach aimed at eliminating the intentional discharges of pharmaceuticals is a reasonable and prudent first step.

Scott Stoner is chief of the Standards and Analytical Support section in DEC's Water Assessment and Management bureau.



This new flier is displayed in pharmacies and other locations across New York where medications are sold.

Proper Disposal of Household Prescriptions and Over-the-Counter Drugs

Do NOT flush or pour any drugs down the drain or into the garbage disposal. This includes expired and unused prescriptions, and over-the-counter drugs.

Where available, take your medications to a local collection event. Contact your local pharmacy, recycling coordinator, or municipality to find out if there is a household hazardous waste collection event that accepts these materials near you. While waiting for a collection event, keep all medications in a safe, secure place in your home, out of reach of children.

Important information regarding controlled substances. To protect public health from unauthorized use of controlled substance medications, the Department of Health must approve events that collect these substances. Before you take controlled substances to a collection event, check with the event organizers to see if they are authorized to accept them.

Medications self-administered by injection with a needle or "sharp" may be disposed of in the trash. If such medications include an attached needle, they should be placed in a puncture-proof container, sealed with tape and labeled as "sharps." However, the state strongly recommends that medications with attached needles be disposed of at hospital-based household sharps collection programs. All hospitals in New York State (except for federal facilities) are required to collect sharps from households. Medications without attached needles may be disposed of in household trash as described herein.

If there is no collection event in your area, dispose of drugs in your household trash. Before placing drugs in the trash, follow these steps to avoid accidental or intentional misuse:

- Treat medications (liquids and pills) by adding water and then salt, ashes, dirt, cat litter, coffee grounds, or another undesirable substance.
- Hide all medications in an outer container, such as a sealable bag, box or plastic tub to prevent discovery and removal from the trash. Seal the container with strong tape.
- Dispose of drugs as close to your trash collection day as possible to avoid misuse and/or misdirection.
- Do not conceal discarded drugs in food, because they might be eaten by scavenging wildlife or people.

CAUTION: Be careful in handling medications since some drugs can cause harm if handled by people other than those to whom they were prescribed. Also, avoid crushing pills as some medications can be harmful in powder form.

NOTE: The preceding guidelines are for households and individual consumers only.

www.dontflushyourdrugs.net



Barbara Nuffer

It's hard to believe that a beautiful, dainty, maroon flower of the forest understory could have a nickname like "stinking Benjamin," but it does. In fact, this native plant, officially known as the red trillium, has a number of different common names,

Trilliums are members of the lily family with eight species found in New York.

all of which reveal valuable information about the plant's nature. "Wake robin," for instance, describes the plant's maroon flowers blooming early in the spring, like red-breasted robins returning from their wintering grounds. "Birthroot" was coined because Native Americans used a tea brewed from the roots to induce labor and, yes, "stinking Benjamin" refers to the flower's unpleasant odor.

The famous Swedish taxonomist Carl Linnaeus gave the plant the genus name "trillium" (from the Latin prefix "tri," meaning three) because it has three of each of the following: leaf, sepal, flower petal,

cells of the ovary, and ribs of the berries. Trilliums are members of the lily family with eight species found in New York. The red trillium thrives in cool, rich forests across the state. Occasionally, a white-flowered red trillium is found, which should not be mis-

taken for the larger-flowered white trillium (*Trillium grandiflorum*), the emblem of our northern neighbor, Ontario.

The red trillium is listed on New York State's Protected Native Plant List. It cannot be "picked, plucked, severed, removed, damaged, or carried away" without consent of the landowner. A more natural protection from picking is the nodding habit of the flowers, which tends to keep them hidden.

Usually, the fragrance of a flower advertises the pollen and nectar found within. The chemistry of each floral scent, as well as the flower's unique color scheme,

attracts certain pollinating insects. In the case of the red trillium, pollen is present, but not nectar. Carrion flies are attracted to two features of the flower that are reminiscent of decaying meat: the red color and the foul odor. These unique character-

istics ensure both pollination and the production of seeds. In addition, bumblebees also collect the flower's golden pollen.

In early spring, remember to look carefully around the forest floor for the distinctive three leaves of the red trillium. If your timing is right, you will find a garnet-colored treasure nodding its colorful head towards the ground. Just be sure to keep your nose a safe distance away from the distinctive fragrance and a possible bumblebee!

Barbara Nuffer works in DEC's Division of Air Resources in Albany.



Spreading perennial rye seed in high traffic areas helps maintain healthy sports fields.

Kevin Tronta

How schools are using green pest management alternatives

by John Razzano

Many school systems across the state are emphasizing alternative management methods for keeping bugs, weeds, mice and other pest problems out of cafeterias and off playing fields. In Nassau County, under the watchful eye of their teacher, first graders at Lakeville Elementary sweep up crumbs after a classroom snack that might otherwise attract insects and mice. In Rockland County, the North Rockland High field hockey team practices for a game as a groundskeeper carefully examines the sideline turf, deciding not to treat for grubs after counting only a few.

In both cases, the school systems involved are part of a growing movement that emphasizes managing pests with alternatives to pesticides. Working together with their school boards, administrators and staff, Great Neck School District on Long Island, North Rockland Central School District in the Hudson Highlands, and other school systems throughout the state are finding both people- and earth-

friendly ways of dealing with pest problems. They are at the forefront of a management approach known as integrated pest management (IPM), which started in the 1970s and emphasizes minimizing, or where possible, eliminating pesticide use. Using a wide array of both simple and sophisticated techniques, they are demonstrating that alternatives to pesticides can effectively prevent and control pest problems in even the most demanding situations.

Great Neck

Great Neck Central is a Long Island suburban district with around 8,000 students and faculty spread over five elementary, two middle and three high schools located on hundreds of acres of grounds. In 1986, the Great Neck School Board hired David Kincaid to be District Consultant for Health and Safety. Kincaid serves as a kind of health and safety czar. This is a high-level approach that gives him the authority to draft

district policy recommendations and, once approved by the school board, to follow through with action.

Once, when he was visiting his daughter's school, Kincaid noticed contractors were spraying to control insects.

Fields were mowed as needed rather than on a schedule, increasing turf density and blocking out weeds.

He could smell the insecticide as he walked the hall. "If I could smell insect spray, what were the kids breathing?" he asked. His first order of business was to end "spray first, ask questions later" contracts. Next, he hired an entomologist (bug specialist) who could provide a better understanding of the pests that needed to be managed. He began trying alternative methods, introducing an IPM pilot program in 1992.

After two successful years, the board of education voted in 1994 to adopt policies to use IPM methods and organic groundskeeping techniques that emphasize natural rather than synthetic

pest-management products. Each school now participates in a thorough inspection program to stop infestations before they happen. Maintenance staff learn to prevent infestations in school buildings by sealing cracks where insects

and rodents can enter, fixing leaks to remove sources of water, and cleaning up litter and food scraps that attract and feed pests. Synthetic fertilizers and chemical herbicides have been replaced with organic fertilizer, mechanical aeration, non-toxic pesticide products like corn gluten, and beneficial species of bacteria to fight weeds and grubs on school grounds.

Teachers adopted simple procedures for classrooms, like mopping up spills and sweeping up crumbs that attract insects. As teachers brought these sanitation rules back to their students, it wasn't long before the entire school was involved in

the program. "Education is essential," Kincaid said, "You are more likely to get people to do something differently if you can work within the system to persuade them that it's better. In the absence of such persuasion, most people don't think of their effect on the environment."

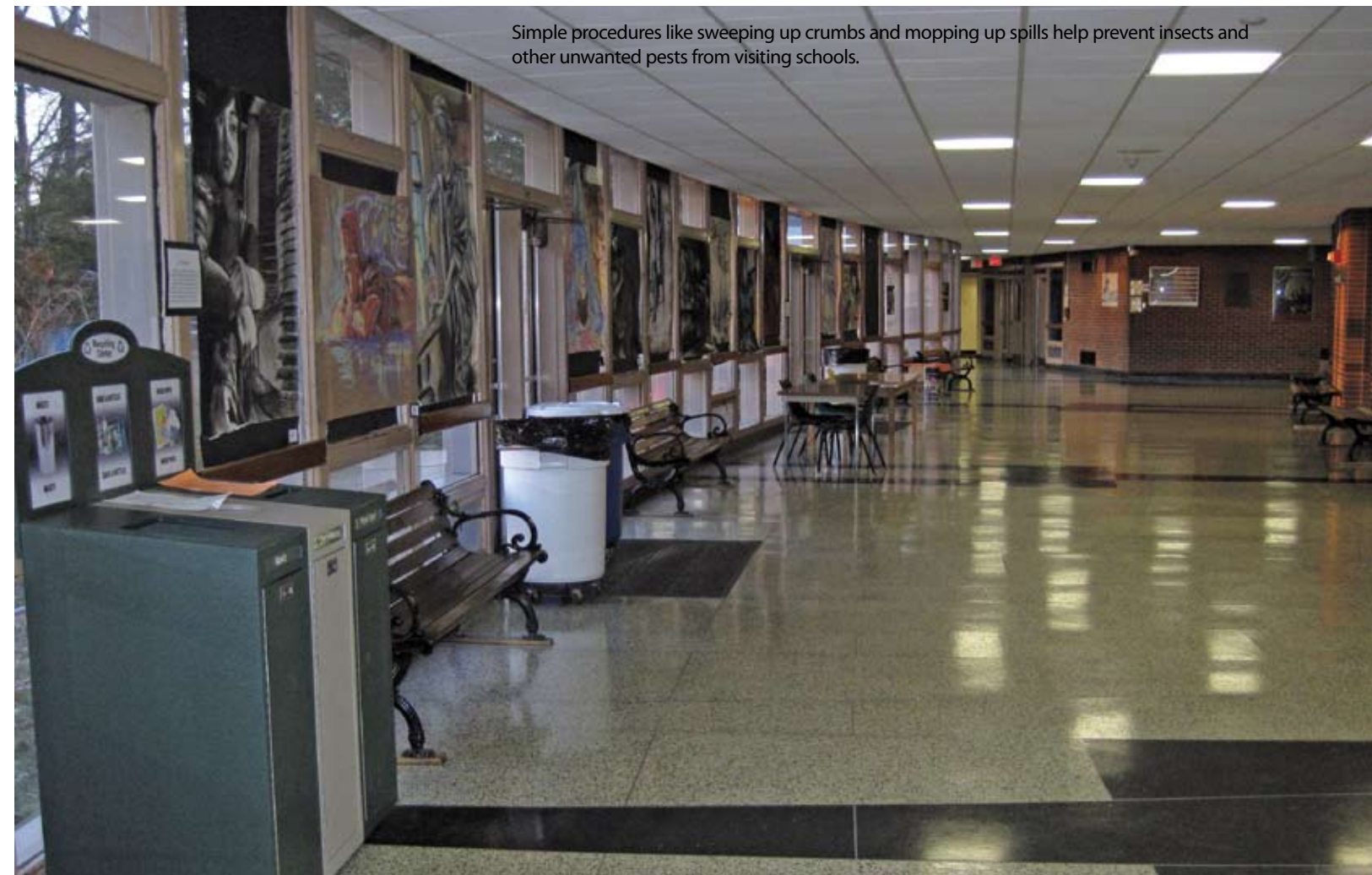
Since implementing IPM policies, pesticide spraying and fogging have been eliminated, and the district has far exceeded expectations for the program, all while holding the line on costs.

The Great Neck Breast Cancer Coalition recognized Kincaid in 2004 for "Dedication to Environmental Health." He is optimistic about the future. "Green consciousness is way ahead of where it was even five years ago," he said. "It's simple really. If you don't maintain a healthy school environment, you can't expect to have healthy children."

North Rockland

North Rockland Central is a suburban district in Rockland County with

David Kincaid



Simple procedures like sweeping up crumbs and mopping up spills help prevent insects and other unwanted pests from visiting schools.



Once Kevin Trotta began using greener techniques to prevent grub infestation, North Rockland's school athletic fields grew stronger and healthier.

Kevin Trotta

a high school, five elementary and three middle schools. Students and faculty combined number more than 9,000. Athletic fields take up more than 60 of the 325 acres of district grounds, and the surrounding communities of Haverstraw and Stony Point take their school sports very seriously.

More than 20 years ago, the district was struggling to maintain safe conditions on its playing fields. Conditions were at times downright dangerous for student athletes, who risked injuries from tripping on bare spots caused by intensive wear and infestations of insects and weeds. Field-maintenance staff would simply treat the symptoms, replacing damaged sod and using pesticides to control infestations. Despite their best intentions, the same problems would return year after year.

Then in the late '80s, the district hired Kevin Trotta as its head groundskeeper. Trotta calls himself an environmentalist who grows grass. A veritable "physician of the fescues" (tufted grasses), he combines a passion for sports with a desire to

find environmentally sustainable solutions to turf-grass problems. Describing his approach to pest problems, he said, "A doctor who prescribes only drugs to treat illness has his priorities backwards. He should be asking himself, 'How can I increase my patient's resistance to disease in the first place?' It's the same with pes-

Alternatives to pesticides can effectively prevent and control pest problems in even the most demanding situations.

ticides. Before you even consider using one, you should try to strengthen the grass so it can resist pests naturally."

With strong backing from district administration, Trotta proposed an IPM program for the district's athletic fields, but many in the community were skeptical that alternative pest-management methods would be effective. Gradually, results won them over. "You have to adjust everyone's expectations," he explained. "Community pride in your athletic fields is wonderful, but major league stadium standards are neither sustainable nor realistic at this level. Perfection comes at a high cost—ecologically as well as financially."

Trotta and his team of 14 other groundskeepers analyzed soil chemistry and adjusted its pH with lime to buffer acidity. The right grass seed for a north-eastern climate with good disease and drought resistance was selected. Fields were mowed as needed rather than on a schedule, increasing turf density and

blocking out weeds. Clippings were mulched back into the turf, providing natural fertilizer as they decayed. Grubs were carefully monitored and pesticide treatments avoided if possible. As a result, the athletic fields now have vigorous turf with strong roots that resist both pests and the punishing demands of school sports.

The North Rockland Central School District was recognized for all their hard work, receiving the 2005 "Excellence in IPM" award from Cornell University's New York State IPM program. Trotta himself is a recognized leader in IPM, counting among his many awards the 2006



Parents: Stay Informed

State Education Law requires public notification of pesticide applications. Stay informed of school pesticide use by looking for the following Section 409-h notification requirements:

- At the beginning of each school year, written notice regarding pesticide applications that may take place at the school must be given to all parents, guardians and staff. This notice must include information on how to register to receive advance notification at least 48 hours before each application, as well as the name of the person at the school to contact for more information.
- Schools must maintain an advance notification registry. Written notice to those on the advance notification registry must be sent at least 48 hours prior to pesticide application.
- A written summary of any pesticide applications that have been made must be provided at three specific times during the school year.

"President's Award for Leadership" from the Sports Turf Managers Association.

Higher Ed Also Goes Green

K-through-12 school systems aren't the only educational institutions seeking greener ways to manage pests. At the University of Rochester in western New York, Pest Control Manager Peter Castronovo leads an award-winning Pest Control Unit. This university community of more than 25,000 also includes 740-bed Strong Memorial Hospital.

The Pest Control Unit has been using IPM since 1995 and won Cornell University's 2007 "Excellence in IPM" award for, among other things, reducing liquid pesticide use from 400 gallons in 1994 to only 13 gallons in 2007.

Commenting on the university's IPM program, Castronovo said, "Key to our success has been the support of our program by the second-in-command at the university. We have also recognized that, to be done properly, least-toxic methods require a greater investment in education and training." The university has been able to greatly reduce pesticide use while also reducing pest complaints

and increasing satisfaction with their service. They do it by maintaining high sanitation standards, keeping buildings tight, and thinking outside the box when resolving pest problems, like when the Pest Control Unit used insect traps baited with orange soda to keep yellow jackets away from crowds at an annual campus festival.

Sometimes all that's needed to develop an alternative pest management strategy is a little creative thinking and some collaboration. As Kevin Trotta continues to spread the word about greener pest-management alternatives at North Rockland, he strives to bring horticulturists and environmentalists together to recognize their shared objectives. He offered a small example, recalling his response to a landscaper friend who was complaining about tree huggers. Taken aback, he simply asked him, "In our business, if we're not tree huggers, what are we?"

John Razzano is a contributing editor with *Conservationist*.

For more info:

Check out the following websites to learn more about using green pest management alternatives in schools:

Links for Schools and Daycare Centers on Pest Management Alternatives, NYSDEC:

www.dec.ny.gov/chemical/41822.html

Pest Management Through Integrated Pest Management, NYS Office of General Services:

www.ogs.state.ny.us/purchase/snt/awardnotes/7101001510can.htm

Stinging Insect IPM for Schools and Lawn Care Without Pesticides, Cornell University:

www.nysipm.cornell.edu/grantspgm/projects/proj01/comm/braband3.asp
www.nysipm.cornell.edu/publications/lawn_care/files/Lawn_Care_without_Pesticides.pdf

Integrated Pest Management in Schools, U.S. Environmental Protection Agency:

www.epa.gov/pesticides/ipm

School IPM, University of Connecticut:

www.hort.uconn.edu/ipm/general/schoolipm/nonchem.htm

California School Integrated Pest Management Program: www.schoolipm.info



Philip Kamrass/Times Union

Our goal was to outfit a few sturgeon with transmitters, to learn more about their habitat use and seasonal movement in the Hudson River estuary. While Atlantic sturgeon have been plying the mighty Hudson for centuries, we still know relatively little about them, especially about their life at sea.

We had set our nets near Hyde Park, knowing that here we would have a better chance of catching large fish. Atlantic sturgeon are anadromous, migrating from saltwater to spawn in freshwater, and this area of the Hudson is a well-known historic location for spawning sturgeon at this time of year.

Years ago, sturgeon were plentiful in the Hudson River estuary. In fact, prior to 1900, people caught large numbers of these huge fish, which were prized for their meat and caviar. They were nicknamed “Albany beef,” and were commonplace dining fare in New York’s Capital Region. Over time, Atlantic sturgeon numbers dramatically decreased.

Today, there are so few Atlantic sturgeon that they are protected. In New York, they are generally found in the deeper portions of the Hudson, sometimes as far upriver as Albany. Occasionally, someone will spot a large Atlantic

DEC photo



By affixing sonic tags and transmitters to sturgeon, biologists can track their movements.

Sonic transmitters allow us to follow a fish’s movements, hopefully shedding more light on habitat use.

sturgeon basking at the water’s surface. However, young sturgeon are rarely seen upstream of the city of Hudson.

To catch these majestic creatures, we use nets just like the fishermen did a century ago. We put the nets in the

water near slack tide, leaving them to sit for about two hours. When the water starts to flow in the opposite direction, it is time to retrieve the nets.

Reflecting on the success of our first net, we felt incredibly optimistic as we

STALKING STURGEON



By Amanda Higgs

“We have a sturgeon!” the biologist yelled as he continued to yank on the net. It was a warm, sunny morning in June and we were working on the Hudson River, hoping to catch Atlantic sturgeon. We had only hauled in about 15 feet of the 300-foot net when we felt the strong tug. Bubbles erupted in the water as the huge fish expelled air from its swim bladder on its way to the surface.

Everyone was excited when we caught that first glimpse of the fish tangled in the net—a six-foot-long male Atlantic sturgeon. Carefully working to untangle the fish, we were pleased to see three other sturgeon come to the surface, tangled in the net as well. Today’s efforts had paid off—four fish in one net, one a really large female that weighed 232 pounds and measured nearly seven feet long.

New York State Conservationist, April 2009

DEC photo



Prior to processing, captured sturgeon are held in a specially designed floating pen.

approached the remaining three set nearby. One by one, we pulled the nets out of the water, untangling several more sturgeon. Thirteen fish in all—this was a great day!

We placed the sturgeon in floating nets prior to outfitting them with transmitters. We have an on-board fiberglass tank that we use for tagging and can hold three fish comfortably. Pure oxygen is pumped into the water to keep the fish relaxed. The remaining fish stay in the floating pen hung over the side of the boat. In total we kept 10 fish for processing, releasing the smallest three because we ran out of room.

To protect the sturgeon during handling, we carefully lift each fish in a processing sling specially built for this project. Next, we measure and check each one for prior tags. Today, we have three sonic tags to implant, and seven pop-off archival (PAT) satellite tags. Sonic transmitters allow us to follow a fish's movements, hopefully shedding more light on the habitat use of mature Atlantic sturgeon in the Hudson River Estuary prior to, during, and after spawning. With these data, DEC hopes to identify and characterize specific spawning habitat in the Hudson



Biologists prepare to outfit this sturgeon with a transmitter.

DEC photo

Today, there are so few Atlantic sturgeon that they are protected.

River Estuary, and is interested in documenting the number of years between spawning events for both male and female sturgeon. PAT tags, on the other hand, enable us to understand the sturgeon's ocean migration patterns and identify congregation areas on the Atlantic coast.

All fish tagged with sonic tags were given names. In 2006, the fish were

named after Harry Potter characters. In 2007 it was Star Wars characters, and in 2008 we gave them our own "fishy" names. The three fish tagged this day (June 9, 2008) were: Stephen A. Superscutes, who was 165 cm long and weighed 90 pounds; Seamus PAT McTaggin, 182 cm long and 84 pounds; and Gilbert Nettingham, measured at 173 cm long and 112 pounds. All fish were released back to the water near Hyde Park and followed until they left the river.

We track the position of these fish with a mobile tracking unit, which is a boat equipped with hydrophones to detect the signal given off by the tag. We also have stationary submersible hydrophones that monitor the fish's movement past a position in the river.

It's interesting to follow the movements of the fish. Seamus PAT McTaggin was detected near Hyde Park (river mile 83) on June 12th, three days after he was tagged. Five days later he was found near Storm King Mountain, some 28 miles downstream "as the fish swims." On July 1st, he had moved a bit north to Newburgh Bay (river mile 60), and was

SUCCESS STORIES

During this study's three field seasons, we caught 142 sturgeon—10 confirmed females and 118 confirmed males. All but 17 of the fish were caught near Hyde Park and Rogers Point. The largest fish was the female mentioned at the beginning of this article—2.4 m long (more than seven feet) and 105.3kg (about 230 pounds).

In 2008 we recaptured two fish that were tagged in 2006. The fish were recaptured within 100 yards of where they were first caught two years earlier, and on nearly the same date (6/19/2006 and 6/11/2008). In analyzing the tracking data, we discovered that this appears to be a trend; the tagged fish generally return to the same spawning areas of the river on nearly the same date each year.

FISH FACTS

Sturgeon are prehistoric-looking creatures that have been around since before the dinosaurs. Instead of scales, five rows of large bony plates or shields (called scutes) cover the fish's leather-like skin.

Atlantic sturgeon are New York's largest and longest-lived freshwater fish. They can grow to be six to eight feet in length, weigh more than 200 pounds, and live to more than 60 years old.

Female Atlantic sturgeon reach sexual maturity at 18-19 years of age, when they are six to eight feet long and weigh more than 70 pounds. Males become mature at 12-14 years of age, when they are four to seven feet long.

Sturgeon are toothless. They use barbels (whiskers) to locate a variety of benthic (or "bottom") organisms, including worms, amphipods, isopods, midge larvae, plants, and small fishes, which they suck up with their tubular mouths.



James Clavon

detected leaving the river (Hastings on Hudson, river mile 22) on July 6th.

Gilbert Nettingham was detected on June 12th near Diamond Reef (upper Newburgh Bay, river mile 67). On June 17th, he was found near Storm King Mountain with Seamus PAT McTaggin. On June 30th, he was detected leaving the river (Hastings on Hudson, river mile 22).

Stephen A. Superscutes spent the longest time in the river. He was detected on June 12th near Diamond Reef (upper Newburgh Bay, river mile 67) with Gilbert Nettingham. Five days later (June 17th), he had swum south to Iona Marsh (south of Bear Mountain Bridge, river mile 45). On July 17th he had gone a little north and was found near Con Hook (river mile 49), where he was detected three more times during August and September. On September 24th and October 9th he was found near Iona Marsh again (river mile 45).

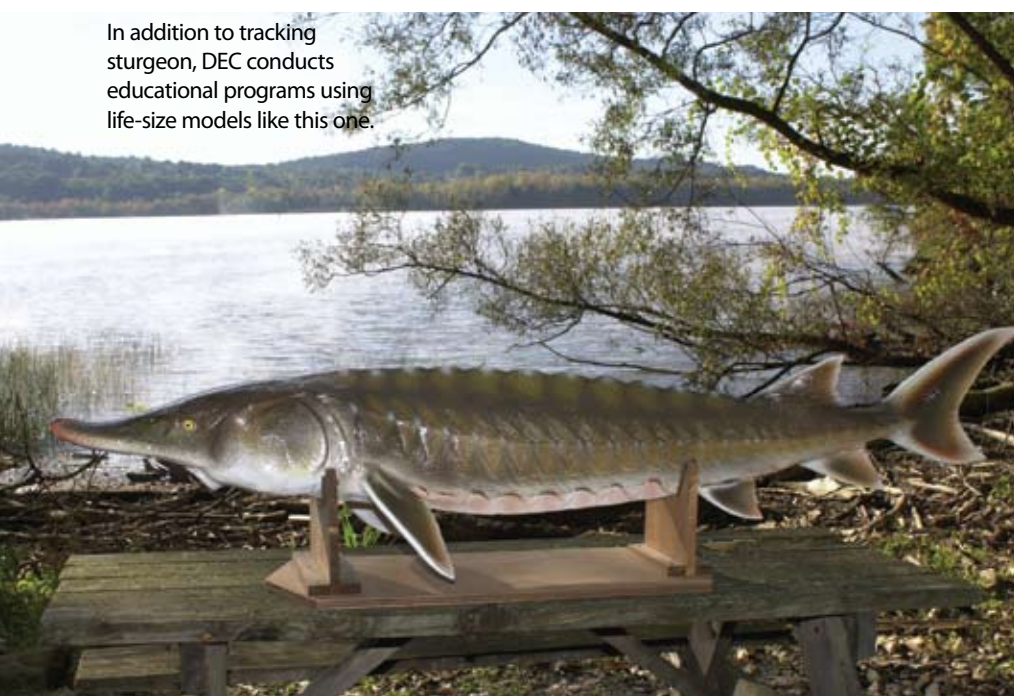
Since the tags' batteries are designed to function until at least 2012, we will return to the river each spring to search for returning fish. By following tagged

sturgeon like McTaggin, Nettingham, and Superscutes, we hope to gain the insight necessary to protect their populations, ensuring these magnificent creatures will be here for centuries to come.

Amanda Higgs is a fisheries biologist in DEC's Hudson River Fisheries Unit, Hudson River Estuary Program.

Author's Note: Many groups collaborate on sturgeon research, including the Hudson River Estuary Program, Atlantic States Marine Fisheries Commission, U.S. Fish and Wildlife Service, Wildlife Conservation Society, Pew Institute for Ocean Science, University of Florida, and the National Fish and Wildlife Foundation.

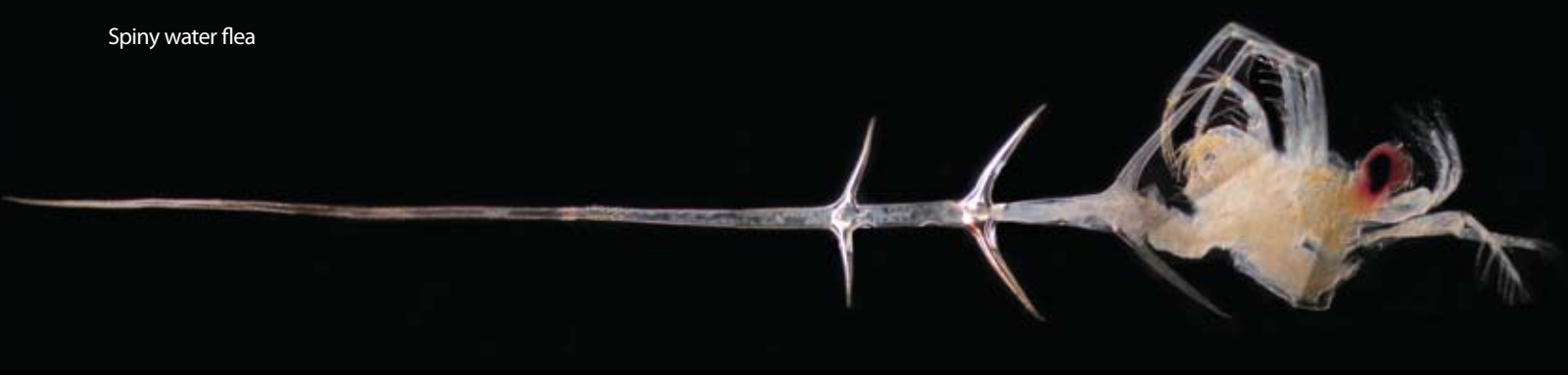
In addition to tracking sturgeon, DEC conducts educational programs using life-size models like this one.



Susan L. Shafer

Spiny water flea

Howard Webb



Spiny Water Flea Found

Last year, the spiny water flea (*Bythotrephes longimanus*), was found in Great Sacandaga Lake in the southern Adirondacks—the first confirmation of this invasive species in a New York water body other than the Great Lakes. The tiny crustacean pictured above is native to Europe and was first discovered in Lake Huron in 1984, most likely the result of ballast water discharge from ships traveling up the St. Lawrence Seaway. How or when it spread into Sacandaga Lake is unknown, but it is a threat to the lake's native species. The flea can grow from egg to full maturity in as little as two weeks, and feeds on tiny crustaceans and zooplankton that native aquatic organisms depend on for survival. In addition, their tail spines catch on fishing lines and muddle up fishing gear. Currently, the only way to limit the flea's impact is to prevent its spread. DEC recommends thoroughly inspecting and cleaning fishing and boating equipment, and drying or disinfecting equipment before using them in another body of water. For more information about the spiny water flea, see the US Geological Survey's Spiny Water Flea Fact Sheet at <http://nas.er.usgs.gov/queries/FactSheet.asp?speciesID=162>. For more information about invasive species, visit www.dec.ny.gov/animals/265html on DEC's website.

Environmental Excellence

The NYS Environmental Excellence Awards program honors businesses, not-for-profit organizations, governments (local, state and federal), educational institutions and/or individuals achieving environmental excellence through innovative and environmentally sustainable practices or partnerships. Previous award winners have made great improvements to New York's environment, including eliminating 2.01 million pounds of hazardous waste, recycling 324 million pounds of solid waste, and preserving 149,000 acres of land.

You are invited to get recognition for your efforts to solve environmental challenges! DEC is especially interested in projects that achieve significant environmental benefits by applying cutting-edge pollution prevention technologies; initiatives to make schools and businesses more "green;" energy conservation and green energy production efforts; waste reduction and recycling efforts; storm water management and watershed planning; environmental protection and restoration efforts; and land conservation. Completed applications must be postmarked no later than Friday, June 12, 2009. For more information, contact Michelle Hinman of DEC's Pollution Prevention Unit at (518) 402-9469, or email eeawards@gw.dec.state.ny.us. You can also visit the DEC website at www.dec.ny.gov and search "Environmental Excellence Awards."

Birders of the Future

Imagine traveling all across the state, trekking through dense woods and thick marshes, watching and documenting New York's birds, and all with people who appreciate and enjoy it as much as you do. The New York State Young Birders Club does just that, and much more. The club provides a community of friendship and fun for young people between the ages of 12 and 19 who have a passion for birds and the conservation of their habitats. Members enjoy field trips throughout the state, have access to a club website, and participate in other exciting activities. Members can also contribute to a quarterly newsletter filled with articles, artwork and photographs by the members. Visit www.nysyoung-birders.org for more information about this opportunity, and how to join.

photo courtesy of New York State Young Birders Club



New York State Conservationist, April 2009

Mercury of Concern in Bald Eagles

Supported by a grant from The Nature Conservancy, the BioDiversity Research Institute from Maine and DEC's Division of Fish, Wildlife and Marine Resources teamed up to check mercury levels in adult and nestling bald eagles throughout New York State. Biologists collected hundreds of blood and feather samples. Results indicated elevated levels of mercury in some eagles, particularly within the Catskill region. Mercury levels could be generally linked to areas with high mercury pollution histories, largely due to atmospheric deposition. Research supports the claim that the Catskills receive some of the

highest rates of atmospheric mercury deposition in the country. These high rates are the result of air pollution traveling from smokestack and coal-fired industries west of New York. Airborne mercury eventually returns to the earth in rain, snow and fog, and as a result, fish and wildlife are exposed to the element. Through their mostly fish diet, bald eagles accumulate mercury, which at elevated levels is known to have negative effects in other birds, like common loons. Thankfully though, no reproductive problems have yet been noted here due to mercury, and eagle chicks sampled outside the Catskill region did not show levels of concern. DEC will continue to monitor mercury periodically in the future.



James Clayton

Discover Green

To find ways to explore and learn about the environment, be sure to read DEC's Outdoor Discovery newsletter on our website. You can subscribe for free; just go to our website at www.dec.ny.gov/public/43355.html. And don't forget to visit DEC's Green Living pages at www.dec.ny.gov/public/337.html for tips on how to make environmentally conscious choices everyday.

Ask the Biologist

Q: During the past few springs, I've had a cardinal repeatedly fly into my windows. The bird sits in a tree or bush next to the house, and then periodically flies at the window. It does this three to four times a day. Is this part of its mating habits? Or is there another reason for this behavior?

A: Cardinals and robins, and probably other birds, see their reflection in a window and mistake it for a rival for their mate, or an invader of their territory. In the wild, the intruder is always driven off, but the window reflection keeps fighting back. Sometimes, after many repeated attacks, the window gets covered with bird "whitewash," and the bird stops attacking.

I have friends who are awakened each morning at 5 a.m. by this annoying habit. If you can eliminate the reflectivity of the window, the bird will stop the behavior. With the warmer weather, a window screen instead of the glass might work, as would hanging something in front of the window, such as netting, an outdoor banner, flag, or strips of ribbon.

—Frank Knight, DEC Environmental Educator

Changing Homes

I took this picture on the northern shore of Chaumont Bay off Lake Ontario. Could you confirm that it is a mink? She was moving five kits, I think due to the fact that higher water was invading her home.

Daniel Neave
Chaumont Bay, Jefferson County



You were lucky to get such an excellent and unusual photograph of a female mink carrying one of her young "kits." The female gently holds the kit in her mouth, without harm, as she moves the young from one location to another. Members of the weasel family, mink live throughout New York State, and are typically found in wetland habitats, including the edges of ponds or lakes. They eat a variety of animal foods, including muskrats, small rodents, birds, fish, frogs and invertebrates (e.g., crawfish). Mink breed during the winter (as late as mid-March). Females give birth to three to six kits in late April or early May. The kit in your photo is probably just a few weeks old. Mink frequently move from one den site to another, using several dens within their home range for shelter and raising their young. Most movements occur during the night, so this daytime photograph is especially interesting.

—Gordon Batcheller, DEC Wildlife Biologist

*See similar story on p.32

Have You Seen This Pin?

Can any of your readers shed some light on identifying the enclosed Fire Patrol badge? It measures 1¾ inches in diameter and I think it is of nickel and silver. On the back is the maker's name: C.G. Braxmar Co., 10 Maiden Lane, New York, NY. Any help will be appreciated.

Chester Smith
Altamont, Albany County



While I have personally never seen this badge, it dates between 1901 and 1911. In 1901, the Fisheries Game and Forest Commission was replaced by the Forest Fish and Game Commission. Then, the Forest Fish and Game Commission was replaced by the Conservation Commission in 1911, so the badge must date between 1901 and 1911. I would most likely guess that it is between 1908 and 1911 as this is when forest fire patrols intensified and the title of Patrolman was used. The title of Patrolman was replaced with that of Forest Ranger in 1912.

—Thomas Rinaldi, Dir. DEC Forest Protection & Fire Mgmt.
Editor's Note: if anyone has additional information about this badge, please let us know.

Behemoth Beaver

We received this photo of Greg Bree of Newark, NY, who recently caught this 70-pound beaver near Phelps, in the Finger Lakes Region. We wondered if it was common to find such a large beaver, so we asked one of our biologists, who said:

That's a large beaver by any standard! In New York, adult beaver range in size from about 35 to 70 lbs., so this animal is definitely at the upper end of the weight range. This beaver is likely at least four years old, the age when they typically reach their peak weight. The accurate age determination of a beaver requires an X-ray of its jaw or the analysis of its teeth to count "cementum annuli" (like counting growth rings of a tree). Beaver live throughout New York State and the recovery of their populations in the early 1900s is one of wildlife conservation's greatest success stories. Beaver enhance and improve wetland habitats by flooding marshes and meadows, but this behavior may also cause damage to roads, homes, or farms. Trapping is an essential part of New York's beaver management program and each year New York trappers take between 15,000 and 20,000 beaver.

—Gordon Batcheller, DEC Wildlife Biologist



Bear in Mind

We received this photo from a reader. The photo was captured last June by a trail camera located near Howard in Steuben County. The sow had four cubs with her—one was blonde.

Clearly, the oddity in the photograph is the blonde-colored cub. While more than 99% of New York black bears exhibit a black coat color, some bears are occasionally seen with color variations ranging from brown to cinnamon to blonde. Bears with these color variations are still black bears (*Ursus americanus*).

What strikes me about this photo, however, is that it appears

New York State Conservationist, April 2009



these bears are being fed. The intentional and unintentional feeding of bears is unwise and can be illegal, which was the case in this scenario. Bears learn by association. If someone feeds bears at their house, bears learn to associate

houses with food. If bears get birdseed, garbage or food scraps at one house, they look for that food source at other houses. This all leads to unwanted visits at other homes and camps and can result in the bear entering homes which is potentially dangerous. Please contact the nearest DEC office if you see anyone feeding bears or bears feeding close to any buildings.

—Jeremy Hurst, DEC Wildlife Biologist

Holey Fish

While fishing the East Branch of Owego Creek, I caught a brown trout with a large, red hole in its back. I wasn't sure I wanted to touch it, but the fish put up quite a fight and didn't seem bothered by it. Can you tell me what might have caused the hole? Could it have been a heron?

Bob Fairbrother
Vestal, Broome County



Based on the photos you sent, I would agree that the most likely cause of the injury was a heron looking for a meal. We sometimes see this kind of injury in fish at our hatcheries, where fish-eating birds like herons are quite common and can be a problem. Depending on the severity and location of the wound, a fish may or may not survive. In this case, the wound looks pretty serious, and the fish most likely would have eventually succumbed to the injury.

—Ed Woltmann, DEC Fisheries Biologist

New York State Conservationist, April 2009



Creative Catch

I took this picture of a sharp-shinned hawk that has been stalking my feeder. One day I noticed that the birds seemed to be hitting my window a lot, and I couldn't understand why. One really hit the window hard, so I decided to go and see if it was okay. To my surprise, this is what I found, and it all made sense to me why the birds were hitting my window. Since that day, I've seen the hawk swoop in at least once a day to try to catch a meal, and it succeeded at least three more times. I know they have to eat, but he kind of cheats. When he swoops, he scares the birds, which then fly into my window. Then he's right there on top of them. Just thought I'd share this story with you.

Brenda MB. Todd
Bath, Steuben County

Thanks for sharing your great photo and story of the opportunistic hawk. The sharp-shinned hawk seems to have found an ample food source in your yard. Both sharp-shinned and the similar, larger Cooper's hawk are accipiters, a group of hawks with short wings and long tails. They can easily maneuver in yards and woodlands and are well adapted to catching smaller birds. The downy woodpecker in your photo gives a ready size reference to help identify this hawk as a sharp-shinned.

Birds often fly into windows, and sometimes are injured or killed by the collision. Some methods to prevent that are to make the window more visible to the bird (see Ask the Biologist). As you noted, the hawk needs to eat too. We put out feeders with seeds for the smaller birds, and attract them to our yards. In turn, the presence of the birds attracts the hawks. Such is the way of nature.

—Scott Stoner, DEC Research Scientist

LETTERS

No Trespassing!

I thought you and your readers might enjoy this photo. As I was hiking to Cliff and Redfield near Mt. Marcy, I stopped to rest at the Flowed Lands lean-to and encountered this little fellow. I guess he wasn't too happy I was taking such a long break on his turf!

Barbara Northrup
Albany County



Write to us

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or e-mail us at: magazine@gw.dec.state.ny.us



REVIEW by Craig Thompson

Another Day, Another Dollar: The Civilian Conservation Corps in the Catskills

by Diane Galusha

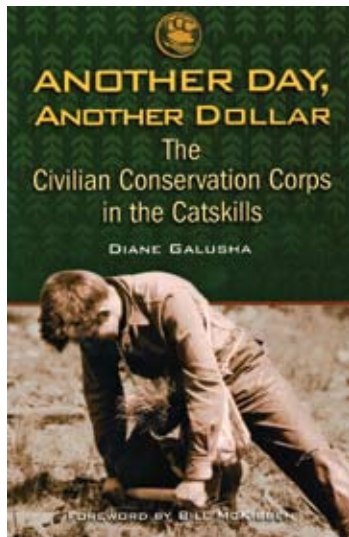
224 pages, \$16.95

Black Dome Press; Hensonville; 2008

www.blackdomepress.com; (518) 734-6357

History, said the wag, is a trumped-up fable about something that never happened, told by someone who wasn't even there. Sad to say, when it comes to the Civilian Conservation Corps (CCC), there are fewer and fewer among us who were indeed there (1933-42). But thankfully Diane Galusha has found several, and has faithfully preserved their vivid remembrances in *Another Day, Another Dollar: The Civilian Conservation Corps in the Catskills*. And, as Galusha's treatment ultimately brings home, their story is indeed the stuff of fables.

In painstakingly sifting through arcane archival sources, Galusha deftly teases out many fascinating stories about 11 selected Catskill region CCC camps, weaving in delicious first-hand accounts from the enrollees themselves, all richly embellished with excellent photo documentation. And though her milieu is the CCC program in the Catskills, Galusha carefully highlights camps that represent almost every type of CCC work in New York—the bug control camps at Boiceville and Deposit, the soil conservation camp



at Gallupville, reforestation camps at Masonville and Ten Mile River, to name just a few—thus providing by extension a fairly accurate picture of CCC operations throughout the entire state.

When camping and tramping throughout the Catskill region, it is virtually impossible not to bump up against CCC work projects, which were built to endure and are still operative today. But the camps themselves were mere stick shacks not intended for long-term occupation. Thanks to Galusha's tireless bird-dogging, actual locations of these camps are pinpointed, and many extant original structures identified, so those of us who weren't there can at least go there.

It is difficult, considering the absolutely astonishing accomplishments which Galusha tallies, to overstate or exaggerate just how significant the CCC program was. Not only did it advance the conservation of New York's precious natural resources, but it also promoted the physical, emotional and intellectual development of New York's 250,000 enrollees, and the socio-economic welfare of the many families and communities touched by this heroic initiative. Considering the plethora of primary material scattered about in public (and, ostensibly, private) collections, it is truly unfortunate that, save for a solitary roadside marker here or a spartan monument there, there is no grand communal locale or definitive totem commemorating New York State's considerable CCC presence. But until then, Galusha's contribution does nicely indeed. Published during the 75th anniversary of the CCC program, *Another Day, Another Dollar* is a compelling read and a fitting and most worthy tribute.

Craig D. Thompson is Director of DEC's Five Rivers Environmental Education Center in Delmar, site of a former CCC Camp (S-72) from 1933-36.

New York State Conservationist, April 2009



On Patrol

Real stories from Conservation Officers
and Forest Rangers in the field

Taboo to Shoot a Moose—Essex County

In October 2008, ECO John Blades and Investigator Ken Bruno were alerted to a hidden moose carcass in the town of Keene. Forest Ranger Charles Platt had provided tips he received from concerned citizens, so ECO Blades and ECI Bruno were called. After a brief investigation, they charged two previously convicted felons with illegally killing a moose. According to ECOs, one of them shot the moose, and the other assisted with butchering and transporting the hind-quarters. Today's moose population in New York State numbers only in the hundreds. Killing one is a misdemeanor offense with a possible penalty of up to \$2,000 in fines, and up to one year imprisonment. One defendant pleaded guilty in December and was fined \$1,000. The other originally pleaded not guilty to the same charge, but changed his mind when offered a deal with the district attorney. In lieu of a trial, he agreed to enter a guilty plea, pay the maximum fine of \$2,000, and spend 30 days in jail.



ECO John Blades with the moose carcass perpetrators tried to hide.

At Least the View Was Nice—Herkimer County

One frosty evening in early October 2008, Forest Ranger Luke Evans received a call at the Stillwater Reservoir Ranger Headquarters. Seven friends left remote community Beaver River Station to hike up Burnt Mountain in the Independence River Wild Forest to appreciate the view and fall foliage. At the end of the day,

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

though, only four of them came back. Ranger Evans arrived at the scene, conducted interviews and organized a search. Searchers located a copy of the hikers' planned route, and so had a pretty good idea where the lost individuals might be. Taking a local resident to assist him, Ranger Evans followed a compass bearing up the mountain. They called out to the missing hikers as they climbed and near the top they heard faint cries. A couple of signal shots from Ranger Evans elicited a chorus of shouts for help. The three missing friends were found huddled around a small fire they had built when they wandered off the trail in the dark. After everyone had rested and had a quick snack for energy, the group was escorted off the mountain and back to their camp. Everyone was a little cold, tired and sore, but otherwise unharmed.

Rabid Fox Bites Youth—Livingston County

In March, ECO Brian Wade responded to a call that a teenager was bitten on the leg by a fox. After making sure that the youth was sent to the hospital, ECO Wade attempted to track down the fox, knowing that finding out what was wrong with it would help doctors decide on the proper treatment. ECO Wade found the fox in a nearby brush pile, clearly suffering from some sort of disease. Noticing the approaching officer, the fox charged out of the brush and tried to bite him. The fox was euthanized and submitted to the Livingston County Health Department. Testing proved the fox was suffering from rabies, and as a result, the teenager received proper medical treatment for the bite.

Ask the ECO

Q: Do I have to carry my hunting, fishing or trapping license while engaged in these activities?

A: Yes, you must have your license on your person while exercising any privilege of that license. You are also required to exhibit the license on demand to any police officer, peace officer or owner, lessee, or person in control of the lands or waters on which you are present.

So, take a few extra moments to make sure you have your license and all appropriate tags before you leave home, and then enjoy your time afield.

Back Trails

Perspectives on People and Nature

Family Affair

by James Getman

It was the third Saturday of spring turkey season in New York. My grandson, Josh, and I were enjoying another beautiful day in the woods. We sat along the edge of an old logging road that runs down one side of my hunting property. Josh was only ten years old, but had gone with me on turkey hunts for several years. In fact, the first year he came bow hunting with me, I had to modify a tree stand for him because when he sat, his feet didn't touch the platform!

On that Saturday, my son Cory (Josh's dad) was about 100 yards farther down the road. He was softly making turkey calls every 15 or 20 minutes. We waited quietly for any noise or movement in the woods.

Suddenly, Josh poked me and pointed across the way. There was something small moving along the stone wall on the opposite side of the road. It was moving in our direction, but was still too far away to tell what it was. As it got closer, I realized it was a mink and Josh noticed something hanging out of its mouth. When it was within 10 yards, I could see that it had a kit in its mouth. Almost directly across the road from us, the mink sat up and looked around to see if the coast was clear. When she was satisfied, she disappeared into a gap between the rocks of the wall. A few seconds later she emerged again, minus the kit, and scampered back down the wall toward where she came from. As we sat there discussing what we had just witnessed, she returned with another kit and went into the wall again. The scene



James Getman

Sharing his passion for the outdoors with his family, including grandsons Josh, Lucas, and Connor, has always been important to the author.

was repeated twice more, but before she entered the wall with the fourth kit, she stopped and looked around one more time to check the area. That was the last time we saw her.

I had never seen anything like it, but had heard that some animals move their young if they sense danger.

I told Josh I had never seen anything like that, but had heard that some animals move their young to different locations if they sense danger, or to avoid predators.

When the morning's hunting was over, Josh excitedly told his dad about our experience with the mink and how, next time, we should bring a camera. He showed Cory where the mink had gone

into the wall, and we headed to the car for lunch.

On the walk back to the car, I felt blessed to share these experiences with my son and grandson. Nature's example provided me with amazing insight on the importance of family.

Besides, can you think of a better way to spend a beautiful spring morning?

James Getman is a retired metallographer. He lives in Schoharie and enjoys hunting and fishing with his son and three grandsons.

Susan L. Shafer

Got Trees?

The Saratoga Tree Nursery has been offering tree and shrub seedlings for sale for conservation planting for more than 100 years. It is located just south of Saratoga Springs, and is comprised of 250 acres divided between two locations. The nursery offers more than 50 species of tree and shrub seedlings. They are grown on the nursery's grounds or are started in a safe environment inside one of the many greenhouses.



DEC photo

Arrowwood (*Viburnum dentatum*) is one of the most distinctive-looking landscaping shrubs. New shoots grow extremely straight and were once prized by Native Americans for making arrows. The abundant blue to purple berries are a favorite of many bird and wildlife species, and are an important food source for migratory birds. Because of its handsome appearance and durability, arrowwood makes a beautiful ornamental shrub on moist sites.



James Clayton

Osage Orange (*Maclura pomifera*) is a new addition this year. It is a dense-wooded tree that produces a grapefruit-sized fruit resembling a small chartreuse human brain. They are attractive to squirrels, repel roaches and are definite conversation starters.

So make your yard more wildlife friendly, start a Christmas tree farm, plant a windbreak, or create a forest on your property.

Just visit www.dec.ny.gov/animals/7127.html or call the nursery at (518) 587-1120 for more information.



See page 17

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