

Great Gray Owls | Allegany Nature Pilgrimage | Invasive Plants

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Studying
BEARS

NEW YORK STATE Conservationist

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Andrew M. Cuomo, Governor of New York State

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Dear Reader,

One of DEC's core missions is to encourage people to enjoy the outdoors, whether it's hiking, hunting, kayaking, cross-country skiing, or simply taking time to observe the natural beauty all around us. We know that an informed citizenry is more likely to care for, and protect, those things they appreciate.

This issue of *Conservationist* highlights many options for individuals and families to explore nature, such as learning about fish raised at the Caledonia

Hatchery (pg. 22), or participating in exciting outdoor events like the Nature Pilgrimage held at Allegany State Park each spring (pg. 18). For outdoor enthusiasts, the range of opportunities is endless, regardless of whether you are an expert or novice.

Travel along with DEC scientists as they visit a bear in its den to change its radio collar (pg. 6), or take a trip to view birds and amazing scenery at the Washington County Grasslands Wildlife Management Area (pg. 4).

Many of the magazine's readers are already outdoor enthusiasts, and they recognize the importance of being strong stewards of our environment. In this issue, we highlight some organizations who have demonstrated outstanding leadership and commitment to protecting our environmental resources and promoting sustainability—making them worthy recipients of DEC's Environmental Excellence Awards (pg. 14). As we honor them, we also express our gratitude to all our active partners, including individuals, families, and organizations committed to ensuring New York is home to a healthy and accessible environment.

Whether you enjoy passive recreation, are a citizen scientist (pg. 11), or are one of the millions of anglers, hunters, campers, and outdoor enthusiasts who enjoy natural treasures, I hope you will continue to take advantage—and protect—the amazing resources the Empire State offers. Opportunities abound all around us.

Our mission at DEC is to “conserve, improve and protect New York's natural resources and environment, and to prevent, abate and control water, land and air pollution...” We share this mission with all New Yorkers who truly care about our environment, and look forward to working together—locally, nationally, and globally—to achieve our environmental goals.

All the best,

Basil Seggos, Commissioner

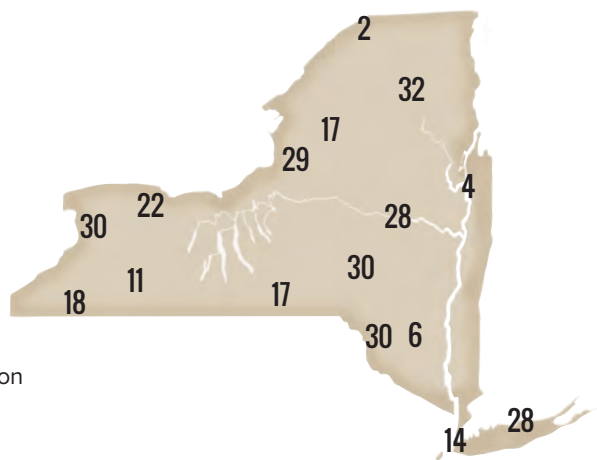




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for Kids!

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Pam Monacelli



Pam Monacelli



Ryan von Linden

Forest PHANTOM

By Dave Nelson



Ryan von Linden

Every few years, birders in New York are treated to the spectacle of a visiting great gray owl (*Strix nebulosa*), as was the case last winter.

Larger than the more common and more familiar great horned owl, great grays can be identified by their size, coloration, and lack of ear tufts. As their name would suggest, great grays are both large and primarily gray, although they do sport a good bit of white, black, and brown. Oversized faces make their yellow eyes appear small. A white bow tie with a black center lies just under the beak.



Laurie Dirks



Pam Monacelli

Species Spotlight:

GREAT GRAY OWL

- **LENGTH:** 2-2½ feet
- **WINGSPAN:** 4½ feet
- **WEIGHT:** 2-3 lbs.
- **RANGE:** Circumpolar; in N. America, boreal forests from Alaska throughout Canada east to Quebec. Occasionally strays southward in winter months
- **EATS:** small mammals, chiefly voles. Can hear animals running underneath snow
- **COOL FACT:** Facial disks and asymmetrical ear openings help in locating sound



Laurie Dirks

Pronounced facial disks funnel sound to asymmetrical ear openings, improving a great gray's ability to locate a prey item by sound. In fact, they are known to be able to locate a mouse or vole *underneath* significant snow cover. Most active at twilight, great grays feed almost exclusively on small mammals, which they swallow whole. Occasionally, they will take larger prey items.

As is true of almost all owls, finely fringed flight feathers produce nearly silent flight, allowing an owl to sneak up on unsuspecting prey. From a post or branch, a great gray will watch—and listen—for the slightest movement. When they sense a mouse or vole is available, they will silently lift off, approach the rodent, and then fold their wings and dive bomb into the snow, spreading their talons to maximum extension and bringing their feet forward at the last instant. If they don't catch the unsuspecting mouse at first stab, they can close off escape routes with their wings and feel around the crushed snow tunnels until they do.

Almost literally balls of fluff, great grays are North America's largest owls, standing nearly two feet in height, yet they weigh only two pounds. Denizens of northern boreal forests, great grays are circumpolar in distribution. In North America, they are found in Canada and the Arctic, from Alaska to Quebec, through the Pacific Northwest to the Sierras and the Rockies through Idaho and Montana.

In New York, they are only rare visitors, perhaps fleeing a collapse of rodent populations in their native northern climes.

If you'd like to see a great gray owl, you must be patient, or live far to our north. They drift southward into New York only every few years, and their stays are fleeting. This infrequency is balanced by a conspicuous appearance, and relatively tame behavior, so when one does find its way to our area, the birding world quickly lights up with enthusiasm.

To learn more about great gray owls, visit allaboutbirds.org, Cornell Lab of Ornithology's great medium for learning about birds and for finding out what other bird fanciers are seeing, and where. And check out the article *I Have Seen the Great Gray Owl* from the December 1979 *Conservationist*, available on our website www.conservationist.org.

Lifelong bird fancier **Dave Nelson** is editor of *Conservationist*.

WASHINGTON COUNTY GRASSLANDS WILDLIFE MANAGEMENT AREA

By Jed Hayden

Just east of the Hudson River in Washington County, you will find one of the last large grasslands remaining in eastern NY, and one of a very few that is protected from development. Historically used as agricultural land, the Washington County Grasslands Wildlife Management Area (WMA) consists primarily of open grassland habitat. The WMA provides vital habitat for numerous species of concern; although it is best known for harboring wintering short-eared owls and northern harriers, the site is also busy in spring and summer supporting many other avian inhabitants. While birds are the main attraction, the grasslands, stream, small wetlands, and forests support many types of wildlife. In addition to world-class birding, visitors are greeted by panoramic, pastoral views of Washington County and Vermont.

Visitors are fortunate to be able to see rare birds almost any time of year. The most popular attractions are the raptors that overwinter on the area. Short-eared owls (state endangered) can be seen hunting for mice and voles in fields from November through April. Large, foraging flocks of songbirds like snow buntings and horned larks are present throughout the winter, and snowy owls are occasional residents. Rough-legged hawks

are common and can be seen perching on trees and utility poles in winter. Northern harriers (state threatened) can be viewed year-round. In spring they nest on the WMA, and in winter they often stay until deep snows reduce their ability to hunt.

Spring is also a busy time at the WMA. Flocks of bobolinks return every May to begin their mating rituals. Following soon after are Eastern meadowlarks, grasshopper sparrows, savannah sparrows, upland sandpipers (state threatened), and Henslow's sparrows (state threatened), which nest on the ground in grassy areas. American kestrels, Eastern bluebirds, and tree swallows make use of nest boxes installed by DEC. Wood ducks, mallards, and geese are found around Dead Creek and its surrounding uplands. Great-blue herons, killdeer, American bitterns, and red-tailed hawks are among dozens of additional bird species that call the area home at some time during the year.

White-tailed deer, eastern cottontails, and woodchucks are common residents that can often be seen foraging in fields, while coyotes and red and gray foxes stalk their prey. Red and gray squirrels share woodlands with predatory fishers. Small mammals including voles, chipmunks, and mice are important prey for raptors and terrestrial (ground-dwelling) predators.

Laurie LaFond



The area provides ideal roosting and foraging habitat for short-eared owls.



Short-eared owl



Female bobolink

Friends of the IBA



Volunteers install a nest box

**LOCATED NEAR FORT EDWARD
IN WASHINGTON COUNTY;
SIZE: 286 ACRES**



Site Features



NOTES: Visitors will find parking, a newly installed kiosk and sitting area, and a viewing platform. Opportunities abound for hiking, birding, photography, hunting and trapping. Management and research play important roles in the WMA. Site managers mow fields in late August, and DEC conducts research on raptor and small mammal ecology here.

There is an accessible viewing area located nearby. The Friends of the Washington County Grasslands Important Birding Area's Alfred Z. Solomon Grassland Bird Viewing Area is located at 160 County Route 42 in the Town of Fort Edward. See: <https://www.ibafriends.org/>



TRAILS: A ½-mile trail that begins at the parking area leads to a new observation deck, which provides great views and birding opportunities. Parking along Fitzpatrick Road provides an opportunity for visitors to see owls and hawks in the winter.



DIRECTIONS: The parking area to access Washington County Grasslands WMA is located on Blackhouse Road in the Town of Fort Edward. From the Village of Fort Edward, take U.S. Route 4 south and turn left onto Blackhouse Road. The DEC parking area/trailhead is located approximately 1.5 miles on the right.



CONTACT: Call DEC at (518) 623-1200 or write to NYS DEC, 232 Golf Course Road, Warrensburg, NY 12885. Also check out www.dec.ny.gov/outdoor/97661.html

Note: DEC strongly encourages all visitors to safely observe birds and other wildlife from a distance. Trespassing on private land is illegal, as is harassing wildlife. Repeated disturbance of wildlife can diminish their health, especially during periods of cold and snowy weather.

The WMA supports populations of several species of amphibians and reptiles. Spring peepers, green and pickerel frogs, and American toads are common residents, and can be heard calling in the spring and summer. Snapping and painted turtles sun themselves along Dead Creek, and the occasional wood turtle can be found in the fields. Garter, northern water, milk, and smooth green snakes have all been observed at the WMA.

Recreational opportunities abound at Washington County Grasslands. The area has become a premier year-round birding destination. Wild turkeys, eastern cottontails, and white-tailed deer attract hunters to the WMA in October and November. DEC also releases ring-necked pheasants prior to the hunting season. Furbearer trapping is allowed, and seasons generally run from October through March.

With so much to see and do at any time of year, consider a visit to the Washington County Grasslands—one of New York's premier watchable wildlife sites. You won't be disappointed.

Jed Hayden is a wildlife biologist in DEC's Warrensburg office.



Red fox



Painted turtle



Enjoy world-class birding.



In Search of BLACK BEARS

By Eileen Stegemann

That's a bear den? I mean, where's the cave or the deep hole in the ground? This was little more than a small depression with some overhanging shrubs. How could that possibly provide enough protection to a sow, let alone newborn cubs, from a cold, harsh New York winter?

I was standing on the edge of a farm field in Ulster County. A dozen of us were there as part of DEC's bear monitoring program: several biologists, technicians and staff, along with the landowner and his family. I was extremely excited to be able to witness this, and was hoping to get a close-up view (and maybe even a touch) of a bear cub. Having begun my career as a DEC fish and wildlife technician, I was thrilled to be back in the field.

The day started with a briefing on where we were going and what the wildlife experts expected to happen. Matt Merchant, the bear biologist for the region, has been visiting bear dens for more than 20 years, collecting data on their health and the number of cubs that are born. DEC uses this data to keep track of the size and condition of the state's expanding bear population and for determining proper management strategies. Matt, along with wildlife technician Katy Allen, had already visited today's intended site, noting its exact location and planning the best approach.

As they gathered their gear, I couldn't help but think it looked like we were going on a cross between an expedition and a medical field visit. A dart gun, jab stick, tarp, netting, VHF collar, ear tags, pliers, a box of disposable gloves, a first aid kit, and a cooler of medicines were just some of the supplies. While our team leaders collected and packed everything, they gave us a brief description of how we would use the gear. It was fascinating, and I was looking forward to seeing these experienced wildlife experts in action.

When we arrived at the site, the biologists double-checked their equipment and carefully measured and loaded the correct amount of anesthetic drug into a dart. As a precaution, they asked everyone to stay near the vehicles while they went to the den. This was to prevent spooking the sow—so they could properly anesthetize and safely handle



Bear den under some brush

Species Spotlight:

BLACK BEAR

- **LENGTH:** 4-5' long; stands 2-3' at the shoulder; up to 6' tall on hind legs
- **WEIGHT:** Females 150-250 lbs.; males 200-600 lbs.
- **CUBS:** Born in January, ½ pound; stay with adult female until second summer
- **RANGE:** Adirondacks, Catskills, southwestern NY
- **EATS:** Omnivorous; eats plants, grubs, roots, insects, small animals, berries, raids trash cans and bird feeders
- **COOL FACT:** Dens from December through March in rock crevices, under tree roots and brush piles, in hollow logs



The author has a quick photo taken with Wildlife Technician Melissa Fadden who is holding the sleeping cub.

her and her cubs—and to keep everyone (i.e., we novices) safe. Black bears are not true hibernators and can awaken quickly.

Once the sow was darted, Matt would signal us to join them. Then they would weigh and measure the sow and cubs, and give them ear tags. The sow would also receive a radio collar to allow biologists to track her future movements.

Wildlife management is an inexact science, and not everything goes according to plan, which quickly became apparent when we spotted the sow dashing away with the biologists in pursuit. A few minutes later, several members of the team returned and gave us the “all clear” to come down to the den.

I was surprised by the den; it looked like it would afford little protection from the elements. One side was completely open. When I asked about it, I was told that black bear dens come in a wide variety of shapes and sizes. While the ideal den might be a cave-like structure, often times a bear just has to make due with what's around. In fact, I learned that some bears will literally just lay down in a small depression or next to a fallen tree to spend the winter. Talk about tough.

The single cub that was in the den was now being held by one of the technicians to keep it warm. It was surprisingly subdued, seemingly unbothered by the situation. It curled up against her body, and someone offered up their fleece to wrap around the cub for additional warmth. It apparently liked that, as it immediately burrowed under the jacket and promptly fell asleep.

We could hear the other team members in the woods and surrounding fields calling to each other as they tried to locate the sow. They later explained that since she had been darted, they wanted to track her to ensure she was okay, and hoped to weigh and measure her before resettling her in the den with her cub.

As we waited for them to return, we all took turns peeking at the cub, making sure not to disturb it too much. When it opened its eyes, I was struck by the fact they looked blue. I was also fascinated by the cub's rather long, sharp claws, which looked like they could inflict some damage even at this young age (about 6 weeks old).

Everyone was wearing rubber gloves to protect us and the cub. We didn't want to inadvertently transfer potentially hazardous pathogens onto the cub, nor did we want to pick up anything she might be carrying. It's a great precaution and one we all took seriously.

Chatting with my fellow volunteers, I learned the landowner's grandson had discovered the denning bear. He described to me how he and a friend had been hunting rabbits along the then snow-covered brush line, when he heard a soft growl come from a pile of bent-over brush he had just kicked. Assuming it was a raccoon or some other smaller critter, he walked around to get a better look and was surprised to see the sleeping bear. Needless to say, he and his friend quickly left the area and told his grandfather, who reported it to DEC.

When it opened its eyes, I was struck by the fact they looked blue. I was also fascinated by the cub's rather long, sharp claws, which looked like they could inflict some damage even at this young age (about 6 weeks old).

While we were chatting, Katy returned to the den to start the workup on the cub. After giving it a quick once over and noting its sex (female), she placed the cub in a small sack suspended from a digital scale. The readout said 6lbs 8oz. Next, a technician held the cub while Katy used a tool (similar to a hole punch) to

securely attach a light blue tag through its ear. The cub let out a quick cry, but then acted like nothing had happened. I was amazed how calm and content it was; we were able to take turns keeping her warm while we waited for the others to return with the sow.

I asked if the cub's ear tag, or a radio collar on an adult, caused any problems for the animals, and Katy didn't hesitate to say no. She explained how the tags were important visible clues as to which bears had already been handled, and therefore counted in the population, and that the radio collars allowed the biologists to track the movements of the bears. This provides valuable information on the size and health of the state's bear populations. Katy noted that while the tag may seem a little large now, it wouldn't be long before the cub grew—the tag's size made sure it would still be visible when the cub matured.

Robin Kulper



Biologists use radio collars like this one to help track a bear's movements.

Robin Kulper



Weighing the cub

Cubs are given ear tags to help identify them later in life.



Robin Kulper

A short time later, Matt and the others emerged from the woods, a bit scratched up from moving through the prickly underbrush. They were unable to locate the sow, speculating that perhaps the dart hadn't properly ejected the drug and she had run farther away, or was hiding someplace waiting for us to leave. So to err on the side of caution, we quickly gathered all our gear, placed the cub back in the den, and left.

While I was a bit disappointed I wouldn't be able to watch them work on the sow, I was happy to see how conscientious they were about minimizing our impact on the bears. On our way to the cars, I asked Matt about the sow and about leaving the cub there. He explained that the biologists would come back later to check that she had returned. It was reassuring to hear.

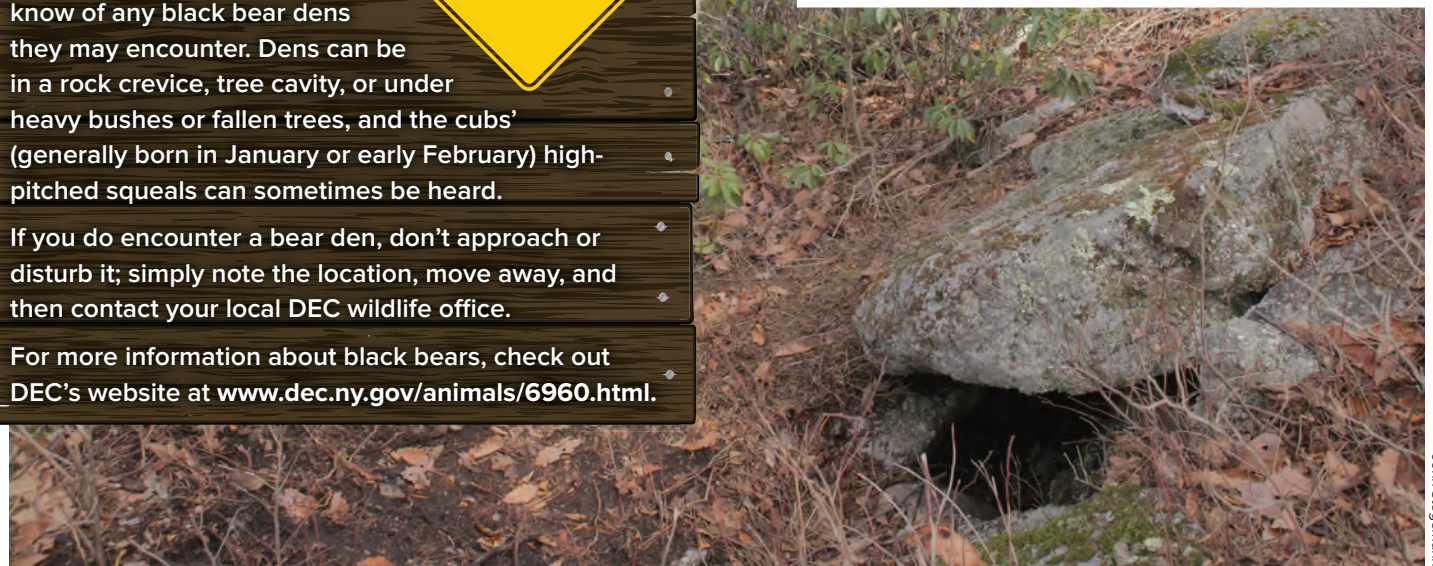
A Second Chance

A year later I was once again with a group of folks heading to a bear den. This one was located deep in the woods and we had to hike in, climbing over some downed trees and pushing our way through areas of thick underbrush. The air was chilly, but fortunately the snowpack was gone and it wasn't too long before we arrived at our destination.

Like last year, the other volunteers and I quietly waited a safe distance from the den while Matt and the wildlife staff went to anesthetize the sow. The den was located downhill from our spot, allowing us to view the proceedings. Matt had decided to use the jab stick to administer the drug, and we watched as he quickly thrust the stick (outfitted with a loaded syringe at the tip) through a hole in the ground.

While everyone waited for the drug to take effect, I asked how they had discovered this den, which was far off the beaten path. Matt explained that this bear had been previously captured and its VHF collar had enabled them to locate her. During their scouting trip the week before, they had heard several cubs, so today they hoped to count how many, check on their condition and tag them. They would also check the condition of the sow, weigh and measure her, and replace her collar if necessary.

With the sow properly sedated, wildlife staff went to work on extricating her and her cubs from the den. Able to move closer, I got my first good look at the site and thought, "Now this is more like it." There was a medium-sized hole leading into the hill. Large rocks formed the ceiling and walls of the small cave, and a hole on the far top side gave us a peek inside. The sow had picked a nice protected site.



John Stegemann

We watched as Matt crawled into the hillside up to his waist. A few minutes later he emerged empty-handed. The space was too tight to get a good hold of her, and her body was curled around the cubs, blocking them from Matt's hands. After another attempt, the decision was made to err on the side of caution, and leave the bears where they were. While the team wouldn't be able to do a full workup, they could still get information about the number of cubs, the overall condition of all the bears, and the location and description of the den. This is all important information for monitoring the state's bear population. Matt also set up a trail camera in front of the entrance to capture pictures of the bears when they emerged from the den. (I later learned the pictures—one shown on previous page—showed the sow and her two cubs leaving the den in March.)

Before leaving the site, we each got the chance to peer into the cave. When it was my turn, I could clearly see the head and front end of the sow. Her left ear had a red tag, and poking out from under her large front leg was one of the cub's ears (see photo below). Then one of the cubs started to cry, probably trying to find a snack in the cramped space.

As we trekked out, I chatted with Matt about his experiences tagging and collaring black bears. Given that I had yet to see a sow processed, I was curious if my experience was common. He laughed and said no, that most times they don't have any problems. In fact, he described how he'd already processed another den (three cubs and a sow) earlier that week and had one or two more possibilities coming up. He was quick to add, however, that when you work with wildlife you need to be prepared for the unexpected. And when the unexpected happens, they always focus on the well-being of the animal in lieu of gathering data.

When we reached our cars, I couldn't help but think, maybe I could tag along again next year. After all, the third time's the charm—right?

Eileen Stegemann is assistant editor of *Conservationist*.

John Stegemann



The sedated sow was curled around her cubs in the small cave.

STAFF PROFILE

Matt Merchant: Making New York Bearable

When he was young, Matt Merchant spent much of his free time exploring woodlots, streams, and anyplace else wildlife could be found. He developed a strong connection to nature, fostered by his



father who took him hunting and fishing as soon as Matt was old enough to tag along. Now one of Matt's main tasks as a DEC biologist is to "tag" bears to monitor and manage New York's bear population.

It wasn't a direct route, however. Matt started out in construction, got married, and had four kids before deciding to study wildlife. He earned an associate's degree from SUNY Cobleskill, and a bachelor's degree from UMaine. In Maine, Matt worked in the furbearer unit of Maine's Department of Fish and Wildlife, assisting on a black bear project.

In 1991, Matt started with DEC as a fish and wildlife technician. Years later he became a wildlife biologist in DEC's New Paltz office, where he was chosen to head up the regional bear program. Matt helps develop bear management policies, provides public outreach, and, when necessary, chemically immobilizes about 25 bears a year, mostly due to human-bear conflicts. Most of these bears are released on-site, and conditioned to alter their behavior and avoid conflicts. His office gets about 300 bear calls annually. Matt also teaches people ways to reduce conflicts with bears, and tags and collars bears to keep tabs on the regional bear population.

Matt fondly recalls an urban situation in Rockland County in which police had a bear treed. A truck lift brought Matt close enough to dart the bear, and then bring the sleeping bear down safely. The bear was tagged and measured, and released in the Catskills.

Matt is doing what he loves. "Working with bears generates a lot of unusual and rewarding experiences" he says, and "the best days are when I'm able to help a bear, such as an orphaned cub, out of a bad situation and set it on its way."

Matt spends his free time hiking, biking, hunting, snowshoeing and camping in the Catskills.



CITIZENS HELPING WITH BLACK BEAR RESEARCH

By Catherine Sun, Angela K. Fuller & Jeremy E. Hurst, with Dave Nelson
Photos provided by authors

If you live in upstate New York, you may have noticed that black bears seem to be in the news of late. Whether it is a televised news piece about a bear up a tree in the Albany suburb of Delmar, or the social media post of a bear walking down a rural driveway, or the bear that locked itself in a car in Old Forge, or the bear that broke into the house in Sabael, it may seem like those reports are getting more common.

You'd be right—the number of interactions between humans and bears in New York is on the rise. There are two primary reasons for this increase; probably the most significant cause is a growing black bear population. The

iSeeMammals connects citizens with local wildlife populations, and with science-based wildlife management.

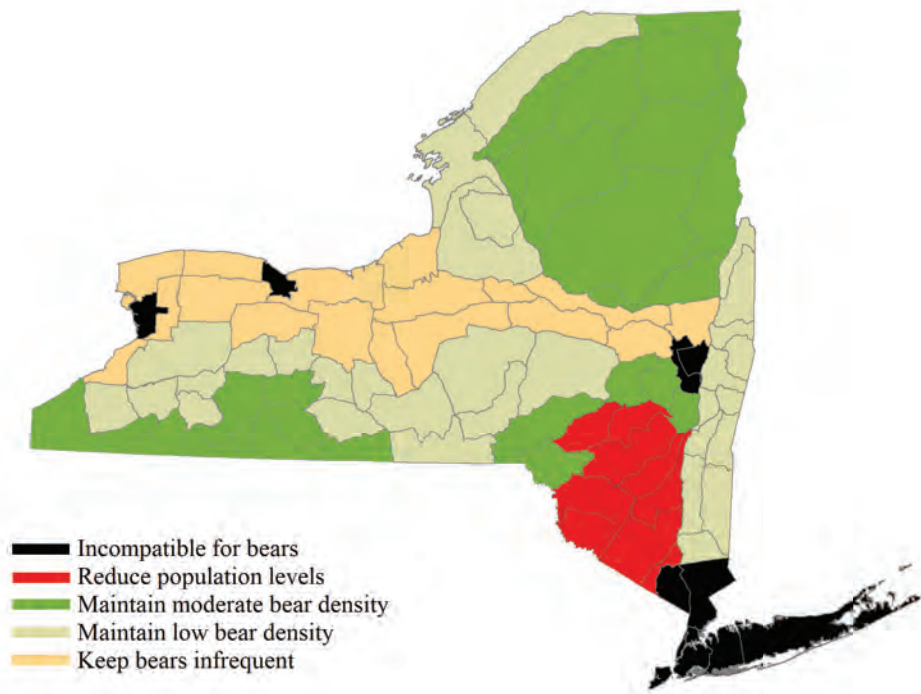
other is that more people are moving into habitat occupied by bears, increasing the likelihood of interaction.

Why are bears becoming more plentiful? Bears have been protected since 1903, when New York instituted the first regulated hunting season. While this might sound counterintuitive, because regulated hunting allows people to kill bears, it also protects them whenever the season is closed, which is most of the year.

In 1952, DEC mapped black bear distribution in New York. Bears occupied three primary ranges: the Adirondacks,

the Catskills, and a small sliver of the western Southern Tier, which we called the Allegheny range. As bear populations have increased and bears have occupied new territory, the Catskill and Allegheny ranges have merged into a single range called the Southern Black Bear Zone. Biologists estimate the bear population in New York now numbers between 6,000 and 8,000, and is growing.

Bears are omnivorous, meaning they eat both plants and animals. While they thrive in forested habitats, they are also intelligent and adaptable. Recent research



DEC's management plan for bears varies by geographic region.

found that bears in southwestern New York were equally likely to be in areas with agriculture or human development as with forest cover. This was surprising, because we expected to find more bears in areas with more forest cover, and suggests that bears in southwestern New York may continue to expand north and east into central New York, where there is generally less forest.

In the summers of 2011 and 2012, researchers from DEC and the New York Cooperative Fish and Wildlife Research Unit at Cornell University set up approximately 200 research sites in a 1,600-square-mile study area in the Southern Tier. We collaborated with 162 private landowners to establish research sites on private property, as well as sites on State Forests, State Parks, and Wildlife Management Areas.

We intended to snag hairs as bears crossed over barbed wire to investigate scent lures. We extracted DNA from hair samples and used that information to identify individual bears. This allowed us to reconstruct "histories" of when specific bears visited specific sites, and to estimate the population density of bears in the study area.

We estimated an average bear density of 1 bear per 3 square miles in our study area, which is a medium-level bear density for the northeastern United States. This is the first time bear density in southwestern New York has been estimated in this manner. In northern New York, bear density was estimated to be approximately 1 bear per 2 square miles in

2010 by Gardner et al. in the *Journal of Wildlife Management*. Density is but one part of the puzzle; how bears are distributed across the landscape is another. Biologists need good information like this if they are to succeed in managing black bears.

In 2015, we expanded data collection by setting up barbed wire and trail camera stations across the Southern Tier. To date, we have collected more than 1,500 hair samples and 1 million days of trail camera photographs. However, we aren't collecting data from the Adirondacks and Erie-Ontario Lowlands because we can't be everywhere at once. This is where you, the reader, can help.

Researchers are inviting the public to participate through a citizen science project called iSeeMammals. Citizen science is a method of scientific inquiry in which volunteers collaborate in scientific research with professional scientists.

iSeeMammals launched in the spring of 2017, and enlists hikers, hunters, trappers, naturalists and outdoor recreationists of all kinds to take part. Volunteers are asked to collect and submit



Researchers set up study areas consisting of scent lures surrounded by barbed wire. As bears entered the area a few hairs would get caught on the wire (see photo right) which were then tested for DNA.

any of three kinds of data: observations of bear and bear signs (tracks, scat, hair and markings), information about hikes when there is a possibility of seeing bear or bear signs, and trail camera observations.



Participants in iSeeMammals are asked to report bear sightings or any signs, such as bear tracks.



The study used trailcam photos to help document bear visits.



We collect information about the date and location of observations, and encourage participants to take photographs so that we can confirm observations. Observations and trail cameras provide data on the presence of bears; hikes and trail cameras also provide information about the absence of bears. Absence information helps us determine where there are no bears, but importantly it also helps us determine the probability that an area has bears, even when none were observed. We welcome data from throughout the state, even in areas where research sites have been set up. A website (iseemammals.org) and free smartphone app are available for citizen scientists to access the project and submit data.

As of October 2017, iSeeMammals had 721 users who collectively submitted more than 400 hikes, trail camera locations, and observations. The data collected through iSeeMammals will be used in combination with data from summer field research and the fall hunting season to generate more precise and accurate estimates of bear population size, growth and distribution than through any single method. Population trends based only on harvest data are subject to variable hunting effort, which can mask true changes in the population. In the current New York black bear management plan, DEC has identified target levels of black bear abundance in different parts of the state, based on best available science and the input of various stakeholder groups. Our research will contribute estimates of current population sizes and distribution patterns that may shed light about how the population may change in the future. This will allow wildlife managers to consider the effectiveness of different potential management strategies.

Citizen science can be an inexpensive way to collect large quantities of data across large areas over many years. In this respect, iSeeMammals also serves as a pilot project to assess the feasibility of using citizen science as a tool for monitoring wildlife populations in New York. In addition to bears, iSeeMammals also received photographs and observations of white-tailed deer, eastern coyotes and bobcats even though they were not the target species of interest. Similar citizen science approaches may be useful for monitoring and managing other wildlife species.

Importantly, iSeeMammals represents a new way to engage the public in wildlife management in New York. iSeeMammals connects citizens with local wildlife populations, and with science-based wildlife management. To learn more or to get involved, visit iseemammals.org.

Catherine Sun is a PhD candidate in the Department of Natural Resources at Cornell University. **Angela K. Fuller** is the Unit Leader of the New York Cooperative Fish and Wildlife Research Unit. **Jeremy E. Hurst** is a big game biologist in DEC's Albany office. **Dave Nelson** is editor of *Conservationist*.

Awarding Environmental Excellence

By John Razzano

Each year since 2004, an eclectic crowd from business, academia, government and non-profits gathers in New York's Capital Region to showcase our state's top environmental accomplishments at DEC's Environmental Excellence Awards. Some past winners have been well known, like the New York Yankees, but most are lesser-known groups that tally environmental costs and benefits along with dollars and cents on their balance sheets.

These exemplary employers are finding creative ways to raise the bar on environmental stewardship. Applying new technologies and innovative programs, they're proving it's not only possible, but profitable to benefit both the environment and the economy. Below are summaries of projects from four recent winners.

Metropolitan Transportation Authority (MTA)

Project: Mother Clara Hale Bus Depot, Harlem, New York City



Mother Clara Hale Bus Depot is one of MTA's many garages for cleaning and repairing buses that thousands of riders rely on daily. The depot shares its Harlem neighborhood with about 5,000 residents. When MTA decided to build a new depot, years of meetings were held with stakeholders to agree on a design that would serve the interests of the community as well as MTA. Chief engineer Tom Abdullah explains, "We knew we wanted to build a green depot, but the community helped us go up another level. Our depot is a good example of how you can include technologies that help both the environment and the neighborhood."

The depot includes a host of green innovations. Part of the roof is covered in living plants that absorb rainfall and keep the roof cooler in summer, lessening the urban heat island effect and costs to cool the building. Rainwater is also filtered and collected in a 50,000-gallon tank, then used to wash buses, reducing municipal water demand.

Rooftop solar panels were impractical due to shadows cast by surrounding buildings. Instead, the depot is clad on one side in a metal skin with tiny perforations that transfer solar-heated air into the building. The "solar wall" is combined with roof-mounted heat recovery units to significantly reduce heating costs. MTA also added diesel-exhaust filters to the design, which improved air quality and saved energy.



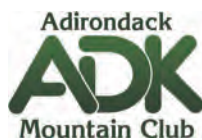
Courtesy MTA

Green rooftop, Mother Clara Hale Bus Depot

MTA followed the U.S. Green Building Council's Leadership in Environmental and Energy Design (LEED) certification standards during planning and construction, and by installing many green design features, the depot earned a LEED gold certification.

Adirondack Mountain Club (ADK) and The Nature Conservancy (TNC)

Project: Adirondack High Peaks Summit Stewardship Program



The 46 Adirondack High Peaks are the region's most popular hiking destinations. A unique alpine-plant ecosystem grows on



Summit stewards educate hikers about the fragile ecosystem.

them. Though well-adapted to thin mountaintop soils and harsh weather, these plants are no match for the tread of thousands of hiking boots annually. Summits once graced with garlands of grasses, mosses and colorful blooms were being trampled to bare rock.

In 1989, ADK and TNC came up with a solution that was simple, but required considerable coordination and commitment: station stewards on mountaintops to educate hikers about the fragile ecosystem. The stewards would tell hikers, “Do the rock walk,” i.e., “Walk on the rocks, not the plants.” They would also photograph the progress of vegetation recovery and assist with trail maintenance.

The first two volunteers hiked up Mount Marcy and Algonquin Mountain in the summer of 1990. They proceeded to educate more than 7,000 hikers that year. Today, the Adirondack High Peaks Summit Stewardship Program employs five paid, full-time stewards and 20 volunteers, and operates from Memorial Day through Columbus Day. Stewards cover Mt. Marcy and Algonquin Mountain seven days a week, and visit 11 other peaks as often as possible during the summer. In 2016, stewards educated more than 36,000 hikers—a record. Their effort has paid off. Photos of the same peaks over nearly 30 years show plants are recovering.

ADK Executive Director Neil Woodworth and Education Director Julia Goren spoke with pride about the program. Woodworth noted “the critical importance of partnerships with The Nature Conservancy, DEC and colleges, where most of our stewards come from.” Goren highlighted “the pleasure of being with hikers the first time they experience that life-changing summit view.”

Clearwater's Great Hudson River Revival

Project: Zero Waste Program

Imagine hosting 15,000 guests for a two-day party, and you'll understand the challenges faced by organizers of Clearwater's Great Hudson River Revival in managing all the discarded material the event produces.

Decades ago, folk music legend Pete Seeger and his wife Toshi started a small festival to raise money for building the iconic Sloop Clearwater. Today, Clearwater's Great Hudson River Revival attracts thousands annually.

“During the early years, Toshi Seeger organized families at the festival into litter pickers,” said MJ Wilson, co-coordinator of the Zero Waste Program. “Gradually, the litter pickers morphed into a recycling program, which morphed into our Zero Waste Program,” added Roy Volpe, chair of the Revival Planning Committee.

Today, as much as 81 percent of all plastic, metal, glass, paper and food waste (even meat and bones) discarded at the event is recycled or composted. And remarkably, that rate has been maintained the past three Revivals.

To achieve this, vendors contract to only use recyclable or compostable service-ware. Volunteers staff “Zero Waste” stations to help sort recycling/composting/trash. Wilson explained, “The volunteers educate people and ensure they don't contaminate organic-material bins with non-organics. If that happens, the organics can't be composted.” When asked about raising the recycling/composting rate even higher, she replied, “More important than increasing the percentage, my dream is for people to waste less in the first place. After all, Reduce comes before Reuse and Recycle.”

The festival needs about 1,000 volunteers each year, visit www.clearwaterfestival.org to learn how you can help.



Great Hudson River Revival festival

Econosmith

NYS Department of Transportation (DOT) Region 4 and the Seneca Park Zoo Society

Project: Butterfly Beltway Partnership



The partnership of NYSDOT with Seneca Park Zoo Society in Rochester is a story of two seemingly unrelated programs coming together to address a vexing environmental problem:

the decline of plant pollinating insects like butterflies and bees.

The Zoo Society's programming director, Tom Snyder, runs a program called Butterfly Beltway to encourage conservation of butterfly species. "Since 2002, around 300 10'x10' butterfly gardens with educational signs have been planted at schools, senior centers and libraries," he said, adding, "In 2014, we were looking for a way to expand our impact."

Meanwhile, DOT environmental professionals Mary Ellen Pepin and Sarah Piecuch were learning about the alarming decline of pollinators, particularly monarch butterflies. Loss of milkweed habitat was part of the problem. Milkweed grows along the rights-of-way on New York highways, but DOT was mowing it down during the peak monarch reproduction months of July and August. "If we delayed mowing until September

and October, we could benefit monarchs and other pollinators without additional expense," Pepin said. Piecuch continued, "Then we learned about the Zoo Society's Butterfly Beltway Program and reached out to Tom."

As a result of this partnership, a six-mile stretch of Interstate 390 near Geneseo was chosen to implement the delayed mowing idea in 2015. Initial results are encouraging. "Before the project, eight butterfly species were found in the project area. After the modified-mow, there were sixteen," Pepin said. Snyder added, "Since DOT started helping us out, our 300 small gardens are now only a small fraction of the total habitat available to butterflies."

In 2016, the Zoo Society and DOT planted pollinator gardens with educational signs at two highway rest stops visited by thousands daily. Piecuch concluded, "We are working to expand modified-mowing areas statewide and sharing this project nationally."

Fourteen Years of Excellence

Since the first Environmental Excellence Awards in 2004, 86 organizations have received awards, reflecting tremendous tangible benefits for our environment. Here are a few examples of what's been accomplished:

- Engaging millions of people in environmentally beneficial practices at home, work and school, and while recreating in nature or attending sporting events.
- Diverting nearly 306,000 tons of waste from landfills; generating more than \$2.5 million in revenue from reusable materials.
- Preserving thousands of acres of open space, planting thousands of trees and protecting sensitive and critical habitats.

This article only scratched the surface of the projects awarded in the program's first 14 years. DEC will continue to bestow awards to recognize those who are making our lives more environmentally sustainable and lighting the way to a bright future.

John Razzano is an editor in DEC's Office of Communication Services in Albany.



Sarah Piecuch

Courtesy Journey North



Sarah Piecuch

Have an Award-worthy Project?

Do you work for or know an organization or individual who you think deserves an Environmental Excellence Award? If so, the deadline to apply for the 2018 awards is April 13th. Go to www.dec.ny.gov and search for "Environmental Excellence" for all the details on how to enter."



On Patrol

Real stories from Conservation Officers and Forest Rangers in the field

Carl Heilman II

Contributed by ECO Lt. Liza Bobseine
and Forest Ranger Capt. Stephen Scherry

Bobcat and Deer Case— Rensselaer County

On December 6th, ECO Brian Canzeri investigated a complaint of an illegally taken bobcat. After a series of interviews with potential suspects, the case grew in size and scope. Eventually, the officer charged five people with 14 violations of the Environmental Conservation Law, including hunting without a license, failing to tag and report four deer, and hunting in closed areas. The deer and bobcat were confiscated.

Protecting Against CWD— Broome County

On November 7th, ECO Tony Rigoli was on patrol in the Town of Windsor when he observed a large antlered deer carcass in the bed of a pickup truck travelling down the road in the opposite direction. While he was turning around to get a better look, the driver of the pickup took off at a high rate of speed. ECO Rigoli conducted a traffic stop to inspect the deer carcass. The driver said he had shot the impressive buck in Pennsylvania and was taking it to his camp in New York to process. ECO Rigoli advised the subject he was in violation of New York's



Chronic Wasting Disease (CWD) regulations, which are designed to prevent the spread of a disease that could decimate New York's deer population. The officer told the subject that he would be issued a ticket and the carcass would be seized for testing, but the driver said he was not going to relinquish the deer carcass. Lt Rick Warner soon arrived on scene and convinced the subject to comply with the law. It was also determined the subject, a Pennsylvania resident, had procured a resident New York hunting license. He was ticketed for making a false statement in obtaining his New York resident hunting license, and for violating CWD regulations. The deer was seized, taken to DEC's Cortland sub-office, and later was transferred to Cornell University for testing.

Lost Hunter—Lewis County

On November 18th, at 3:41 PM, Ranger Matthew Savarie received a call from Ray Brook Dispatch reporting a lost hunter off

Pine Road in Jadwin State Forest, in the Town of Diana. After obtaining the subject's coordinates and phone number from dispatch, Rangers Savarie and Brandon Poulton responded and located the subject's vehicle. Ranger Savarie was able to contact the subject via phone and instructed him to stay put. Ranger Poulton headed toward the subject's location via Pine Road, and Ranger Savarie drove around the West Branch of the Oswegatchie on Kimballs Mills Road. Ranger Savarie was able to make voice contact with the subject from the east bank of the river, but could not cross the water due to its depth. Ranger Savarie instructed the subject to remain at that location since Ranger Poulton was almost to him on the opposite side. Ranger Poulton reached the subject at 4:45 PM and escorted him back to his vehicle. Ranger Savarie assessed the subject's medical condition and released him to his family unharmed by 5:32 PM.



The Best Weekend in the Woods

By Kristen Rosenberg

As the sun sinks below the horizon, a group of adults and kids descend upon a tranquil pond, surrounded by trees. A red-winged blackbird's song, "kon-ka-rees," can be heard in the distance, and green frogs' "plunk" at the pond edge. The group eagerly scans the water, looking for signs of movement. I take a quick look as I reach down into my bin, when someone suddenly exclaims, "there's one over by the dam!" I breathe a quick sigh of relief; although I know that everyone might be interested in the skull, fur and chewed twigs I brought along for my presentation, they are really here to see the beavers! This is how it goes almost every year at my Beaver Colony Walk at the annual Allegany Nature Pilgrimage, in which I have had the pleasure of participating 10 times.

As a child, I enjoyed yearly camping trips to Allegany State Park with my family. I remember collecting a wood chip from a beaver-cut tree and learning the "who-cooks-for-you" call of the barred owl at programs led by park staff. It wasn't until much later that I learned about this amazing annual event for nature-lovers.

As a graduate student at SUNY College of Environmental Science and Forestry (ESF), I conducted research on the beaver population in Allegany State Park. I was told by park staff that I should suspend my research during the first weekend in June, since there would be a lot of people in the park for a special event. And

they were right. A fellow grad student, my field technician, and I stopped by Camp Allegany to check out the pilgrimage and were surprised by the size of the crowds and the wide variety of nature programs. A few years later, I attended a Buffalo Audubon workshop and met one of the pilgrimage committee members. We spoke about my grad school research in the park, and he invited me to lead the beaver programs that year. I have been hooked on the pilgrimage ever since.

Jen Schlick



Enjoying a hike through a mature forest.

The Allegany Nature Pilgrimage has been held annually since 1959, always on the weekend after Memorial Day. This year is the 60th pilgrimage, which was initiated by O. Gilbert Burgeson, who was inspired to start a local event after attending the annual Spring Wildflower Pilgrimage held in Great Smoky Mountains National Park.

The pilgrimage has grown from 70 nature lovers who attended the first year, to more than 650 attendees last year. Some key organizations have played a major role in making the pilgrimage possible over the years, including the Audubon Community Nature Center (Jamestown), Buffalo Audubon Society (Buffalo), Presque Isle Audubon Society (Erie), Burroughs Audubon Nature Club (Rochester) and Allegany State Park. A volunteer committee works hard behind the scenes to organize the logistics before and during the pilgrimage, and volunteers (amateurs and professionals) lead the individual programs.

Tim Baird



Rose-breasted grosbeak

Since the pilgrimage is sponsored by Audubon societies, there are many bird-focused programs, including Birding for Beginners, an All-Day Bird Hike and the popular Birds of Prey presentation, which features live raptors. Many programs are offered annually, so if you can't fit in everything you want to do this year (and that's true for many families), you can always check it out next year.

In addition to all the walks and programs, there are evening tent programs on Friday and Saturday nights where guest speakers discuss natural history topics, and a Saturday chicken BBQ or vegan meal with folk music by Nan Hoffman. This year's speakers include Sharon "The Bird Chick" Stiteler, who

There is truly something for everyone to enjoy at the Allegany Nature Pilgrimage:

- Are you an early bird? Join the 6:00 AM bird hike or enjoy the bird banding demonstration.
- Creative artist? There is Nature Photography, Watercolor Birds or Nature Greeting Cards.
- Plant lover? Learn about Wild Edibles, Plant Lore or how to identify local ferns on the Fern Walk (one of my favorites).
- Have young kids? Join the Splash Hike, the Nature for Kids by Kids walk or Nature Play Pop-Up activities.
- Creepy crawly critter fan? Come for programs about spiders or the popular Salamander Hike.
- Interested in insects? Don't miss the Butterflies of Allegany, the Dragonfly & Damselfly Walk or see the incredible variety of nocturnal insects at the Bugs by Nightlight station.
- Night owl? Explore the nightlife in the park on an Owl Prowl or Night Hike.

See www.alleganynaturepilgrimage.com/ for information about registration, programs and lodging. Registration is available online or by mail, and the early bird discount deadline is April 24th. You may also register on-site during the event for either weekend passes or day passes. Participants are responsible for arranging their own lodging (cabins and campsites in the park or nearby hotels); sites in the park book quickly so don't hesitate to make your reservations.

For historic reading about pilgrimages past, see the August 1967 and June 1984 issues of *Conservationist*.

will entertain us with humorous tales of global expeditions in search of birds, and “Paleo Joe” Kchodl, who will bring creatures extinct for millions of years “back to life” through puppet shows and dinosaur fossils.

Saturday night also includes the review of the bird sightings for the weekend, as well as finding out who has traveled the farthest, the youngest and oldest participants, and who has attended the most pilgrimages. Many people who attended the pilgrimage as a child now bring their own families. Lon Myers, a pilgrimage committee member and leader of the Splash Hike and Night Hike, has attended about 55 times, almost every year since he was 2 years old!

Besides the educational nature programs, my favorite part of the Allegany Nature Pilgrimage is the community of people it draws together. New attendees are welcomed warmly and old friends happily reunite. Participants get to know each other by carpooling to programs in the park. As one new participant said, “I found my people!”

If you are looking for a weekend to get away in the woods and want to find your tribe of fellow nature lovers, join us this year on June 1st, 2nd and 3rd. And look for me by the beaver pond!

Kristen Rosenberg is Program Coordinator at DEC’s Reinstein Woods Environmental Education Center. She enjoys attending the Allegany Nature Pilgrimage with her husband Chuck (who leads the Owl Prowls) and son Colin, who has already attended 4 pilgrimages by age 3!

Tim Baird



The park is a good place for birders.

Jeff Tome



A young participant examines a replica of a prehistoric giant beaver skull.

Nick Sly



Eastern milksnake

Jen Schlick



The Nightlight program is very popular.

A Frantic Pilgrimage with Friends and Family

(including kids with endless energy)

By Megan Mills Hoffman

My friends and I are mothers of young children, and as mothers have for generations, we are constantly seeking ways to positively connect our children with the great big wide world. So we decided to check out the Allegany Nature Pilgrimage where the region's most devoted and experienced naturalists, geologists, birders, foragers, artists, and writers are available to lead activities.

It was easy to handpick the topics we were interested in, and those that were most age-appropriate for our families. In one morning, we hunted for butterflies in the meadow, inspected frogs and salamanders in the creek down the hill, climbed logs, talked to birds of prey, watched a baby screech owl from a foot away, and shared lunch with friends under a beautiful blue summer sky.

After lunch, a few families with slightly older children went off to find crawfish in the bigger creek, and those with kids young enough to still be napping, like us, retreated to our quiet places. Cabins are conveniently located close by for nap times, and a picnic lunch and barbeque are available if you don't want to prepare a meal. Accommodations range from heated cabins with electricity, within walking distance to hot showers, to tent sites near a creek that you can wade in.

For dinner one night, we met up at one cabin and had potluck while our kids ran around with each other. Grandparents came with their grandchildren; parents optional. Neighbors invited friends, friends invited neighbors. Friends of friends finally met each other. Dads disappeared looking for firewood. Moms were able to catch up with each other without a million household duties looming. One of the joys for our youngsters

was being able to run around as far and late as they could, before crashing into bunks at night, exhausted, with sticky marshmallow on their dirty fingers after staying up late around campfires.

One evening after dark, we joined the Owl Prowl. The kids fell asleep on our backs as we crept along with the larger group, and remained asleep through the car-to-bed transfers. On our last morning we woke to the most enormous hawk moth resting on our screen door. We spent an hour marveling at his

size and placid calm as he was gently passed from hand to small hand.

As soon as we all returned home, we began sharing favorite pictures and re-living precious moments with each other. One friend shared, "After bath last night, I asked my two-year-old if he was ready for night-night and he yelled, 'NO! OUTSIDE! PLAY! FIRE!'" I think he's ready for next year!" Another friend chimed in, "What a wonderful

weekend! Gorgeous park, good friends, and special memories. We can't wait for next year! My husband has already agreed we need to stay longer next time!"

We all came home with hearts full of sweet memories, the kind that make us proud of our parenting, and excited for the future. We all need, as do our children, as many days like this as we can fit in. Thanks to the generous, knowledgeable, and dedicated pilgrimage professionals and volunteers, we too can introduce our next generation to wildlife, and help them learn to care about nature, each other, and the environment we all share. And importantly, we can have a blast doing it.

Megan Mills Hoffman, writer, mother, and serial social entrepreneur, relishes every opportunity to foster community-sufficient learning.

Rick Miller



CALEDONIA FISH HATCHERY

By Robert Stein

At 154 years old, Caledonia Fish Hatchery is the oldest fish hatchery in the entire Western Hemisphere.

Founded in 1864 by Seth Green (known within the industry as the Father of Fish Culture), the hatchery was purchased by New York State in 1870. Four of the seven buildings on site, including the main hatchery building, are the original structures from the late 1800s to early 1900s, and the hatchery is currently listed on both the New York State and National Registers of Historic Places. The main hatchery building is showing some signs of its age; repairs are slated for the near future through the Governor's NY Works Program.

Caledonia specializes in rearing two-year-old brown trout, and supplies almost the entire state with these one-pound-plus beauties. Each year, approximately 100,000 two-year-olds (12-14" long) and 300,000 yearling browns (8-9" long) are raised here. That's approximately 135,000 pounds of fish—the second highest amount raised at any of DEC's 12 hatcheries. Caledonia is also responsible for the operation of Cedar Springs Hatchery, a small satellite hatchery located a few miles away that produces

70,000 yearling rainbow trout (9" long) and an additional 6,000 two-year-old brown trout.

Spring Creek provides the water for Caledonia Hatchery. Water temperatures average 52 degrees—ideal for rearing trout—and the creek contains natural populations of both brown and brook trout. After first passing through a drum filter to remove large debris (twigs, leaves and vegetation), aeration adds oxygen to the water, which then flows through the entire facility via gravity, making for a very cost-efficient hatchery.

Fish are first raised in indoor raceways for about five months, then transferred as fingerlings to outside concrete ponds. Protecting fish from predatory birds—especially great blue herons—is a constant challenge. During spring mornings, there may be 30-50 herons attempting to help themselves to a quick meal. The ponds are now covered with specially designed bird netting to reduce the number of fish lost to these birds.

Many of the two-year-old fish raised at Caledonia are transferred to other state hatcheries for distribution across New York. Caledonia staff stock fish in waters in 10 surrounding

Species Spotlight: Brown trout (Salmo trutta)

- Popular gamefish, brown trout were originally brought from Europe in the 1880s. They can tolerate warmer water than other trout species, and can be found in waters across the state.
- Generally brown in color (hence the name) with black and red spots on their sides, browns can be silvery in large bodies of water. Browns prefer streams, but also live in ponds and lakes. They spawn in the fall (late October – December); females dig shallow nests in gravel in clear, cold streams.
- Brown trout weighing more than 10 pounds are fairly common, but they seldom grow larger than two pounds in streams. Smaller browns mostly eat insects; larger browns eat fish such as smelt, alewives and minnows.
- Anglers enjoy the challenge of fishing for brown trout, which are wary and can be difficult to catch.



Seth Green

**LOCATED IN LIVINGSTON COUNTY ON
ROUTE 36 BETWEEN THE VILLAGES OF
CALEDONIA AND MUMFORD**



If You Go

Caledonia Hatchery is situated on 31 acres in a park-like setting. There are fish on the premises year-round, including a display pond featuring some large brown trout, as well as a lake sturgeon. Visitors can enjoy a footpath along the creek, several picnic tables and benches, and a gazebo filled with information.



VISITOR HOURS: Open 8:00AM to 4:00PM daily throughout the year. There is no admission fee.



SPECIES RAISED: Brown trout; some rainbow trout (at their satellite hatchery).



PHONE: (585) 538-6300



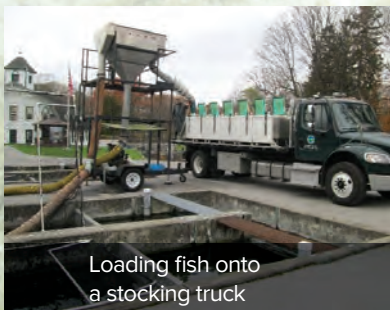
NOTE: Fishing is permitted on site, above the hatchery in Spring Creek, from 8:00AM to 3:30PM daily. Special regulations exist; be sure to check your *Fishing Regulations Guide*.

counties, which covers the western basin of Lake Ontario, the eastern basin of Lake Erie, a few of the Finger Lakes and many of the local streams throughout Western N.Y.

In the hatchery's early years, fish were transported to the receiving waters in milk cans via railroad cars and trucks. Today, specially outfitted trucks with insulated fiberglass tanks haul fish to their new homes. Fish are carried by hand from the truck to the water's edge in buckets. Often, angler groups and other volunteers help DEC stock the fish. For stocking lakes and ponds, hatchery staff generally attach a six-inch discharge hose directly to the truck's tank and the fish are safely "flushed" out into the water. Access to remote ponds and lakes in the Adirondacks sometimes requires use of a helicopter, and a WWII landing craft is occasionally used to disperse fish into the deeper offshore waters of Lake Ontario.

Raising fish takes a lot of time and care, but the rewards are worth it—there is nothing better than seeing a kid's smile after catching a nice fish and knowing you helped make that happen!

Robert Stein is the manager at DEC's Caledonia Fish Hatchery.



Loading fish onto a stocking truck



Trophy-sized brown trout



Fry holding troughs at Caledonia; circa 1930s





The pandorus sphinx moth specializes on plants in the grape family.

New York State Conservationist, February 2018

UNWELCOME INTRODUCTION?

NON-NATIVE INVASIVE PLANTS CAN THREATEN OUR ECOSYSTEMS

By Dr. Doug Tallamy; photos provided by author

Ever since ornamental plants started moving into natural areas, some people have questioned the wisdom of trying to curb these vegetative incursions. In some areas, such non-native or “invasive” plant species are now displacing native plant communities. People concerned about the impacts of invasive plants on ecosystems have been accused of being too emotional about these plant incursions, using biased terms like “invasion,” “alien,” and “bad,” while ignoring the beneficial side of introduced plants and trying to return our ecosystems to some pristine state that never really existed.

Criticism of invasive plant control efforts is understandable. We spend billions of dollars a year trying to manage invaded ecosystems, and though local success is common, wide-scale control of invasive plants is extraordinarily difficult, particularly when such plants continue to be sold at nurseries. Fighting what many see as a losing battle might be a fool’s errand if there were not compelling reasons to do so. And research has consistently shown that there are good reasons to keep introduced plants off our properties.

Critics of invasive control efforts agree that invaded communities become different, but claim those differences are not “inappropriate.” They argue that all ecosystems are in a constant state of flux, and humans should not challenge this “natural process,” even if an introduced plant changes the diversity and abundance of native species. They further argue that plant invasions are not “bad” for ecosystems because there are no records of a plant invasion causing a continent-wide extinction of a native species, and such invasions actually increase the number of species in North America.

Though plant invasions have not yet caused the global extinction of a native plant, that does not mean ecosystem function has not been compromised at the site of the invasion. The number of species may be greater on a continental scale after the influx, but ecosystems don’t function on a continental scale; they function locally. Using global extinction as the only indicator of harm is like saying death is the only symptom that warrants a visit to the doctor. When invasive plants like autumn olive, buckthorn, barberry, bush honeysuckle, or *Phragmites* invade a plant community, they replace the local native species at that site, potentially causing complete local extinction or a decline in plants that contribute to ecosystem function. There are dozens of published records of significant native plant declines within invaded sites.

If introduced plants were the ecological equivalents of the native species they replace, ecosystems would look different, but would be just as productive (though less stable). In fact, introduced plants may produce ecosystem benefits equal to natives, but they pale in comparison in perhaps the most critical role plants play in nature—they are poor at providing food for the animal life that runs our ecosystems.

Through photosynthesis, plants capture energy from the sun and store it in the carbon bonds of sugars and other carbohydrates, which are the basis of every terrestrial food web. But animals can only access this energy by eating plants or something that previously consumed the plants. And here is the rub: the group that is best at transferring energy from plants to animals is insects. Unfortunately, most insects are very fussy about the plants they eat.



A white-eyed vireo feeds its young the drab prominent caterpillar, a specialist on Sycamore.



The double-toothed prominent caterpillar specializes on elm and resembles the edge of an elm leaf.



A bolas spider draws male moths to her snare by releasing pheromones that mimic a female moth.

Because plants don't want to be eaten, they protect their tissues with species-specific chemicals that prevent most insects from eating them. How do insects circumvent these formidable defenses? They specialize. Over time, a particular insect species develops the physiological, behavioral, and life-history adaptations necessary to overcome the protective compounds produced by a particular plant lineage. These adaptations enable the insect to eat those plants without being poisoned—but simultaneously prevents the insects from eating plants they did not specialize on.

Monarch butterflies, for example, specialize on milkweeds, which are toxic to most insects. But if we replace milkweeds with an introduced plant like spotted knapweed, the monarch disappears because it cannot develop on spotted knapweed. My student Melissa Richard and I recently conducted a survey that illustrates the degree to which invasions by introduced plants reduce insect populations. When we compared caterpillars in hedgerows invaded by autumn olive, multiflora rose, porcelain berry, and Japanese honeysuckle to caterpillars produced in hedgerows comprised of native plants, the results were stark. In the invaded hedgerows, we found 5 times fewer caterpillar species, 22 times fewer individual caterpillars, and 23 times less caterpillar biomass. This result follows the trend. Our research corresponds to other scientific studies conducted during the past decade that found populations of native insect herbivores are reduced 50-75 percent, on average, by non-native plant invasions, depending on how closely related the introduced plants are to local native plants.

So why is this important? What difference does it make whether we have any insects in our invaded ecosystems? In fact, the size and diversity of local insect populations makes an enormous difference to the complexity—and thus stability—of local food webs, because so many species of animals eat insects to obtain their protein and energy. This includes nearly all terrestrial birds, especially when they are feeding their young. The loss of insects means the collapse of local food webs. This was depressingly evident when we surveyed the invaded hedgerows this summer. "Not a creature was stirring, not even a mouse!" They weren't stirring, because they weren't there. What is lost when introduced plants replace native plants is a myriad of interactions among species: the very interactions that run our ecosystems. If we want to understand the real impact of plant invasions on ecosystems, we need to understand their impact on coevolved food webs and other forms of specialized relationships.

Nature entails a series of specialized relationships, from the resplendent quetzal's uncompromising need for wild avocado fruits in Central America, to the ability of adult bolas spiders to mimic the sex pheromones of moth prey, to the 11 species of native bees that only forage for pollen on goldenrod in New England, and the thousands of insect species that can develop only on

particular plant lineages. Specialization that took millions of years to evolve is the rule in nature, and introduced plants, by virtue of being newcomers to local ecosystems, cannot support specialized interactions.

One observation that has complicated our understanding of the ecological impacts of invasive plants is the fact that many birds readily eat the berries of introduced plants. Noting this, land managers deliberately planted berry-makers like autumn olive and bush honeysuckle, thinking these plants were ‘good for the birds.’ Unfortunately, this conclusion is incorrect.

To determine whether an ecosystem is benefiting from an introduced plant, we must compare what is gained from adding that plant to the community to what is lost. If the losses exceed the gains, the net change in ecosystem health will be negative. When bush honeysuckle invades a forest, for example, it soon replaces most of the native understory, forming a near-monoculture of bush honeysuckle. The young oaks, hickories, maples, and beeches, as well as the viburnums, witch hazels, blueberries, and wood asters, that once comprised a diverse and productive stratum of deciduous forest disappear from invaded areas. However, bush honeysuckle supports almost no insects. You will find that nearly all its leaves are perfect: not a bite has been taken. The insects, particularly caterpillars that contribute the most to avian food webs, cannot thrive and reproduce in such invaded habitats.

The loss of insects matters because 96 percent of terrestrial bird species in North America rear their young exclusively on insects and the spiders that eat insects. And it takes many thousands of insects to nourish a single clutch of birds. Berries in the fall do not help the local birds if those same birds couldn’t find enough food to raise their young the previous spring. And don’t forget all the spring and fall migrants, birds like warblers and kinglets, that rely on insect protein all year long. They too lose valuable foraging sites when bush honeysuckle invades the local woodlot. Bush honeysuckle supports frugivorous birds for a brief period in the fall, but starves the vast majority of our birds, including the fall frugivores, the rest of the year.

Research has also shown that bush honeysuckle, buckthorn, autumn olive, multiflora rose and other invasives from Asia produce fall berries that are high in sugar, at a time when birds need berries high in fat. Migrants need high-fat berries to fuel their migrations, while winter residents rely on high-fat berries to build fat stores for cold winter nights. Why then do birds eat high-sugar berries when they need fat instead? For two reasons. First, after an invasion, berries from the introduced plant are often the only berries present, because the native berry plants have been outcompeted and forced from the site. But even if native berries are present, birds often eat high-sugar berries from Asian plants for the same reason we humans eat sugar when we shouldn’t: it



A halictid sweat bee is one of many native bees that rear their young exclusively on goldenrod pollen.

tastes good! So to conclude that we gain ecosystem services from Asian invasives is misleading at best. Yet hardly a week goes by without another gardening article encouraging people to plant bush honeysuckle and other Asian berry-makers because they are good for birds.

It is true that ecosystems are dynamic and always in a state of change. At issue, however, is not whether ecosystems change, but at what rate they change. The rate of natural change in ecosystems is so slow that resident organisms can often adapt to the changes. When human actions change ecosystems rapidly, however, adaptation through natural selection is impossible; either the organism already possesses the genetic capacity to handle the changes that have occurred, or it dies. Trying to limit the amount of non-native plants in our ecosystems is not an attempt to return ecosystems to a pristine state; it is an attempt to maintain the coevolved relationships that run our ecosystems. Such relationships are essential to ecosystem function.

So, are introduced plants *bad*? The preponderance of evidence suggests that because they have not been here long enough to develop the specialized relationships that define nature, introduced plants can’t perform one of the most critical jobs in our ecosystems: they are unable to support large and diverse insect populations. And, if they are “bad” at supporting insects, they are also “bad” at supporting the animals that eat insects and thus the complex food webs that support our ecosystems.

Noted biologist, researcher, naturalist and author, Edward O. Wilson has argued throughout his career that insects are the little things that run the world. Humans cannot survive their loss, so it is in our best interest to consider building and protecting landscapes with the plants that support them best.

Dr. Doug Tallamy is a professor of entomology in the College of Agriculture and Natural Resources at the University of Delaware, and the author of the book *Bringing Nature Home: How Native Plants Sustain Wildlife in our Gardens*.



DEC photo

More Trails at Elm Ridge Wild Forest

An additional five miles of multi-use trails is available to the public at the Elm Ridge Wild Forest in Greene County, expanding the trail network to more than 25 miles. This makes Elm Ridge the most comprehensive multi-use trail system for mountain biking in the Catskills. Elm Ridge Wild Forest also includes a section of the Long Path, a long-distance trail that runs from New York City to Thacher State Park in Albany County. Visitors can enjoy hiking, cross-country skiing and snowshoeing.

The new trails are part of Governor Cuomo's Adventure NY initiative. The project was a partnership between DEC, the Windham Area Recreation Foundation, and the Adirondack Mountain Club. Funding was provided through DEC's Trail Supporter Patch Program, the State Environmental Protection Fund, and federal support. For more information on Elm Ridge, visit: www.dec.ny.gov/lands/72784.html.

Whitetail Sculpture

Utica wildlife artist Tom Yacovella's unique whitetail sculpture is a centerpiece in Wonders of Wildlife (WOW) National Museum and Aquarium's "Bucks & Bulls" exhibition in Springfield, Missouri. Created in 2003, "Tribute to the Whitetail"



Courtesy Wild Outdoor World

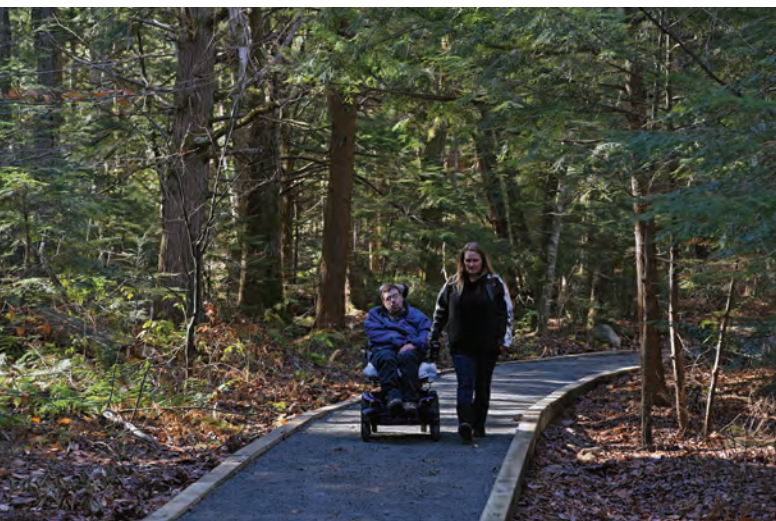
is a life-sized sculpture made from more than 300 naturally shed unaltered antlers, each carefully selected and positioned to form a specific part of the deer's anatomy. Yacovella collected the antlers for more than half a century, and the finished sculpture took two years to complete. The WOW National Museum opened in September. Read more about Yacovella's work in the October, 2005 issue of *Conservationist*.

New DEC Marine HQ

DEC recently announced plans to build a new marine resources headquarters at Nissequogue River State Park on Long Island's north shore. The 25,000-sq. ft. building will house DEC's fisheries, habitat, shellfish, oceans, and enforcement programs. DEC's Division of Marine Resources (DMR) oversees the state's marine resources, which are found on Long Island, in New York City, Westchester County coastal areas, and tidal sections of the Hudson River. Funded through the Governor's NYWorks program, the building will be equipped with the State's only FDA-certified shellfish laboratory, a critical tool for monitoring the state's 1.3 million acres of shellfish harvest area. The new headquarters is expected to be completed in three years, and will complement ongoing recreational and safety improvements being made by the State Office of Parks, Recreation and Historic Preservation.

Access at Peck Hill SF

DEC recently completed a series of access improvement projects at the 2,800-acre Peck Hill State Forest in Johnstown, Fulton County, including creating a new wheelchair-accessible trail that leads to an accessible viewing platform and picnic area. Peck Hill borders the Adirondack Park and features a 19-acre wildlife sanctuary and 16-mile trail system. A 1.5-mile interpretive trail allows visitors to explore Willie Wildlife Marsh, a beautiful wetland habitat where you can see great blue herons, painted turtles, and a variety of frogs, dragonflies and other



Andrew Breedlove

marsh insects. It is a great site for hiking, primitive camping, snowmobiling, hunting, and fishing. The improvement projects were built by DEC, the Excelsior Conservation Corps and Student Conservation Association Adirondack Corps. For more information, visit: www.dec.ny.gov/lands/106893.html



Rendering by CT Male Associates

A New Frontier (Town)

As part of a multi-faceted strategy to establish a “Gateway to the Adirondacks,” DEC released a plan to transform the former Frontier Town theme park in Essex County into a vibrant venue that will link local and regional recreation experiences in the Adirondack Park, and bolster tourism and the regional economy. The strategy calls for development of a new DEC campground, including equestrian camping, and two day-use areas, to serve as a launch pad for outdoor exploration and adventure in the North Country. Trails from the site will connect to an existing trail network along Rt. 9, and part of the Schroon Lake-North Hudson Snowmobile Trail Network, known as the “Ti to Co Line Trail.” Additional multi-use trail connections will provide access to Hammond Pond Wild Forest, Vanderwhacker Mountain Wild Forest, and the Palmer Pond Bridge, which leads to publicly owned lands, including the Boreas Pond Tract (as contemplated in the Vanderwhacker Mountain UMP Amendment) and

the Essex Chain Lakes Complex. The all-season, day-use area is slated to open in the fall of 2018 and the campground and equestrian area will open to the public by summer 2019.

New Pavilion at Maurice D. Hinchey CIC

In mid-September, DEC broke ground on the construction of a new outdoor pavilion at the Maurice D. Hinchey Catskill Interpretive Center (CIC) in Ulster County. The Center, which opened July 1, 2015, serves as a gateway for visitors to learn about the vast number of outdoor adventures available in the 700,000-acre Catskill Park. The new pavilion will be a venue for CIC educational programs, a place where visitors can enjoy a picnic and groups can meet before undertaking their Catskill adventures. The facility will also showcase the Catskills’ natural resources and recreational opportunities by offering information about the Catskill Park, New York City’s one million-acre Catskill/Delaware drinking watershed, and numerous opportunities to enjoy the region’s treasured natural resources. The pavilion, which is part of Governor Cuomo’s Adventure NY Initiative, is expected to be completed this spring.

Salmon River Fish Hatchery



Robin Kuiper

Hatchery Improvements

In November, DEC completed the first phase of renovations to the Salmon River Hatchery in Altmar, Oswego County. The improvements include new live fish displays, interpretive displays in the visitors center, additional signage, and revitalized public areas. Future plans include: modernizing the facilities to enhance fish production; installing a new fish ladder; maximizing energy efficiency and reducing water use; and reimagining the interpretive and visitor areas. Built in 1980, Salmon River hatchery specializes in raising steelhead, chinook and coho salmon, and brown trout, and has served a critical function in the revival of the Great Lakes fishery. The hatchery receives about 50,000 visitors each year.



Bad Hair Day

I live near Buffalo, New York and got this great picture of a female cardinal on a windy day.

Kathleen Zielinski

Cardinals, like this female, keep their beautiful colors throughout the year. They are always a welcome sight against a wintry background.

Waiting out the Storm

Thought you'd enjoy this photo of a doe and her two fawns. They didn't seem bothered by the wintry conditions.

Laurie Dirks

Great shot, Laurie! White-tailed deer have an insulating winter coat of hollow hair that is much longer and thicker than their summer coat, keeping them warm.



Just Hanging Out

As a longtime reader of your wonderful magazine, I thought you would enjoy the attached photo of a barred owl taken in Worcester, N.Y.

Joe Lubell



Barred owls are year-round residents of New York State. Their "who-cooks-for-you" call is iconic to this species, and is often heard in heavily wooded parts of New York at night. This one appears to be fluffed up against winter's chill.

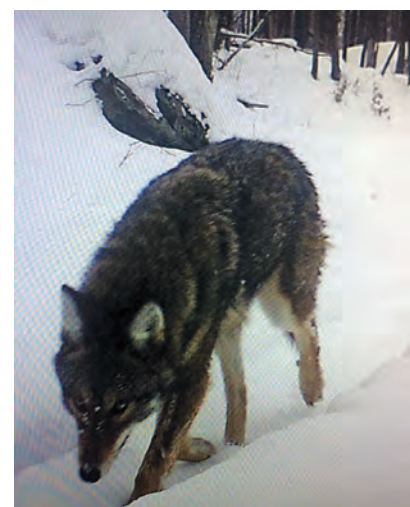
Out for a Stroll

We have three trailcams on a 100-acre piece of woodland property. We are getting lots of nighttime photos of coyotes, bobcats, raccoons and deer, but this is the best day photo so far.

Alan and Linda Cortright
Horton, NY

Nice shot! Eastern coyotes are not strictly nocturnal. They may be observed moving about during the day, yet are more active after sunset and at night. As winter progresses into March, coyotes may be more active and conspicuous, as they are setting up their denning areas for the soon-to-arrive pups. To learn more about the eastern coyote, go to www.dec.ny.gov/animals/9359.html. You can also read more about coyotes in the article "Rise of the Eastern Coyote" in the June 2014 issue of Conservationist.

—Mike Schiavone, DEC Wildlife Biologist





The Jig is Up

We went fishing at Camp Koinonia, near Eldred, NY, in early February last year. Miles, 10, caught a pickerel on a tip-up, and Cyrus, 5, (pictured here) caught his pickerel jigging. Keep up the great work. We love your magazine.

Anna Vikse
Long Beach, NY



My sons, Lucas (8; pictured here) and Evan (6) went fishing in the North Country with their grandfather. Both boys caught walleye.

Angela Regan

Congratulations to all! Glad to see you are enjoying the popular sport of ice fishing. Before you head out, be sure to check out DEC's Ice Fishing webpage for tips and safety information: <http://www.dec.ny.gov/outdoor/7733.html>



A Special Find

Mr. Dwaine Shade of Cold Brook (Herkimer Co.) recently shared this special find: a 1940 Resident Special Deer License pin he found in 2007 on property he owned in Wyoming County. Mr. Shade was digging through an old home dump on the property when he discovered the pin. He believes the pin

belonged to a member of the Eustace family, who owned the farm before he did.

License pins were first issued in 1917. Hunters were required to display their pin on a hat or jacket, similar to back tags in use today. The pin indicated the wearer had a corresponding paper license. The Special Deer License pins were first issued in 1927, and were discontinued in 1941 during World War II. Back tags were formally adopted for hunters in the mid '50s. License pins like this are quite collectable and are an important part of New York State DEC's history of game management and protection.

—Steven Heerkens, DEC Wildlife Biologist

For more information, see the August 2003 *Conservationist*.

Faithful Reader

Thank you for a wonderful and beautiful magazine! I am 92 years old and enjoy your magazine very much, being an outdoors person all my life. I hunted, trapped and hiked until I was 80. Thank you for bringing back memories.

Della Fuller
Hallstead, PA



Snow Squall

We experienced a wraparound wind effect that generated a lake effect snow band off Cayuga Lake. These bands are often very narrow and defined, barely visible on the radar and often surrounded by sun and blue skies.

Abigail Bixby

What a beautiful picture Abigail. Thanks for sharing with us.

E-mail us at: magazine@dec.ny.gov

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Back Trails

Perspectives on People and Nature

John Bulmer

Missing the Adirondacks

By Shannon Brescher Shea

My folded hands in church testify to a spiritual awakening on a middle school trip to the Bog River. A scar on my knee reminds me of my tumble down a rock face on Algonquin Mountain when I was 17. The diamond ring on my finger symbolizes my husband's marriage proposal on top of Buck Mountain.

Despite the Adirondacks' significant influence on my life, I realized recently that my children will never have the same connection.

One day, my husband and I will bring our two sons to hike Buck Mountain, visit the Wild Center in Tupper Lake, rock-climb near the Gothics, and canoe the Bog River.

My husband and I both grew up in New York's Capital Region, a few miles apart. The nearby Adirondacks held a special place in both of our families' traditions.

I pedaled the Lake George Bike Trail so many times that I can name every landmark from memory, from the old amusement park to the "one-mile hill" that once seemed so intimidating. In autumn, my family always drove up to the High Peaks to take in the multicolored splendor.

Each summer, my father-in-law hauled his son to the Bog River and Grass Pond for a week-long canoe trip. They always went with my father-in-law's best friend, who had both a fondness for WWII-era camping gear, and a history of making terrible decisions. Most of my husband's best stories come from those trips, from nearly burning down acres of forest, to surviving the 1995 "blowdown" when incredibly high winds felled thousands of trees.

As high school sweethearts, we spent many usefully wasted afternoons in the mountains. We messed around with friends in Lake George's frigid waters, got lost multiple times despite well-marked trails, and took photo after photo in the days before social media.

But then we left. When I got a job with the federal government, we moved from upstate New York to Washington D.C.

Although we had moved before, we had always returned. This time, it took

on a sense of finality. We bought a house. We had children. We made a life together, including all of the typical milestones of adulthood.

It wasn't until last summer that I appreciated how much I miss New York. Last July, my parents sold their house. Suddenly, I realized that it wasn't just the loss of my childhood home. It was the loss of an entire region, from Saratoga's bucolic streets to the historic Adirondack fire towers. This spring, my in-laws plan to sell their house, cutting all our formal ties to the area. We can always visit, but it won't be the same.

When I was a kid, I wondered why people chose to vacation in Lake George Village and Lake Placid. Some of the world's most beautiful places were just part of the background to me. Now I know why.

One day, my husband and I will bring our two sons to hike Buck Mountain, visit the Wild Center in Tupper Lake, rock-

climb near the Gothics, and canoe the Bog River. But to them, the Adirondacks will be just another vacation destination, come and gone like Zion National Park or Cape Cod.

Instead, they'll have the Appalachian Trail and Potomac River in their blood, fostered by frequent trips to Shenandoah and Harper's Ferry National Parks. Those places aren't the Adirondacks; nothing else is. Despite that, I hope their experiences will imbue the most important thing the Adirondacks taught me: a deep love and respect for nature, no matter where it is found.



A former *Conservationist* intern and frequent contributor, **Shannon Brescher Shea** works for the U.S. Department of Energy, gardens vigorously, and misses the Adirondacks from her home in suburban Maryland.

Prothonotary warbler



Doug Tallamy

Double-toothed prominent caterpillar



Doug Tallamy

Black-throated blue warbler



Doug Tallamy



Chickadee
Jeff Nadler

Want to attract birds?

Garden with plants that attract caterpillars (butterfly and moth larvae). Most songbirds raise their young on diets high in protein—like that found in insects and caterpillars. Chickadees, for example, require between 6,000 and 10,000 caterpillars to raise one brood of young. And some will raise more than one brood a year. That's a LOT of caterpillars.

DEC's Saratoga Tree Nursery sells more than 40 species of native tree and shrub seedlings until May 9th. Native trees and shrubs are more likely to support native insects,

the preferred food for local birds. When choosing which species to plant, keep in mind that not all native trees are equal: oaks support nearly 400 species of caterpillars in New York, while pines support about 200.

Whether you're planting seedlings to create a windbreak, stabilize a streambank, produce wood products, or enhance wildlife habitat, you're also helping to feed birds.

For more information on the Tree Nursery's annual plant sale, visit www.dec.ny.gov/animals/9395.html.

Snowy owl



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See page 4

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