NEW YORK STATE

CONSERVATIONIST

AUGUST/SEPTEMBER 2023

BURN SEASON

ALSO:

How to Limit Negative Encounters with Sharks

Monitoring Air Quality In STEP

Your Perfect Campground

Dear Readers,

Protecting New Yorkers, our environment, and wildlife is a crucial mission of our agency that continues to be challenged by factors that are sometimes beyond our control. This summer marked some of the worst air quality New York has experienced in decades, caused by distant wildfires burning throughout Canada. Still, New Yorkers rose to the challenge both here, with an extensive public information campaign to advise on precautions to take, and in Canada, with deployment of crews of brave Forest Rangers to the fire lines.

In this issue of the *Conservationist*, readers can learn about DEC's contributions to the efforts to extinguish the fires (pg. 6) and protect our lives and natural resources. Readers can learn how prescribed fire plays an important role in managing wildlife habitat and protecting property by preventing out-of-control wildfires (pg. 8), like those in Canada.

Readers can also learn about an innovative partnership focused on science and engineering education that promotes diversity, equity, and inclusion of students in historically underrepresented and economically disadvantaged communities. DEC and the University at Albany are working together to prepare elementary and secondary school students to acquire the aptitude and skills necessary to pursue professional careers in the scientific, technical, and health-related fields (pg. 24).

In this issue, readers can also learn about the sharks that inhabit New York's waters and how they are an integral part of our marine ecosystems (pg. 18). Or, how hunters can help protect wildlife and communities by switching to non-lead ammunition (pg. 12). As DEC Commissioner, I believe all our activities reflect and advance the same goal—ensuring a clean, healthy, and accessible environment. DEC recognizes that we have important responsibilities, and our dedicated staff are continuously working tto put out fires wherever they arise.

You can read about all this and much more in this issue of the *Conservationist*.

Sincerely,

Basil Seggos, Commissioner

ON THE COVER:
Rangers stand watch over a prescribed burn at Three Rivers Wildlife Management Area in Onondaga County; by Mike Chappell

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FROM DEC ARCHIVES
Smokey Bear was on hand at the 1958 New York State Fair to remind fair goers about the importance of wildfire prevention and to pose for photos.

In this issue

WHAT IS IT?
Go to page 28 to find out!

In every issue

GREAT BLUE HERON (*Ardea herodias*) forage for prey in swamps, salt marshes, lakes, slow moving rivers and streams, and along beaches, fields, or meadows throughout New York State; by Aaron Winters

Briefly

Students participate in installation of living shoreline at Widow's Hole Preserve. Photo by Peconic Estuary Partnership

↑ NEW YORK'S OCEAN ACTION PLAN

Interested in learning about our ocean? DEC recently released the *State of the Ocean 2023*, which provides an overview of actions to advance the New York Ocean Action Plan. The report highlights actions to enhance ecological integrity, promote sustainable growth, adapt to change, and empower public stewardship. The plan is focused on improving the health of our ocean ecosystems and their capacity to provide sustainable benefits to New Yorkers. To learn more about New Yor's ocean and coastal resources, go to: **www.dec.ny.gov/lands/84428.html**.

← 2023-24 HABITAT & ACCESS STAMP

Voters chose the Virginia opossum, North America's only marsupial, to be the next species featured on DEC's Habitat & Access Stamp. The stamp is a PDF that DEC provides in exchange for a donation of $5. Donations support efforts to conserve wildlife habitats in New York State, allowing people to enjoy outdoor activities like fishing, birding, and hunting. The Habitat & Access Stamp can be purchased through any vendor that sells hunting and fishing licenses or by visiting: **https://decals.east.licensing.app/products**.

↓ TAKE THE 2023 I BIRD NY CHALLENGE

The I BIRD NY Challenge is back and better than ever. Birders of all ages and abilities are encouraged to see or hear and record any 10 bird species of their choosing, with opportunities for both youth and adult participants to win great birding prizes. New this year, the challenge is running from March 1 to November 1. Observation logs may be submitted via an online form and all participants will receive a commemorative challenge patch. For more information, including ideas on species to observe and places to go, visit: **www.dec.ny.gov/animals/109900.html**.

Daniel Mlodozeniec

Skaneateles Lake; by Matt Champlin

↑ PROTECTING SKANEATELES LAKE WATER QUALITY

DEC and Finger Lakes Land Trust recently protected 86 acres in the Skaneateles Lake Watershed with a conservation easement. Protection of the property will safeguard the drinking water supply for the city of Syracuse and neighboring communities. The protected property, Fox Run Farm, contains 2,070 feet along Shotwell Brook, which drains into Skaneateles Lake, as well as 1,430 feet along an unnamed tributary. The easement will buffer the two streams and filter potential contaminants from entering the lake.

Conservation easements are voluntary legal agreements that permanently limit future land use to protect the land's conservation resources. Property protected with a conservation easement remains in private ownership, on local tax rolls, and is often available for traditional uses, such as farming and hunting.

↓ DEC AND TUSCARORA NATION PARTNER TO COMBAT TIRE DUMPING ON INDIGENOUS LANDS

The United States Environmental Protection Agency, DEC, and the Tuscarora Nation recently announced a partnership aimed at combatting illegal tire dumping on sovereign Nation lands. The Tuscarora Reservation, located in Niagara County, is home to more than 1,000 Tuscarora Nation citizens. Tires and other waste dumped illegally on Tuscarora Nation lands spurred action to prevent illegal behavior and help protect public health and natural resources. DEC strictly enforces all illegal tire dumping laws and regulations. For information on helping to prevent illegal tire disposal, see: **www.dec.ny.gov/docs/administration_pdf/wastetiredisposalcardfinal.pdf**.

↓ VETERAN HARVESTS A BEAR AND BREAKS RECORD

Korean War veteran and lifelong hunter Nelson Austin, age 93, took a 180-pound adult male black bear in October 2022 on his St. Lawrence County farm. It was his first bear. Mr. Austin is the oldest hunter to successfully harvest and report a black bear in New York State since DEC started tracking hunter demographic data in 1996. He submitted a tooth from the bear for age analysis and received New York State's 2022 Black Bear Management Cooperator Patch. For more information about submitting a bear tooth for age analysis and New York State's Black Bear Management Cooperator Patch, go to: **www.dec.ny.gov/outdoor/45598.html**.

ON THE FIRELINE

PROTECTING STATE RESOURCES

New York State's wildland firefighting experts are always prepared to help protect natural resources and public safety, both on public lands and in communities throughout the state. In 2022, Forest Rangers led the multi-agency incident response to a wildland fire caused by a lightning strike at Minnewaska State Park along New York's beautiful Shawangunk Ridge. Forest Rangers worked in cooperation with many State and local partners for approximately eight days before getting the Napanoch Point fire under control during extremely dry conditions. The fire was limited to just 142 acres thanks to the efforts of the 200 firefighters, bulldozer operators, pilots, other professional staff, and volunteers who worked on fire suppression and communication efforts.

INTERSTATE ASSISTANCE COMPACTS

Since 1979, New York State has sent firefighting crews to assist other states and nations with large wildfires. In 2021, 47 expert wildland firefighters from New York State were deployed to California, Minnesota, Oregon, and South Dakota to battle seven wildfires burning nearly 1.7 million acres of land. In addition to DEC's Forest Rangers, wildland firefighters from DEC's Divisions of Lands and Forests, Operations, Fish and Wildlife, Materials Management, and Remediation were crucial members of that year's crews.

CANADIAN ENGAGEMENT

New York State Forest Rangers hadn't been deployed to Canada since 2005, but record-breaking wildfire activity this year reignited the need for bi-national cooperation. Multiple crews of Forest Rangers were deployed to Quebec and Nova Scotia in 2023 to lead suppression efforts in remote wilderness, gaining new knowledge and experience they bring back home.

WILDFIRE SMOKE DESCENDS UPON NEW YORK

With more than 3,300 fires in Canada burning more than 21 million acres so far this summer, wildfire smoke became a major and unprecedented issue in New York State and across the northeast and midwest. Record levels of particulate matter from the wildfires in Canada descended into many New York communities and flared health concerns, particularly for those with respiratory challenges. The Department of Environmental Conservation (DEC) and the Department of Health (DOH) issue Air Quality Health Advisories with tips on how to protect the public when levels of smoke and other pollutants, like ozone, exceed safe levels. To learn more and sign up for Air Quality Health Alerts, go to: **www.dec.ny.gov/chemical/34985.html.**

AIR QUALITY INDEX (AQI)

The AQI was created to correlate levels of different pollutants to one scale, with a higher AQI value indicating a greater health concern. Each day, DEC's air pollution meteorologists forecast the AQI by monitoring regional levels of fine particles and ozone pollution throughout New York State. AQI forecasting is essential because it tells us how polluted the air is in our area. An elevated AQI value may be a health concern. DEC and DOH issue Air Quality Health Advisories when DEC meteorologists predict levels of pollution are expected to exceed an AQI value of 100, recommending that sensitive groups take necessary precautions. For New York State, the AQI forecast is issued each day and is available at: **https://on.ny.gov/nyaqi**.

AQI LEGEND

- Good (0–50)
- Moderate (51–100)
- Unhealthy for Sensitive Groups (101–150)
- Unhealthy (151–200)
- Very Unhealthy (201–300)
- Hazardous (301–500)

PRESCRIBED FIRE IN LONG ISLAND'S PINE BARRENS

Burn Boss Ranger Gallagher, left, directing prescribed fire operations in the Otis Pike Pine Barrens State Forest; by Yuko Ashida

PROTECTING PEOPLE, PROPERTY AND HABITATS

BY BILL FONDA

It's late February, and New York State Department of Environmental Conservation (DEC) Long Island Forest Ranger and Prescribed Fire Burn Boss Bryan Gallagher has been busy since January planning the region's prescribed fire season. Planning is a series of stages, the first of which is reviewing old burn plans and writing new ones where needed.

Prescribed fire burn plans outline management objectives, as well as parameters that must be satisfied before any prescribed fire can take place. Careful consideration is given to environmental factors such as current and expected weather conditions, wind direction and humidity, and smoke management considerations in close coordination with the National Weather Service.

Prescribed fires help keep threatened habitats like grasslands intact by killing off small, sprouting trees. Grasslands are not only rapidly vanishing on the East Coast, but also provide some of the most effective fire breaks, helping prevent the spread of wildfires. In addition, prescribed burns remove undergrowth and dead vegetation that would otherwise provide fuel for the rapid spread of wildfires.

The Long Island prescribed fire management team is led by DEC Forest Rangers, with assistance from other DEC staff, federal, state, and county personnel, as well as local volunteer firefighters and other volunteers. Together, the team prepares the burn plans to set management objectives, establish a day of the event action plan, and build in the safety aspects of the plans, which is the most important feature for both the firefighters and the public.

The hours spent in the cold dark days of winter preparing burn plans is key for dealing with the fickle spring weather patterns on Long Island, which may see a period of dry days followed by rain and variable wind patterns that change daily and throughout the day. With its highly suburban population, DEC properties on Long Island are often crisscrossed with roads and surrounded by residential and commercial properties, necessitating the preparation of up to 21 burn plans for the region.

"There are a number of parameters that go into choosing a burn unit," Ranger Gallagher said. "Some units are close to major roads and need specific wind patterns to minimize risk. When you prepare a large number of burn plans, you can perform burns under a variety of weather conditions."

MANAGING HABITAT

Prescribed fire is an important part of DEC's mission to manage the 16,086 acres of Long Island State Forests to protect wildlife habitat for species like nesting grassland birds, which rely on early successional habitats that are fire dependent.

With most major fires on Long Island being pushed by strong winds through dense tree canopies of pitch pine and scrub oak forests, the grassland areas maintained by prescribed burns are places where wildfires can drop out of the tree canopies and onto the ground where they can be pounced on and contained by responding volunteer firefighters and DEC Forest Rangers.

Forests in Long Island's 105,000-acre Central Pine Barrens, which encompass portions of the towns of Brookhaven, Riverhead, and Southampton, need fire to reproduce. Comprised mainly of pitch pines and scrub oaks, pitch pines need fire to regenerate. The pitch pine cones (called serotinous cones) are sealed by a waxy residue that keeps their seeds inside the cones. Only when these cones are exposed to the extreme heat of a fire does this residue melt away and allow seeds to drop to the ground, giving new trees the opportunity to sprout.

While the Central Pine Barrens evolved as a fire-adapted and a fire-dependent region, as Long Island's population boomed, fire was viewed as a threat to life and property, and was extinguished as soon as the first flames began to flicker. The result was dense stands of an evenly aged forest where tree limbs from one tree touched another, making for a continuous fuel bed, just waiting for a spark.

In August of 1995 that spark came.

The summer of 1995 was Long Island's driest in 71 years. Pitch pine and scrub oak forests in central Suffolk County were tinder dry and ready to explode into flame. On August 21, an 1,800-acre fire, believed to be caused by human activity, started at DEC's Rocky Point Natural Resources Management Area, now Rocky Point Pine Barrens State Forest.

Three days later, the Sunrise Fire began. With flames reaching 50 to 200 feet in the air, it threw burning embers 400 feet across Sunrise Highway, ultimately burning 3,200 acres. By August 27, both fires were extinguished.

More than 2,500 people responded to the 1995 fires on Long Island, including 2,000 firefighters from 192 fire and ambulance companies from across Long Island, New York City, and Connecticut. Thirty-eight DEC Forest Rangers provided on-the-ground wildland firefighting expertise and aviation support for helicopter bucket drops.

Members of the United States Forest Service's "hotshot" crews and fire management staff responded. Pilots from the United States Military Academy at West Point and the New York Army National Guard also fought the blaze. In the end, this force saved more than 150 structures in the path of the Sunrise Fire.

Nearly as soon as the ashes from this fire went cold, emergency management personnel, DEC Forest Rangers and natural resource managers, and local volunteer firefighters began working on plans to prevent future Sunrise Fires. At the top of the list of ideas and actions for preventing future infernos was to incorporate managed, or prescribed, fires into the landscape.

For DEC Long Island Forest Ranger Bryan Gallagher and Ranger Captain Tim Byrnes, their first prescribed fires came in their first year on the job in 1999, and only a few years after DEC's prescribed fire program began.

In those early years, prescribed fires were led by DEC Forest Rangers and United States Fish and Wildlife Service (USFWS) employees.

↑ Ranger John Gagne, foreground, laying down wet line in the Otis Pike Pine Barrens State Forest; by Bryan Gallagher

According to Ranger Gallagher, this spirit of cooperation is what has kept the program going for nearly 25 years. "We have built a really solid interagency staff," Gallagher said. "On most burns we have volunteers, DEC staff, and firefighters from Brookhaven National Lab, the Central Pine Barrens, the Albany Pine Bush Preserve, and the USFWS. We all help each other out. On very few days would one agency be able to pull together enough people for a burn. We teach and learn from each other."

From this initial start, DEC's Long Island prescribed fire program has grown, and over the years DEC staff, along with Suffolk County, federal, and not-for-profit partners have participated in prescribed fires in Suffolk County parklands, Brookhaven National Lab property, the USFWS's Wertheim National Wildlife Refuge, as well as DEC lands.

Since 2018, in part due to a DEC $1.25 million grant to the Central Pine Barrens Joint Planning and Policy Commission, more staff and equipment have been available to assist with prescribed fires. The grant enabled the Commission to hire staff and secure firefighting

HOW TO BECOME A WILDLAND FIREFIGHTER

Individuals interested in participating in prescribed fire operations with DEC and cooperating agencies must have completed the S-130 Firefighter Training course and the S-190 Introduction to Wildfire Behavior course, along with passing required physical fitness tests. Individuals interested in taking these training courses should visit the New York Wildfire and Incident Management Academy website at: https://pb.state.ny.us/our-work/ny-wildfire-and-incident-mgmt-academy/nywima/.

↓ View of nearly completed burn at Rocky Point Pine Barrens State Forest; by Bryan Gallagher

PRESCRIBED FIRE IN NEW YORK STATE

Prescribed fire is utilized in many regions of New York State to manage fire-dependent ecosystems in a manner that develops a resilient natural balance. Controlled burns are heavily regulated by law and regulations, and require extensive training and technical expertise to be conducted safely. In 2022, DEC Forest Rangers and other staff, in cooperation with the Albany Pine Bush Preserve Commission and the Central Pine Barrens Commission, participated in 53 prescribed fires, treating 896 acres. In addition to helping prevent large wildfires by reducing the amount of "fuel" (dead branches, brush, leaf litter, etc.) available, prescribed burns also improve wildlife habitat by maintaining the early successional habitats that many threatened and endangered species depend on.

equipment, leading to the treatment of more acres with a greater focus on the wildland/urban interface that borders so much of DEC's properties.

In 2022, DEC and its partner agencies burned approximately 329 acres of grassland habitat and 57 acres of forested lands, representing nearly 19 percent of approximately 2,078 acres that have been burned since 2004. These treatments included controlled burns on two of DEC's largest Long Island properties, the Otis Pike Pine Barrens State Forests and the Rocky Point Pine Barrens State Forest, as well as on several other smaller DEC-managed properties in eastern Suffolk County.

Bill Fonda is a Public Participation Specialist in DEC Region 1 and a former Forest Service Hotshot wildland firefighter.

LEADER IN PRESCRIBED FIRE

Besides working with local cooperators, the Long Island prescribed fire program has become a training program that pays dividends statewide and nationally.

During the peak prescribed fire season, usually late-March to early-May, when fall's fallen leaves have dried and covered the forest floor and grasses have long ago lost all of their green color, DEC Forest Rangers from across the state come to Long Island to gain invaluable training on their way to becoming prescribed fire burn bosses, firing bosses, engine bosses, and advanced wildland firefighters.

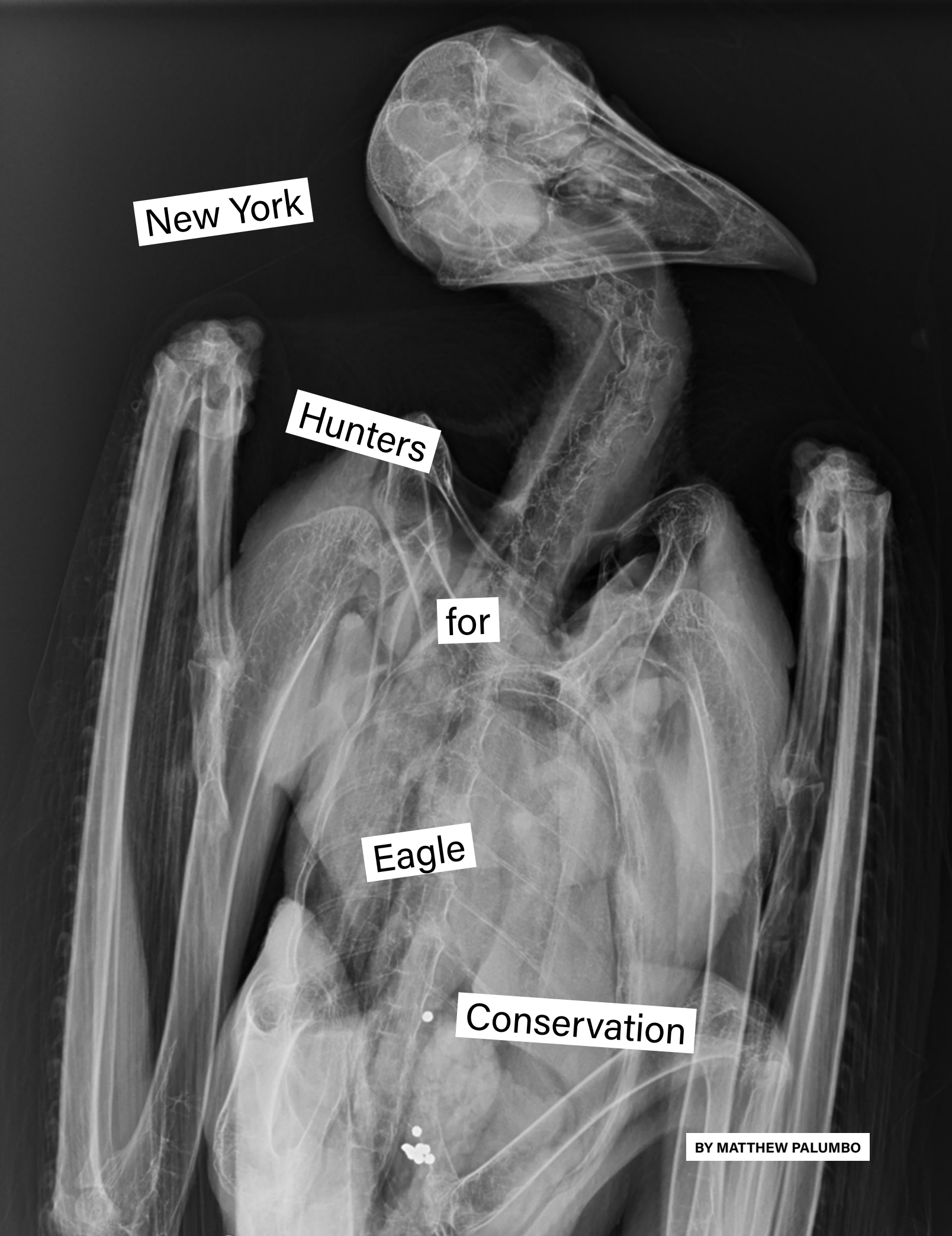
"Long Island has been on the cutting edge of prescribed fire," DEC Forest Ranger Captain and Fire Management Officer Jaime Laczko said. "It has the most urban interface and there is no better place than Long Island to gain experience and the training to grow the program."

Since 1998, DEC Forest Rangers and instructors from the New York Wildfire and Incident Management Academy have led students onto DEC lands to conduct prescribed fires and learn the skills they need to start and advance their careers as wildland firefighters and prescribed fire burn bosses.

For Captain Byrnes, the two driving forces that led to this growth and recognition are education and the interagency cooperation that have taken place. Coming onto the job shortly after the 1995 fires, there was an entirely different view about fire and prescribed fire in the late 1990s. "Back then I would not have predicted that we would have this support from the agency and our partners and the public," Byrnes said. "At no point did anyone think that fire was a good thing back then. Through the efforts of the agency (DEC) and the Central Pine Barrens Joint Planning and Policy Commission, people became aware that prescribed fire has its advantages. Education has led us to where we are today and it is what has really changed hearts and minds."

Now with the light fading in late March, Ranger Gallagher takes one final look at tomorrow's forecast. Seeing that everything is lining up for weather conditions to be conducive for a successful prescribed burn, he sends out the message that eager volunteer and wildland firefighters have been waiting for: "We are a GO for Prescribed Fire Operations...."

And with one push of the send button, 20 or more people will change their evening routines. They will get a little more rest, drink more water, pack a larger lunch, and double check their fire gear so that they are prepared for the long, hard work day ahead.



New York Hunters for Eagle Conservation

BY MATTHEW PALUMBO

During February 2023, in St. Lawrence County, New York, a local landowner observed something out of the ordinary. It was a bald eagle that wasn't perched in a tree or flying overhead searching for food. Rather, it was on the ground, and it was observed several times over two to three days in the same location. Seeing a bald eagle alone, eating a newly caught fish on the shore of a stream, or scavenging on the carcass of another animal is not too peculiar. However, consistently seeing an eagle in the same location, on the ground, over multiple days, was cause for concern.

A call was made to a regional Environmental Conservation Police Officer, and the eagle was captured to determine what might be wrong, and if care could be provided. During the capture, the eagle was not defensive and was hanging its head, almost looking droopy—all signs that this animal was not well.

Veterinary staff who examined the bald eagle determined that it was in good physical condition, but was exhibiting severe neurological distress, as it couldn't grip with its feet nor flap its wings. While being monitored at the veterinary facility, the eagle's condition further deteriorated and the tough decision was made to euthanize the bird the following day. A necropsy and pathology evaluation were performed to determine the cause of death. The pathology report showed that the eagle suffered from lead poisoning.

While lead poisoning may be an unfamiliar cause of eagle death, it has been a concern of the New York State Department of Environmental Conservation (DEC) for years. DEC's Wildlife Health Unit performed necropsies on approximately 300 bald and golden eagles from 2020 to 2022. Approximately 70 percent of these eagles had detectable levels of lead in their system. Of these, approximately 18 percent were at levels considered lethal.

How are eagles getting exposed to lead? By scavenging on gut piles from harvested deer or dead deer that were wounded but not recovered. It turns out that lead ammunition used by deer hunters gets ingested by these birds and accumulates to levels that are often lethal.

Preceding page: X-ray of a bald eagle with lead in its digestive tract, from ingesting lead fragments.

LEAD POISONING AND EAGLE POPULATIONS

The most commonly available rifle bullets, shot gun slugs, and muzzleloader bullets are made from lead because it is soft, heavy, and expands rapidly, leading to an effective harvest. Along with this expansion, many lead bullets tend to fragment into small lead pieces upon impact. A well-placed shot on a deer typically results in the point of impact being where the vitals are located (e.g., heart, lungs, and liver). However, due to a lead bullet's ability to fragment into small pieces when a lead bullet impacts a target, small fragments can be sent throughout the vitals and other internal organs, up to 18 inches away from the point of entry.

When field dressing deer, hunters remove these internal organs producing gut piles usually near the location of harvest. These gut piles are then available to feed upon by bald and golden eagles, as well as numerous other scavengers, and these animals readily take advantage of a free meal. This chain of events of harvesting a deer with lead ammunition, then field dressing the deer and allowing for the contaminated gut pile to be available to scavengers, can lead to what happened in St. Lawrence County earlier this year.

While these gut piles can be available to eagles immediately after deer are field dressed, it is also believed that some gut piles remain frozen in the snow and become available during the following spring, when rising temperatures melt snow and expose them. The availability of lead contaminated gut piles has the potential to negatively affect both eagle species that can be found in New York.

The bald eagle population has been increasing throughout the state, but recent research has demonstrated that the population growth rate is reduced due to deaths from lead poisoning. This limited growth means the bald eagle population is not growing at its full potential. Conservation actions have resulted in a great success story of restoring bald eagle populations, but a growth rate that is restricted due to human causes is still a concern because lead poisoning is not the only threat that these birds face.

Some increasing threats to bald eagles include industrial wind facilities and exposure to highly pathogenic avian influenza. Bald eagles also have a low fecundity, or do not

produce many offspring each year, and therefore cannot as easily offset sources of mortality with increased reproduction. Overall, there is an ever-changing landscape of risk that these birds have to navigate, and trying to minimize the threats that are human caused may allow the species to be more resilient to other threats that are not as easily mitigated.

Golden eagles have not bred in New York State for several decades. However, most of their eastern United States population migrates through the state, as they travel back and forth to more northern breeding grounds. During the autumn and spring migrations, golden eagles commonly stop in New York and will readily feed upon gut piles and dead deer. Unlike bald eagles, the eastern population of golden eagles is not increasing, and therefore threats such as lead poisoning from consuming contaminated gut piles makes this species more vulnerable to potential population declines.

While the lead that is available to eagles and other avian and mammalian scavengers comes from hunting ammunition, many hunters are some of the biggest contributors to conservation efforts. Many hunters also care deeply about animals, are unaware of these unintended outcomes, and are interested in understanding how to avoid any potential negative effects.

Lead ammunition not only poses a threat to wildlife, but it can also contaminate meat that is meant for human consumption due to the numerous, small lead fragments that can often go undetected in processed meat. As lead is a potent neurotoxin, any amount in a human diet is a potential health risk. The New York State Department of Health (DOH) recommends that pregnant women, women of childbearing age, and children should avoid venison harvested with lead bullets.

Minimizing the risk from lead hunting ammunition to wildlife and people is a priority for DEC and its partner agency, DOH. The increased use of non-lead ammunition has the potential to directly benefit bald and golden eagles within New York State. Go to **www.dec.ny.gov/outdoor/48420.html** for details.

HOW HUNTERS CAN HELP

One way to reduce the number of lead contaminated gut piles on the landscape in New York is by hunters choosing to use non-lead ammunition. Non-lead ammunition is typically composed of more than 99 percent copper, and copper does not fragment like lead. When a copper bullet impacts a deer, the majority of the bullet remains intact. If a copper bullet remains in a deer's organs after the deer is harvested, eagles typically won't eat it. If they do eat it, the bullet is not toxic to them and they can regurgitate a piece of metal that size.

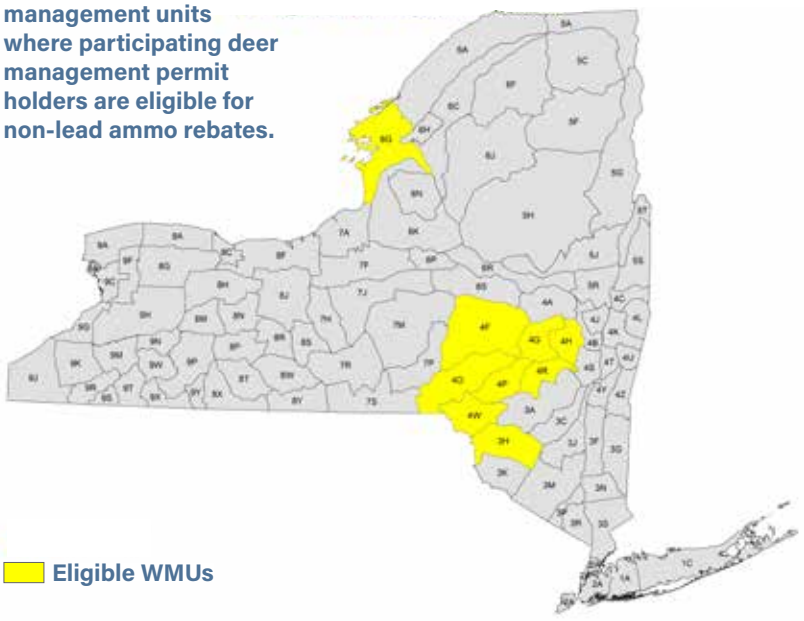
DEC has partneredwith the New York Cooperative Fish and Wildlife Research Unit at Cornell University, United States Geological Survey, and Conservation Science Global to implement a multi-year research study to determine the reduction in eagle deaths that can be realized resulting from increased use of non-lead ammunition for deer hunting. This study will rely on New York State deer hunters using non-lead ammunition.

AMMO REBATES AVAILABLE

To recruit hunters to participate in the study, DEC will be offering rebates for the purchase of certified non-lead ammunition. The study will be implemented during the 2023-2024 hunting season, and we expect to repeat it through the 2024 and 2025 hunting seasons.

→ DEC Biologist Kevin Hynes performing a necropsy on a juvenile bald eagle.

2023–2024 Map of wildlife management units where participating deer management permit holders are eligible for non-lead ammo rebates.



This cooperative effort is a voluntary program and eligibility will not be statewide. Eligibility will be limited to hunters that are issued a Deer Management Permit (DMP) within the following Wildlife Management Units (WMUs): 3H, 4F, 4G, 4H, 4O, 4P, 4R, 4W, and 6G. Participants must also participate in pre- and post-hunting season surveys.

Limiting eligibility to hunters issued a DMP will allow the partners to track the use of non-lead ammunition in specific places because DMPs are required to be used in specific WMUs. The WMUs were selected based on previous DMP harvest success and the relative abundance of bald and golden eagles in those areas.

Eligible hunters can apply directly at: **https://huntersforeagleconservation.org/new-york/**. It should be noted that it will be the hunter's responsibility to purchase, and produce a receipt for, certified non-lead bullets (either preloaded or for handloading).

During the 2023-2024 hunting season, while hunters are using non-lead ammunition, cooperative efforts will be made to assess bald and golden eagle abundance within the project WMUs. As this is the first year of the project, we expect to provide updates and a summary of the results in future issues of the *Conservationist.*

In the meantime, up to date information can be found at: **https://huntersforeagleconservation.org/new-york/** and **www.dec.ny.gov/outdoor/48420.html**.

If you hunt deer in New York State with lead ammunition, DEC asks that you act responsibly. Options to help reduce the likelihood that scavengers will be exposed to lead contaminated gut piles are to bury them or pack them out and dispose of them appropriately. DEC also recommends not to put out carcasses of animals harvested with lead bullets with the intention to attract other animals.

This project will not be possible without the voluntary efforts of New York State deer hunters. We are grateful for their efforts to explore potential health improvements for bald and golden eagles. For more information, please contact **wildlife@dec.ny.gov** (subject: non-lead ammo study).

Matthew Palumbo is a Wildlife Biologist in DEC's, Division of Fish and Wildlife.

On Patrol

↑ SEAL TEAM—SUFFOLK COUNTY
On May 9, ECOs Simmons, Vandenbos, and Zullo received notice from the New York Marine Rescue Center (NYMRC) reporting a seal entangled in a gill net on Little Gull Island. The Officers responded by boat and spotted the animal on the island through binoculars. ECOs Zullo and Vandenbos captured the injured seal and transported it back to the vessel. The Officers delivered the seal to the NYMRC in Riverhead for treatment of its wounds and eventual release back into the wild.

↓ ZOO DONATIONS—DUTCHESS COUNTY
On March 20, ECOs Tompkins and Wamsley donated several fish to the Trevor Zoo in Millbrook. The fish were all seized during striped bass enforcement details along the Hudson River. ECOs have been donating fish to the Trevor Zoo for years to feed an assortment of animals ranging from owls and hawks to wolves and otters. This time, the Officers had the chance to assist with the feeding, which is a rare occurrence. The donations are happily accepted by zoo employees, helping lower the cost of feeding the animals and preventing the waste of seized fish.

← IMPATIENT TURKEY HUNTER—SARATOGA COUNTY
On April 30, one day before spring turkey season opened, ECO Shaw received an anonymous tip from someone who heard a shot and watched a person run into a wooded area with a large bag. Officer Shaw interviewed the suspected hunter who admitted to shooting a large tom turkey out of season. However, a quick check with DEC Dispatch revealed the hunter had not purchased his turkey privileges. When ECO Shaw asked to inspect the firearm used to illegally take the bird, the hunter handed over a rifle that is not legal for hunting turkeys. Officer Shaw issued tickets to the hunter for hunting out of season, hunting without a turkey privilege, and taking turkey with a rifle. He also seized the turkey as evidence.

↑ WILDERNESS RESCUE—ESSEX COUNTY
On May 20, an emergency beacon was activated by a hiking party on the Phelps Trail, east of Little Marcy. At 1:00 a.m., after six miles of hiking, Forest Rangers Foutch and Mecus located the subjects on the trail and treated them for mild hypothermia. Three to four feet of snow combined with rainy conditions overnight significantly slowed the rescue. At 8:50 a.m., the group reached the Johns Brook outpost, where Rangers continued to warm the hikers before continuing to the trailhead. No further medical treatment was required. The hikers were on a three-day trip, but had not checked the weather forecast and did not turn around when they encountered more snow than they were prepared for. Hikers should always check the weather forecast and know their limitations before venturing outdoors. Learn more at: **www.dec.ny.gov/outdoor/119881.html**.

↓ WILDERNESS RESCUE—GREENE COUNTY
On May 13, Forest Rangers Allwine and Rusher responded to a report of an injured hiker on Plateau Mountain. When Ranger Rusher reached the hiker, the subject was complaining of nausea, lethargy, sleepiness, and cramping. Ranger Rusher provided the hiker with electrolytes and fluids. After eating and resting, the hiker began walking out with the help of rescue crews. Centerville Cedar Grove Fire, Kingston Fire, Lanesville Fire, Palenville Fire, Hunter Police, Hunter Ambulance, Twin Clove Rescue, and Greene County EMS all assisted in the rescue.

← WILDERNESS RESCUE—ESSEX COUNTY
On May 6, Forest Rangers Foutch and Mecus responded to an emergency beacon activation at the base of Grace Peak. The subject indicated in the text that he suffered a dislocated shoulder and was moving slowly down the trail. Rangers and members of Keene Valley Backcountry Rescue hiked in and reached the subject and put his arm in a sling. When the 43-year-old from Hornell was too weak to continue, rescuers carried him the final mile and a half out to a Keene Valley Ambulance.

There's Some-Fin About Sharks

BY JENNIFER LANDER

With the warm weather and beach season in full swing, crowds of New Yorkers and tourists are visiting the shore to enjoy the refreshing breeze and to swim in the ocean with family and friends. When enjoying the beach, it can be easy to forget that the ocean is an expansive and wild marine ecosystem with a rich diversity of sea life. The Atlantic Ocean is full of astounding marine species, including large whales, dolphins, sea turtles, fish, rays, and sharks.

To ensure that diverse and self-sustaining populations of marine resources are available for future generations, the Department of Environmental Conservation (DEC) includes the Division of Marine Resources. This Division's mission is to manage and maintain the state's living marine, estuarine, and anadromous resources, and to protect and enhance the habitat upon which these resources depend. And believe it or not, New York State's marine resources include sharks.

Sharks have lived in New York waters for millions of years, even before the dinosaurs. There are more than 13 different shark species that make seasonal migrations to our area between the months of June and October, with shark activity in New York being the most active in July and August. The biological characteristics of these shark species differ greatly, each with its own food, habitat, and water temperature preferences. These differences impact when and where sharks are observed in New York waters.

NEW YORK SHARKS—OFFSHORE

There are a few species of sharks that will stay mostly offshore and are rarely found close to the coast. It's important to remember that while all these species usually stay offshore, it is possible for these shark species to travel nearshore if conditions such as water temperature and prey availability are favorable.

When people generally think of sharks, the white shark (*Carcharodon carcharias,* also known as great white) is most likely the first one to pop into mind. White sharks can grow to more than 18 feet long. These animals are strong swimmers and ambush predators, with the main sources of food for adult white sharks being seals, other sharks, rays, and tuna. Adult white sharks are also known to gorge on dead whales.

Satellite telemetry data shows that adult white sharks tend to spend most of their time far offshore, near the outer continental shelf as they migrate to or through New York waters. However, there have been infrequent observations and tag detections of adult white sharks in New York's coastal waters.

The shortfin mako shark (*Isurus oxyrinchus*) is the fastest shark in the world. This shark can swim up to 43 miles per hour. This species can reach up to 13 feet in length and has a sleek torpedo like shape.

Blue sharks (*Prionace glauca*) grow up to 12.5 feet long and are usually slow swimmers, but capable of moving fast. This species is curious and is usually the first to show up if chum is placed in the water. This species is known for making long transoceanic migrations, and tag data has shown that some blue sharks swam from the east coast of the United States all the way to western Europe and Africa.

White shark
Carcharodon carcharias

Shortfin mako shark
Isurus oxyrinchus

Blue shark
Prionace glauca

Basking shark
Cetorhinus maximus

↑A shark swimming through and feeding on a school of Atlantic menhaden (*Brevoortia tyrannus*); by New York State Parks

↖Live sharksucker (*Echeneis naucrates*) and the sand tiger shark (*Carcharias taurus*)

The basking shark (*Cetorhinus maximus*) is usually found farther offshore in the ocean. This gentle giant can reach up to 40 feet long and is generally a slow swimmer. They are filter feeders, meaning they consume plankton. They can be found feeding in the New York area during the annual spring phytoplankton blooms that occur. Aerial surveys of the New York Bight have photographed many schools of basking sharks near the surface, "basking" in the sun during spring.

NEW YORK SHARKS—COASTAL

Several species of sharks that can be spotted in New York stay closer to the shore. All can be found both nearshore and a little farther offshore.

The common thresher shark (*Alopias vulpinus*) is a strong swimming shark and can sometimes be observed leaping out of the water. They can reach up to 25 feet long and have small teeth for their size because they typically hunt with their tail and not their mouth. They will herd schools of baitfish into a bait ball, then stun their prey by whipping their long caudal (or tail) fin and gobble up the stunned fish.

The smooth hammerhead (*Sphyrna zygaena*) is one of the four hammerhead species. Each hammerhead can be distinguished based on the shape of its head. Smooth hammerheads are notable by their rounded heads that are free of the notches that can be found on the other hammerhead species. They can reach up to 16 feet in length.

Common thresher shark
Alopias vulpinus

Smooth hammerhead
Sphyrna zygaena

Sand tiger shark
Carcharias taurus

Dusky shark
Carcharhinus obscurus

↑ A shortfin mako (*Isurus oxyrinchus*) on the edge of a boat before being released; by Justin Pellegrino

Sand tiger sharks (*Carcharias taurus*) can grow to 10.5 feet long. This species is typically slow moving, and have the unique behavior of coming to the surface to gulp air into their stomach. The air in their stomach provides added buoyancy so that they can float nearly motionless in the water as they watch for prey. Sand tigers use Long Island estuaries, such as Great South Bay, to provide nursery habitat for juveniles during summer months.

The dusky shark (*Carcharhinus obscurus*) is a slow growing and late maturing shark, taking around 16 to 23 years to mature. Females give birth once every three years and have a gestion period of 22 months. Once fully grown, this species can reach up to 14 feet in length.

The sandbar shark (*Carcharhinus plumbeus*) is rarely seen at the surface and can often be found preying on small bottom fish and crustaceans. They can reach up to eight feet in length.

Two smaller shark species that live in New York waters are the spiny dogfish (*Squalus acanthias*) and smooth dogfish (*Mustelus canis*). They can grow to about four to five feet long and both swim in large schools. These species are often captured as bycatch (not targeted for harvest) in commercial and recreational fisheries in New York. The main distinguishing characteristic between the two is the spiny dogfish has a spine in front of each of its two dorsal fins.

With warming waters due to climate change, New York has seen an increase in northern migrations from relatively southern fish species. Two newcomer coastal shark species have made New York waters their home, the spinner (*Carcharhinus brevipinna*) and the Atlantic blacktip (*Carcharhinus limbatus*).

Spinner sharks are known for breaching the water while feeding and spinning in the air up to 20 feet above the surface in spectacular fashion. The Atlantic blacktip shark grows up to eight feet long, and both species can sometimes be found in large aggregations. While they both look comparable, the distinguishing characteristic between these two species is the black anal fin on the spinner shark.

NEW YORK SHARK ACTIVITY

Most of New York's coastal shark species eat small fish, squid, and crustaceans. Atlantic menhaden, a species of forage fish, has become locally abundant in our nearshore waters during the last few years. Menhaden abundance can fluctuate from year to year due to natural mortality, phytoplankton distributions, environmental factors, and from changes in fishing pressure. This species overwinters off the Carolinas and migrates north in the spring.

The availability of large menhaden schools has increased in northern states in recent years. This can possibly be due to changing temperatures, survival of larger menhaden that are able to migrate further, earlier spawning, and reduced fishing pressure. These large schools of menhaden that are off our coast are likely one of the many possible factors contributing to the increase in nearshore shark activity that has been observed recently, because we know that sharks are typically found where their food is.

Other variables that may contribute to this increase in nearshore shark activity include changes in distributions of other prey species throughout the region, physical changes to the

Sandbar shark
Carcharhinus plumbeus

Spiny dogfish
Squalus acanthias

Spinner shark
Carcharhinus brevipinna;
by Brian Doherty

Atlantic blacktip
Carcharhinus limbatus

environment throughout the New York Bight, and changes in shark species populations. Researchers are actively studying each of these variables to better understand why we are seeing greater shark activity in the region.

Another contributing factor to why we are "seeing" more sharks is because we are looking for them with newer technologies. We now fly drones over their habitat and can capture and share images of sharks through social media and traditional media to millions of viewers almost instantly. This generates widespread awareness of sharks in their natural habitat. Capturing and sharing low elevation aerial images and video of sharks was not something that happened regularly in the past.

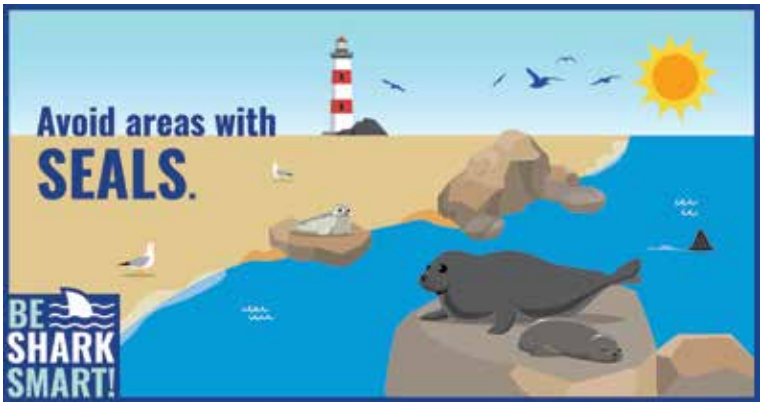
SHARK SMART IN NEW YORK

As sharks are an integral element of a natural, diverse ecosystem, they will always be a part of ocean and beach life. However, just because sharks live in these waters does not mean people cannot enjoy these beautiful shores. While interactions with sharks can never be fully prevented, and humans assume risk whenever they enter any wild environment, there are ways to reduce risks of negative interactions with sharks.

Most of the incidents that occur are a result of sharks misidentifying their prey. Make sure to avoid swimming in areas with schools of bait fish, splashing fish, and diving seabirds. In addition, it is important to steer clear of areas with seals. If you avoid swimming where their prey is, you are less likely to be misidentified.

Sharks feed at dawn, dusk, and night, so it is a good rule of thumb to not swim during those hours. It is also a good idea to avoid murky water. Whenever you enjoy the water, make sure to do so in groups, as sharks are less likely to misidentify prey where there are groups of humans. And it is important to always listen to lifeguards' instructions.

In recent years, scientific studies have shown that New York waters play an essential role as nursery habitat for juvenile shark species. New York's estuaries provide young sharks protection from large predators and a plentiful food source of small fish and crustaceans. Commercial and recreational catches of sharks, drone video, and other anecdotal evidence show that young common threshers, sandbar, and dusky sharks utilize New York estuaries and near-shore coastal waters throughout the warm season. These studies reveal how significant New York waters are to coastal shark populations.



DEC invites you to participate in studies by submitting your observations of sharks in the wild. The observations you submit can help biologists record the presence of sharks in New York State waters and help to further the understanding of local shark ecology and behavior. If you are fishing, boating, or enjoying the beach and observe a shark, please take some pictures, then report your sighting using the DEC Shark Spotter Survey at: **https://on.ny.gov/sharkspotter**.

Sharks are amazing creatures and by following these tips it's possible to reduce your risk of negative interactions, so that you can continue to enjoy the beach safely.

Jennifer Lander is a Fish and Wildlife Technician in DEC's Division of Marine Resources.

Letters

↑ BE BEAR AWARE

I wanted to share a photo I took recently of a black bear and am interested in learning more about all of the black bear sightings in Dutchess County lately.

DORIS COUTANT, HYDE PARK

Thanks for your photo! During the spring and summer months, black bears will wander far and wide in search of food, especially during dry weather periods when their normal food sources, such as berries and other vegetation are scarce. People often unwittingly provide bears with an abundance of unnatural food sources, such as bird feeders, trash, pet food left outside, and even the grease from barbecue grills.

By taking some time to remove and/or secure food sources that might attract bears, you're helping keep bears away from people, homes, and neighborhoods, and that helps keep bears healthy, wild, and safe. By following the at-home BearWise basics (https://bearwise.org/six-bearwise-basics/), we can live responsibly with black bears and help reduce the likelihood of human-bear conflicts. Visit DEC's website at www.dec.ny.gov/animals/6995.html to learn more about how to live responsibly with black bears.

↓ INTERESTING FELLOW

I found this cool looking friend on the stairs to my building in Rochester. Any idea what it is? Or why its antennae need to be that long?

KATIE MLODZIENSKI

This is an adult male spring fishfly (Chauliodes rastricornis), which can be found throughout the eastern half of the continent. The larvae are aquatic and feed on small fish, algae, and other aquatic plants and insects. In some cases, they can take up to five years to develop into an adult. Spotting an adult is actually pretty rare because they only live for a few days to a week and usually hide during the day. These short-lived adults are believed to not even feed, but rather mate and die off. They use these long, bushy antennae to detect female pheromones, so they know where to go for reproduction. Very cool find!
—Liam Somers, Entomologist, Forest Health Diagnostic Lab

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↑ GREAT CATCH

I wanted to share a photo of my 10-year-old son Jackson with a walleye he caught in Redfield Reservoir.

DUSTIN IOHR, REDFIELD

Thanks for sharing, it looks like he had a great time! While not a record-breaking fish, I bet he will remember this for a long time! If you are interested in seeing where Jackson's stacks up, the official New York State Freshwater Fishing Records can be found on DEC's website at www.dec.ny.gov/outdoor/7935.html.

→ CROW OR RAVEN?

I was surprised to see what appeared to be a raven outside my apartment complex. At least I'm pretty sure it was a raven because it was enormous and has the thick curved beak that I'd associate with ravens, rather than a crow's straighter beak. I've never seen a raven here in Vestal in May. I thought they only wintered around here and went back up north. I was wondering if anyone can confirm it was a raven? I saw it trying to sneak food out of our dumpsters. I know corvids are known for their intelligence, so I hope it doesn't become an issue for our complex. It was delightful to see the animal though.

CAROLYN [LAST NAME WITHHELD BY REQUEST]

I agree with your identification as common raven (*Corvus corax*), based on the photo. The* Breeding Bird Atlas *shows that common ravens have been expanding their range in New York State since the 1980s. We even had one nesting right here in downtown Albany!
—Kate Yard, Wildlife Biologist, Division of Fish and Wildlife

← ASK A BIOLOGIST

Q: The coloring on this turtle doesn't seem to match any of the pictures in your Turtles of New York State brochure. I saw this turtle today on a mown grass path on the Greig Farm Trails in Red Hook, Dutchess County. When I was approaching, its head was up in the air, but he retreated into his shell as I got closer. This section of the path is not far from a stream and ponds, and I wondered if "she" might have been laying eggs. I would estimate the shell to be six to seven inches long at least. What kind of turtle is this?

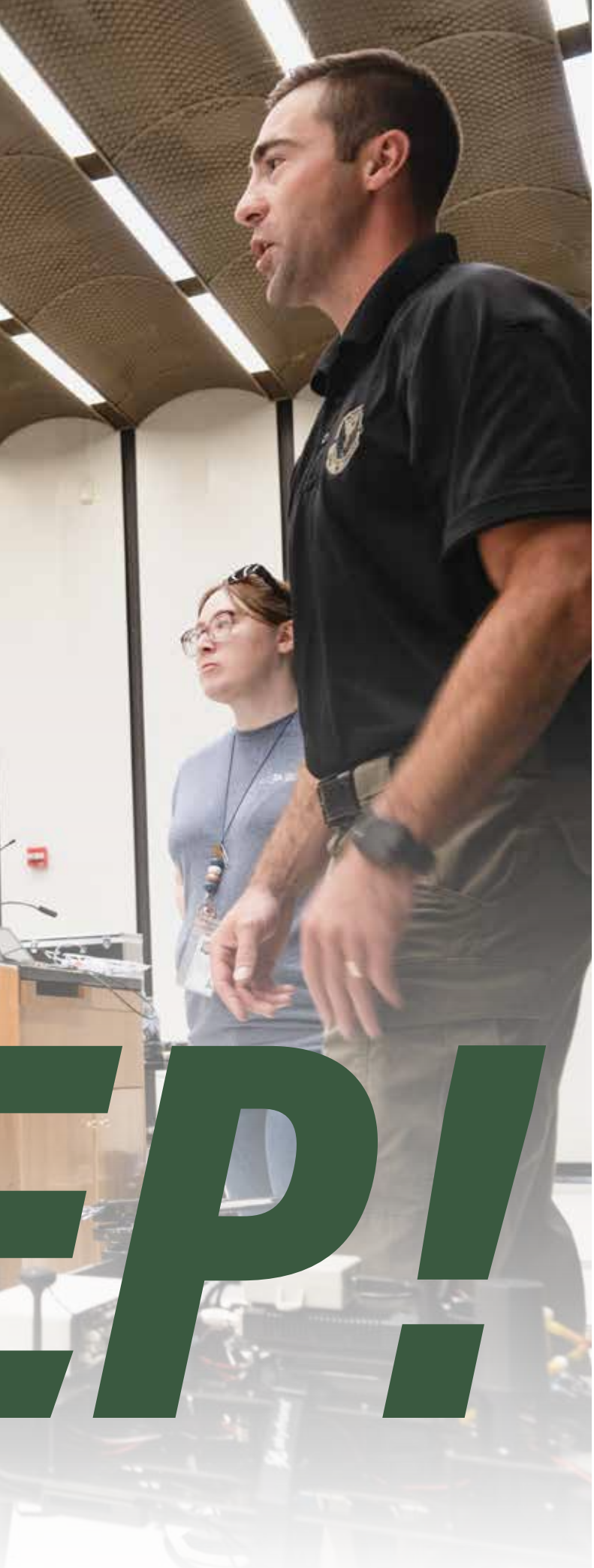
MARY BAYER, TIVOLI

A: ***This is a box turtle (*Terrapene carolina*). They typically don't use wetlands, except during the summer months for hydration and thermoregulation, and I've actually encountered this turtle twice in the Midwest US, swimming. A bit too early for nesting, but possibly. My thinking is that it was foraging or just passing through. The bulk of encounters with this species in New York State occur on Long Island!***
—William Hoffman, Fish and Wildlife Technician, Division of Fish and Wildlife

Editor's note: Have you seen or photographed any box turtles lately? If so, DEC wants to know about them! Outside of Long Island, a lot is not known about the current status of box turtles in New York State. Email us at magazine@dec.ny.gov and we can send you a survey card to fill out and send in.

IN STE

DEC and University at Albany



EP!

BY MARILYN WURTH

Do you remember what you wanted to become when you were a child? Did you dream of becoming a doctor, a firefighter, a detective, or maybe an actor? At one point I wanted to be the lead singer of a rock and roll band, but that was just a phase I went through in the 80s when I liked big hair. I quickly realized that science was a more realistic career path for me.

As parents, we want our children to grow up in a safe and healthy environment, with every opportunity to be educated and nurtured. We hope they develop the abilities and confidence to pursue whatever career they choose and become productive adults with fulfilling lives. Along the way, students are fortunate to have teachers and others who motivate them to learn and believe in their potential. I'd like to tell you about a program and collaboration that has been helping students set new goals for success.

UNIVERSITY AT ALBANY SCIENCE AND TECHNOLOGY ENTRY PROGRAM (STEP)

STEP is part of a statewide New York State Education Department initiative that promotes diversity, equity, and inclusion of historically underrepresented and economically disadvantaged students in science and engineering education. It prepares students in schools from elementary through college to acquire the aptitude and skills necessary to pursue post-secondary degrees that lead to professional careers in the scientific, technical, health-related, or other licensed professions.

STEP emphasizes the serious commitment of time and effort that it takes to get through college and the ultimate benefits of achieving a post-secondary degree. It provides academic support and gives students the confidence to explore different career paths. Students are often enrolled in STEP for several years.

Since 2017, the Department of Environmental Conservation (DEC) has collaborated with STEP to mentor students in New York State's Capital Region. I have had the privilege of mentoring STEP students, and I admire the dedication to the program's mission, which started more than 35 years ago.

"STEP is successful because of our collaborations and commitment to the youth we serve in the Capital Region," said Mayra Santiago, STEP Director.

INCREASING DIVERSITY IN CAREERS AT DEC

There is a growing demand for Science, Technology, Engineering, and Math (STEM) professionals. Environmental agencies, such as DEC, need a diverse workforce to provide a more balanced representation. These different perspectives can result in improved understanding and better policy decisions to mitigate environmental problems. With a diverse workforce, we can better serve our communities, which are becoming increasingly diverse.

DEC has a Workforce Diversity and Inclusion Implementation Plan that outlines our priorities and goals, as we continue to cultivate and promote a diverse and inclusive culture. Recruiting qualified candidates of different backgrounds, experiences, and talents is a key goal at DEC, and STEP can be a valuable tool to help us achieve our goal of a diversified workforce. In 2017, DEC's Office of Environmental Justice began our collaboration with STEP to increase environmental literacy and introduce students to STEM careers at DEC.

People of color are leading environmental justice movements across the United States because they have a deeper understanding of the environmental issues where they live and care about their quality of life and the environment. However, environmental science is among the least diverse fields of study in STEM. STEP provides underrepresented students a more equitable opportunity to pursue a career in STEM. It addresses underrepresentation at an early age, providing students with the tools to reduce barriers and build interest in STEM careers.

Careers at DEC are ideal for people who are passionate about nature and conservation. DEC is also focused on increasing diversity in the outdoors and has environmental education programs and resources to help everyone get excited about going outdoors and protecting the environment.

DEC RESEARCH PROJECTS WITH STEP STUDENTS

Students assist DEC staff with a specific research project during the STEP College Overview and Research Experience (CORE) summer session. It is a partnership with a shared goal of student success. Students get a hands-on research experience that helps them learn about problem solving and the importance of using science and technology to collect data that informs solutions. DEC staff get to demonstrate the value of civil service and environmental protection. Someday, STEP students may be inspired to join the DEC team.

ENVIRONMENTAL JUSTICE

A central theme of DEC's research with STEP is Environmental Justice, which is defined as "the fair treatment and meaningful involvement of all people, regardless of race, color, national origin, or income, with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies."

Although air quality has improved in many locations, studies have shown that people living in Environmental Justice and disadvantaged communities are still exposed to higher-than-average air pollution, due to discrimination and segregation in land use rules and policies. Residents in these communities typically live closer to areas with more pollution sources, like industrial facilities and truck traffic. They have less open green space and access to essential public services, such as healthcare, transportation, and grocery stores with nutritious foods. Residents may have difficulty relocating because of limited options for affordable housing. This combination of environmental stressors and socioeconomic

TAKING ACTION TO ADDRESS AIR POLLUTION AND CLIMATE CHANGE

To meet the goals of New York State's Climate Leadership and Community Protection Act, DEC is monitoring the air quality in ten disadvantaged communities. The goal of the air monitoring initiative is to develop strategies to reduce pollution within these communities, including greenhouse gas emissions that contribute to climate change. DEC staff taught STEP students about drone-mounted technologies and how they can be used to help locate abandoned, or "orphaned," oil and gas wells that emit greenhouse gases that are changing our climate.

For more information about locating orphaned wells, see *Going Back to the Well* in the October/November 2022 issue of *Conservationist*.

BUILDING A BETTER FUTURE

STEP partners, University at Albany and DEC, are acting together to help reverse injustices for an equitable future. All children deserve equal educational opportunities and access to resources, including living in more resilient communities with cleaner air and water.

Students who want to continue with the CORE project meet with DEC staff periodically during the fall and spring to develop a research poster for a competition at the annual STEP statewide student conference. This year, the Capital Region students took first place for their research poster, "The Environmental Injustice of disadvantaged communities."

I have been a Research Scientist at DEC for more than 25 years. During this time, I have enjoyed working with many dedicated and knowledgeable professionals committed to DEC's mission of protecting the environment and public health. We are challenged with multifaceted issues. Working with my DEC colleagues to help improve environmental quality in disadvantaged communities and mentoring STEP students is some of the most meaningful work of my career.

factors results in substantial negative cumulative impacts on a community.

STEP students use air monitors to take measurements inside and outside disadvantaged community areas in Albany, to compare pollutant levels and other factors in the neighborhood and built environment. In Albany's South End, students conducted a one-day air quality field study in Hoffman Park. At the park, the students collected air quality data using portable air monitors, remote-controlled air sampling rovers, and air monitoring mini stations. They compared measurements taken near a busy roadway to measurements collected within the park.

STEP students also evaluated ways to mitigate pollution from heavy truck traffic near a playground in a Disadvantaged Community, examining such measures as planting trees and other vegetation that can filter the air to reduce pollution. Using camouflage netting, STEP students simulated a vegetative barrier, or green wall, and tested how the height of the green wall affected the pollution traveling from the roadway.

Marilyn Wurth is a Research Scientist with DEC's Division of Air Resources.

WHAT'S YOUR CAMPING STYLE?

BY JESSICA MCBRIDE

YOU FOUND IT! DEC operates 52 campgrounds in the Adirondack and Catskill Forest Preserves.

Do you camp? If so, have you ever asked yourself questions like:

How do you camp? Where do you camp? What else do you do when you camp? Why do you camp?

Taking a little time to think about your answers, and taking our quiz, may help.

Maybe you are the type of camper who has camped at the same Department of Environmental Conservation (DEC) campground since you were a kid. Then this quiz may help confirm the campground you have been going to for years is the best one for you. Or you might be surprised to find a new facility that you've never even considered.

DEC operates 52 campgrounds in the Adirondack and Catskill Forest Preserves. From family campsites to island camping, DEC campgrounds have a wide variety of facilities, but choosing the right one for you can be hard. Taking our quiz can help narrow it down.

← Buck Pond campground; by John McCarthy

THE QUIZ

1. WHEN I GET TO MY CAMPSITE, I:

- a) Unpack, setup, start a fire, and pull out the chairs to kick up my feet.
- b) Check out my map(s) and find the nearest trail.
- c) Find "the spot" I have cell service to upload a picture of my campsite.
- d) Set up the tent I've had for years and enjoy the outdoors.
- e) Pull out the pop-up tent and unload my fast-burning firewood.

2. MY FAVORITE CAMPING ACTIVITY IS:

- a) Hanging out around my site, playing games, or listening to music.
- b) Hiking all day or taking my mountain bike for a ride.
- c) Streaming movies while relaxing in my hammock.
- d) A nice stroll around the lake.
- e) Chilling out and chatting with friends, while enjoying the company.

3. THE PHRASE THAT BEST DESCRIBES MY RELATIONSHIP TO CAMPING IS:

- a) I enjoy the peace and quiet of nature.
- b) I've been camping my whole life.
- c) I like getting away, but not from life's comforts.
- d) The little things about camping are what's important to me.
- e) Being with my friends and family, and enjoying life is what matters.

4. WHEN PACKING FOR MY TRIP, I TAKE:

- a) Easy to prepare food, camping chairs, and a good book.
- b) Trail maps, a compass, my mountain bike, and lots of energy bars.
- c) Everything I would take for a normal weekend away, laptop, chargers, clothes, and a coffee machine.
- d) Some food, a sleeping bag, and a change of clothes.
- e) Card games, my favorite music, and food to share.

5. THE MEALS I PLAN ON PREPARING WHILE CAMPING WILL INCLUDE:

- a) Grilled cheese sandwiches.
- b) Protein powder shakes and trout I catch that day.
- c) Risotto with locally sourced mushrooms.
- d) Hot dogs and hamburgers.
- e) Potluck dishes that we all pitch in preparing.

THE RESULTS

IF YOU ANSWERED MOSTLY As: RELAXED IS YOUR CAMPING STYLE

For you, camping is all about recharging and enjoying being away from the stresses of life. A small campground, the peace and quiet of nature, and a warm fire are all you need for a perfect camping trip.

Campgrounds to check out: Brown Tract Pond, Buck Pond, Taylor Pond, Woodland Valley

IF YOU ANSWERED MOSTLY Bs: ADVENTUROUS IS YOUR CAMPING STYLE

Your camping trips have a little sitting around the campsite, but your game is being active. Find a campground that offers a variety of activities, some offer hiking, biking, rock climbing, swimming, and fishing. An island campground could be perfect for you!

Campgrounds to check out: Indian Lake Islands, Kenneth L. Wilson, Saranac Lake Islands, Wilmington Notch

IF YOU ANSWERED MOSTLY Cs: COMFORT IS YOUR CAMPING STYLE

You like being in nature, but the creature comforts of home must come with you. You should look for a campground that offers electrical hookups, or plenty of space to put all your stuff.

Campgrounds to check out: Cranberry Lake (sites with plenty of space), Frontier Town (electric hookups), Northampton Beach (sites with plenty of space), Scaroon Manor (sites with plenty of space)

IF YOU ANSWERED MOSTLY Ds: MINIMALISTIC IS YOUR CAMPING STYLE

A tent, a sleeping bag, and you. You don't need much to make your camping trip work. Find a rustic campground surrounded by wilderness, offering just enough amenities to get by for your trip.

Campgrounds to check out: Bear Spring Mountain, Eagle Point, Forked Lake, Sharp Bridge

IF YOU ANSWERED MOSTLY Es: SOCIAL IS YOUR CAMPING STYLE

It's great to be in nature, but for you, camping is all about hanging out with your friends and family. Choose a campground that has group/family sites, so you can enjoy the space together!

Campgrounds to check out: Lake George Islands, Meacham Lake, North-South Lake, Rogers Rock

Photo credits -
Above: Robert Trimarchi,
A: Robin E. McCormack,
B: Brent Erb,
C: Lorelyn Colomb,
D: Heidi Lauger,
E: Chris Robey

Jessica McBride is the Campground Program Supervisor at DEC.

For more information about DEC campgrounds, season dates, and how to make reservations, visit: **www.dec.ny.gov/outdoor/camping.html**.


A


B


C


D


E

Know Your Boundaries

BY TONY COLYER-PENDAS

A concrete monument delineating a property corner.

I'm a map guy; I love maps. All kinds of maps—road maps, topographic maps, physical maps, aerial maps. You name a type of map, and I like it.

Before coming to the Department of Environmental Conservation (DEC), I worked in private land conservation. I visited properties to conduct natural resource assessments and evaluate public recreation opportunities. I used many different types of maps for this work, and the map I relied on the most was a boundary survey of the property.

What is a boundary survey?

A boundary survey is a map that defines and delineates the corners and boundaries of a property. It is an official map that is sometimes reviewed by a county Real Property Office and recorded with a County Clerk, becoming a public record.

How is a boundary survey created?

To perform a boundary survey, a professional surveyor must visit the property and examine the property's historical records. The dimensions of a property are defined by its deed, subdivision plats, and survey drawings, which are typically public records that can be obtained from a county clerk's office.

After examining these documents, the surveyor will visit the property and retrace the property lines described in the deed or plat. The surveyor will look for monuments and markers that indicate the precise location of property corners and boundaries. Each corner of the property is located and verified or reset if it is unclear where a corner is. These monuments may include iron pipes or rebar placed in the ground, concrete or stone monuments, fences, etc.

Using surveying equipment, the surveyor will collect detailed measurements of the boundary lines and any improvements (houses, stone walls, or other permanent structures). The person who commissioned the survey decides if they want improvements to be shown on the boundary drawing.

What equipment is used?

The most common surveying equipment is a global navigation satellite system base and rover, which are used to measure the angles and distances between points. Surveyors combine the data, allowing them to triangulate the location of any point using trigonometry.

A surveyor may also use a magnetic locator to identify property corners. Magnetic locators can detect ferrous (mainly consisting of iron) metal objects, like survey pins, up to three feet underground and larger objects up to 20 feet underground.

What is shown on the map?

After the fieldwork is complete, the surveyor will create a plat, which is a scale drawing. This is done using sophisticated computer software and plotters to show the bearings and distances of the property's corners, boundary lines, and improvements. The drawing typically includes lot dimensions, shows the bearings and distances of the property lines, and the total acreage of the property.

How official is a boundary survey?

The boundary survey is a legally binding document. New York State boundary surveys can only be completed by a New York State licensed land surveyor. The surveyor must comply with state rules and regulations about defining property lines and detailing parcels of land. In New York State, for a survey map to be considered valid, it must be signed and certified by a licensed land surveyor registered in the state.

DEC Surveyors

New York State land surveyor positions have existed for more than 100 years. DEC land surveyors are responsible for surveying and marking more than 5.1 million acres of State land, and about 20,000 miles of boundaries.

A basic part of owning property is knowing its boundaries. To avoid conflicts, I recommend obtaining a boundary survey whenever you purchase land by hiring a state-licensed surveyor.

Tony Colyer-Pendas is the Assistant Editor of the *Conservationist*.

FREE FISHING DAYS

September 23 (National Hunting and Fishing Day) and November 11 (Veterans Day) are the remaining Free Fishing Days in New York State for the year.

This is when people of all ages and abilities can enjoy one of the most popular outdoor activities, even if they don't have a fishing license.

We encourage everyone to take advantage of the amazing fishing available throughout the Empire State. Free Fishing Days offer the perfect opportunity to try your luck (and skills) without the requirement of needing a fishing license. It's also a great time to introduce a friend or relative to this amazing sport, and show them why so many New Yorkers love to fish.

For more information visit DEC's website at: www.dec.ny.gov/outdoor/44804.html#Days.

Follow us on Instagram @nysdec

Keep cool and shake off that summer heat! Did you know the moose (*Alces alces*) is the largest land mammal in New York State? Recent surveys estimate that there are up to 700 moose now in the state.

Photo by Bill Chase; @bchasen_nature

NEW YORK STATE | Department of Environmental Conservation

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