WILDLINES

New Hampshire Fish and Game's quarterly newsletter of the Nongame and Endangered Wildlife Program

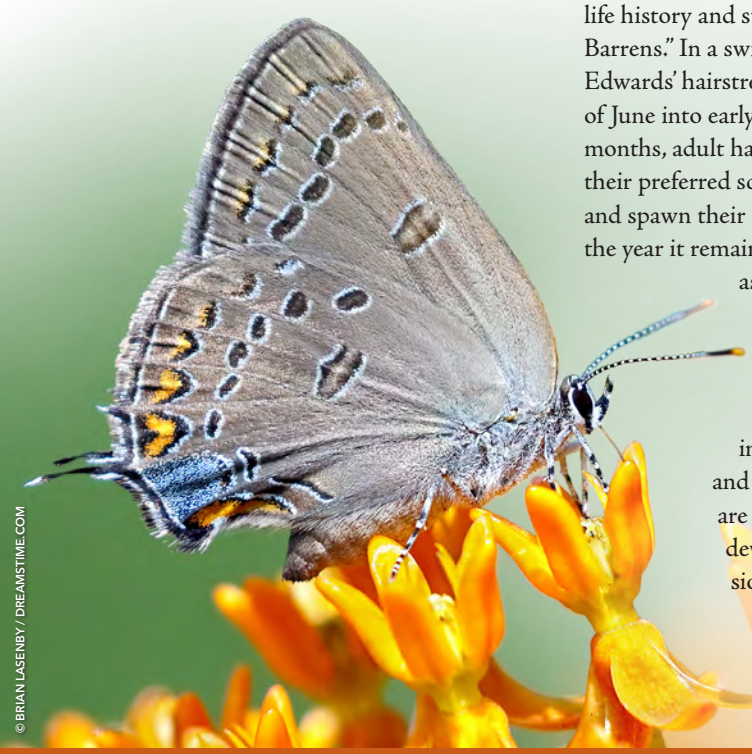
FALL 2022

EDWARDS' HAIRSTREAK

Researching Relationships in the Pine Barrens

It sounds like a great name for a 1980s rock band, but Hairstreak is actually a group of butterflies that exist in shrubby areas. One species, the Edwards' hairstreak, has been the focus of new research efforts in Concord's Pine Barrens this season. Typically brown or gray in color, hairstreaks are a group of butterflies characterized by small hair-like fringes on the underside of their wings, with a wingspan of just over one inch.

Hairstreaks are of conservation concern throughout the Northeast. "This is the second year we have collected location data for the species, which involved going out regularly to document where they live," said Nongame Program Biological Aide Simon Doneski. "We plan to start research to answer some of the more difficult questions about their life history and survival in the Concord Pine Barrens." In a swift streak of life, the adult Edwards' hairstreak flies from the middle of June into early August. In less than three months, adult hairstreaks must persist within their preferred scrub-oak habitat, find a mate, and spawn their next generation. The rest of the year it remains mostly hidden, whether as an egg laid in the tree bark of scrub oak, a larva hibernating undercover through the winter, or an adult caterpillar hiding in an anthill. However, oak and pitch pine scrubby forests are rare, frequently lost to land development or the suppression of fires that once helped to regenerate the habitat's shrubby growth.



© BRIAN LASENBY / DREAMSTIME.COM

© SARA BRIGHT / ALABAMA BUTTERFLY ATLAS

Ants stroke an Edwards' hairstreak caterpillar, inducing it to secrete drops of honeydew.

To begin understanding the Hairstreak population in the Concord Pine Barrens, a team of Nongame Program biologists surveyed the appropriate habitat and then collected photographic data and GPS information. "We also mapped ant hills, located at the base of host trees," said Doneski. Edwards' hairstreak caterpillars require anthills for protection, but the ants also get something out of this arrangement: in exchange for a safe refuge, hairstreak caterpillars secrete honeydew, a by product of their digestion, which is then eaten by the ants. The ants sometimes use their legs to stroke the caterpillar to induce the secretion of more honeydew. After resting in the ant shelter during the day, the ants may even

HAIRSTREAK continued on page 3

Donate online at ***wildnh.com/nongame***

Scott R. Mason
Executive Director

WILDLINES

Michael Marchand, *Nongame and Endangered Wildlife Program Supervisor*
Loren Valliere, *Writer-Editor*
Victor Young, *Graphic Designer*
Jay Martin, *Copy Editor*
Jessica Hamel, *Data Manager*

603-271-2461
WildNH.com

/nhfishandgame

WILDLINES is funded in part through the sale of Conservation License Plates.
mooseplate.com

WETLAND CONNECTIVITY

Protects Semiaquatic Wildlife

New Hampshire has many varieties of semiaquatic wildlife that rely on water-based habitats and also move over land for various reasons. Turtle species may come to mind because they move to reach nesting areas or navigate between vernal pools and larger wetland systems. Frogs, toads, and salamanders also make similar treks over the landscape. The continued decline of many of these animals has highlighted the need for increased safe passageways between wetlands, and a coordinated approach to preventing wetland loss.

A Blanding's turtle

The Nongame and Endangered Wildlife Program has collaborated with the NH Department of Environmental Services (NHDES) to evaluate and then prioritize key road crossings in New Hampshire. The analysis will help to identify the highest priority restoration projects for semiaquatic wildlife with a focus on Blanding's turtles, a state-endangered species that travels long distances each year. This summer, a group of NHDES interns surveyed hundreds of wetland road crossings, collecting data at bridges and culverts that will be used to help prioritize potential crossings for restoration.

A panel of experts, including NH Fish and Game Nongame Biologists Josh Megyesy and Melissa Winters, will select the highest priority sites for restoration based on the wetland road crossing surveys, turtle movement data, mapped wildlife corridors, and documented roadkill hotspots. "We have collected over a decade's worth of turtle movement data using radio transmitters throughout the state, which is being used to rank road crossings. It's incredibly rewarding to see science turn into beneficial, on-the-ground conservation actions for rare species," said Megyesy.

Working with partners from the University of New Hampshire, conceptual engineering and restoration plans will be developed for up to five sites. "We are very excited to have restoration plans for several sites and design guidance that can be used broadly," said Nongame Program Biologist Sandra Houghton. This is a critical development to address road mortality, which is a primary threat to many threatened and endangered semiaquatic types of wildlife. "Having this information available to all partners is a vital tool which will also help when applying for funding to replace wetland crossings and improve habitat connectivity," said Houghton."

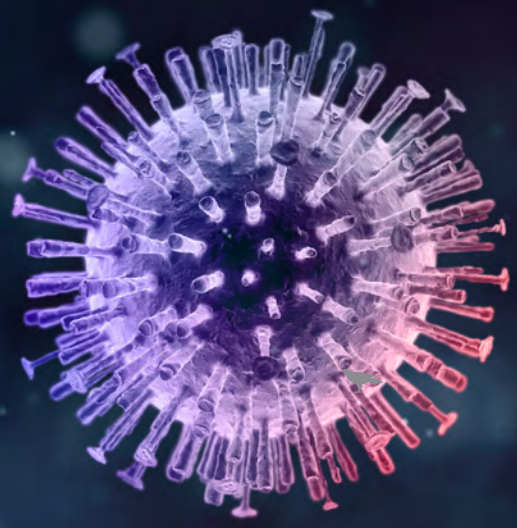
RAPTORS AND WATERFOWL DOCUMENTED WITH BIRD FLU

The NH Fish and Game Department continues to be involved in tracking wildlife diseases, including highly pathogenic avian influenza (HPAI), often called bird flu. This disease is caused by influenza type A viruses, which are largely found in wild birds. Domestic flocks can become infected, but the disease rarely infects humans. Wild waterfowl infrequently show signs of the disease when infected; however, depending on the specific virus strain and the species infected, it may cause significant impairment or death. The first cases detected in New Hampshire this year were in wild mallards because of annual surveillance activities, highlighting the importance of routine surveys.

Since the spring, HPAI has been documented in the remains of three bald eagles, one snowy owl, multiple Canada geese, and many mallard ducks. Raptors such as bald eagles may become infected by scavenging the carcasses of infected waterfowl. Research is ongoing regarding the exact effects and severity of HPAI infection in birds of prey. Reports of sick raptors from other states include unsteadiness and an inability to fly.

As of September, the Centers for Disease Control and Prevention reported that 2,116 wild birds had been detected with the current HPAI strain (H5N1) in 45 states. It's important to be aware of the virus as we watch birds during the busy migration season. Infected yet asymptomatic birds have the potential to spread the virus as they move from state to state. The virus is most often spread through oral or nasal secretions and excrement, but it can also be transferred indirectly by contaminated feed, equipment, or clothing. This underscores the importance of keeping pets, backyard flocks, other farm animals, and people away from wild animals and their remnants. Signs of HPAI illness, most often reported in sick waterfowl, include swimming in circles, neck issues, and tremors.

NH Fish and Game works in coordination with many partners tracking animal diseases including the US Department of Agriculture Animal and Plant Health Inspection Service's Wild Bird Surveillance Program, which functions as a system to reduce the risk of HPAI spread to domestic poultry and other animals across the nation. As experts continue to research this disease, everyone can take precautions including never approaching or touching a sick bird, leaving any dead bird you may encounter in the wild, and reporting large numbers of sick or dead birds to the Wildlife Division at 603-271-2461.

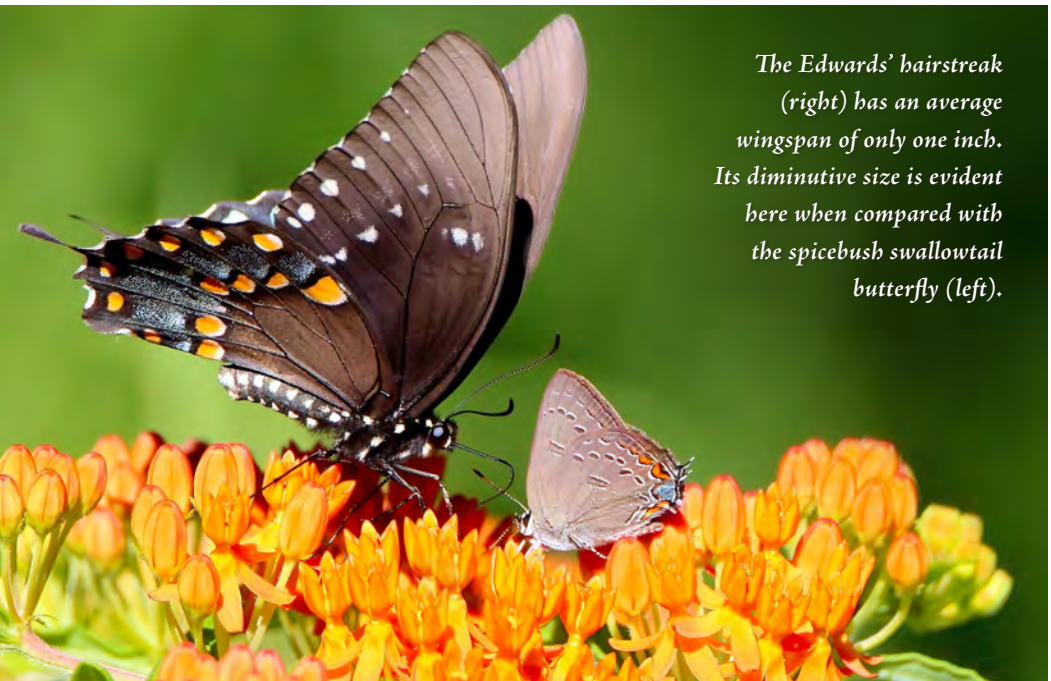


HAIRSTREAK continued from page 1

escort the caterpillars onto the scrub oak to safely feed under the cover of night.

Several adult hairstreaks were brought to Fish and Game's pollinator laboratory to closely observe their natural behaviors before being released back into the Pine Barrens. "We were trying to collect eggs to develop protocols to raise the species in captivity and learn more about their reproductive potential," explained Nongame Program Biologist Heidi Holman. Biologists know little about the species population status at the site, but they are absent from many pine barrens in the Northeast despite the presence of their host plant. "They may have specific habitat requirements such as the age of the scrub oak available and the density of ant populations that are essential to ensure their persistence over time," said Holman. If population intervention is deemed necessary, including captive rearing efforts that have been successful for dwindling populations of Karner blue butterflies and frosted elfin, having these questions answered is critical.

"Nongame and Endangered Species Program biologists use this process to get ahead of the curve and learn about several rare butterflies while there is still time to save them from being extirpated from the state," explained Doneski. "Edwards' Hairstreaks appear to have a complicated and intricate life cycle. Preventive conservation science is extremely important in protecting all of the rare and special butterfly species we have here in New Hampshire." Nongame Program biologists will continue their research into the 2023 season, working diligently to protect all the species that coexist in the complex Concord Pine Barrens community.



The Edwards' hairstreak (right) has an average wingspan of only one inch. Its diminutive size is evident here when compared with the spicebush swallowtail butterfly (left).

SPOTLIGHT

ON SPECIES OF GREATEST CONSERVATION NEED

EASTERN MEADOWLARK

(*Sturnella magna*)

© STEVE BYLAND / ISTOCKPHOTO.COM

This medium-sized songbird may be heard singing a whistle-like tune atop a perch in open habitats. Adults have bright yellow underbellies with a black chest bib and brown and white streaking on their backs. Their current reduced distribution in New Hampshire includes populations near the Seacoast and in major river valleys, including north of the White Mountains.

Habitat: Large grasslands that include tall grasses and wildflowers, hayfields, pastures, and airports.

Threats:

- Fragmentation and conversion of large grasslands into unsuitable habitat.
- Mortality of young caused inadvertently by mowing during the nesting season.
- Increased predation risk when nesting areas are mowed during the nesting season.
- Negative impacts from insecticide use–meadowlarks primarily consume insects.

Conservation Actions:

- Periodic surveys for meadowlarks in appropriate habitats. Report sightings to ***Ebird.org***.
- Work with landowners to delay the mowing of large fields until after the nesting season.
- Permanently conserve suitable habitat (particularly grassy areas over 5 hectares, or at least 12 acres).

Signs, Awareness, and Thieves

A SUMME

Nongame Program Biologist Brendan Clifford has been monitoring the state-endangered piping plover for 16 years on New Hampshire's beaches, but this year he experienced a first-time event. One pair of plover parents successfully hatched and fledged chicks from two different broods, a phenomenon that has never been seen in the Granite State and has rarely been reported elsewhere. This was just one of the milestones that took place this summer. A record-breaking number of 28 fledged piping plover chicks were also documented, which topped the prior record in 2020 of 20 fledged chicks. However, this year was not without its challenges, and the 14 plover pairs that nested on Hampton and Seabrook Beaches faced some insurmountable challenges.

Of eight pairs of plovers that nested in the town of Hampton, two pairs constructed their nests in the busiest sections of the beach near the main commercial strip, far from any vegetative cover provided by the dunes. When the eggs hatched in the days before Memorial Day, one pair of plovers moved their chicks almost a half mile to a slightly safer, quieter area. "The pair walked their young across a busy stretch of beach while the chicks were just a few days old," explained Clifford. If you have ever seen the tiny and delicate build of a piping plover chick, you can imagine what an incredible feat this was for this struggling family. "Fortunately, the Nongame Program's seasonal piping plover monitor, Susanna Sousa, and a dedicated volunteer were there when they made their journey," said Clifford. "They were able to follow the chicks and alert the crowds to give the birds space as they slowly made their way to a quieter area."

"The volunteers, new signs alerting beachgoers to the presence of plover chicks, and an excellent job by Sousa helped propel us to a great year," said Clifford. Around 30 trained volunteers monitored plover activity on the bustling beaches, some dedicating close to 100 hours of their time. New signs were placed near entrances to the beaches and also by the shoreline where chicks were actively moving to and from the water's edge, prompting beachgoers to, "*STOP! Look, and listen for plover chicks.*" The template for these signs was provided to NH Fish and Game free of charge by the group BiodiversityWorks from Martha's Vineyard. "These signs were

© HARRY COLLINS / DREAMSTIME.COM

R OF PLOVERS

instrumental in the bird's incredible success this year," said Clifford, adding that they seemed to get people's attention.

Unfortunately, it seems impossible to reach every beachgoer with the important message of conserving this endangered shorebird. In mid-July, two plover eggs were stolen from a nest in Hampton, across from Ron's Landing Restaurant on Ocean Boulevard. "It appears that someone crossed under the barrier fencing, and we could see footprints leading straight to the nest," said Clifford. NH Fish and Game's Law Enforcement Division is still investigating this incident, and any information can be submitted to the Department's Operation Game Thief program online at ***wildnh.com/ogt*** or at 1-800-344-4262.

DOUBLING A POPULATION OF ENDANGERED SHOREBIRDS

Least terns are shorebirds that also build nests on sandy beaches and are subject to similar hazards associated with crowds of people, predators, and intense weather events. Like the plover, the loss of safe breeding habitat has caused declines in least tern populations as they attempt to make ground nests and raise young. These terns often nest in colonies, returning each year to the same nesting area unless the conditions become unfavorable for fledging chicks. Absent from the Granite State since the 1950s, two pairs of least terns returned to New Hampshire in 2015, fledging one chick successfully. It is likely that the conservation actions put into place for piping plovers helped to encourage the return of nesting least terns. Since then, the terns have been coming back each year with varying success. 2021 saw a productive year with nine nesting pairs documented in Hampton.

And then came 2022. This summer twenty pairs of least terns formed a nesting colony in Hampton, a truly exciting conservation achievement for the state. Productivity was high for these nests, with only a few offspring lost toward the end of the season, likely to predation. Each pair of terns usually produces two eggs, nesting just once per season. Young terns often hide in vegetation while waiting for their parents to return with food, taking advantage of the shade to stay cool. This season, shorebird monitors observed a tern chick and a plover chick sharing a patch of shade. Biologists are hopeful that the initial reestablishment of a least tern colony in New Hampshire will continue to grow its population in the coming years.

UPDATES FROM OUR FIELD SEASON

Projects implemented and funded by the Nongame and Endangered Wildlife Program

- This summer, Nongame Program biologists surveyed for state-endangered **upland sandpipers**, locating and protecting three nests. By the end of the season, biologists had documented 12 fledglings at Pease Airfield, the only verified nesting location in the state.

- The population of federally endangered **Karner blue butterflies** had an incredible year, bolstered by an infusion of genetic material into the population from butterflies originating in Albany, NY. At the pollinator laboratory in Concord, biologists documented excellent survival rates during captive rearing efforts. A large amount of habitat management helped regenerate lupine and other critical plants in the Concord Pine Barrens, allowing the Karner population to thrive this season.

- Biologists collected genetic samples from **frosted elfins** this year to send to fellow researchers around the country studying the species. Nongame Program biologists continue to monitor and learn more about this state-endangered insect, which is susceptible to population declines caused by host plant specificity, environmental change, low dispersal rates, and small population sizes.

- In the Mount Washington Laboratory, research continued on the **White Mountain arctic** and **White Mountain fritillary** butterflies. Field surveys and captive rearing of these endemic insects were successful this season. Biologists are now studying overwintering scenarios in a lab setting.

© USFWS

Upland sandpiper chick

© USFWS / JILL UTRUP PHOTO

Karner blue butterfly

© AECOLE2010 CC-BY-2.0

Frosted elfin butterfly

© HEATHER SIART

White Mountain arctic butterfly

© HEATHER SIART

White Mountain fritillary butterfly

BUTTERFLY MONITORS

Document 111 Species and Thousands of Observations

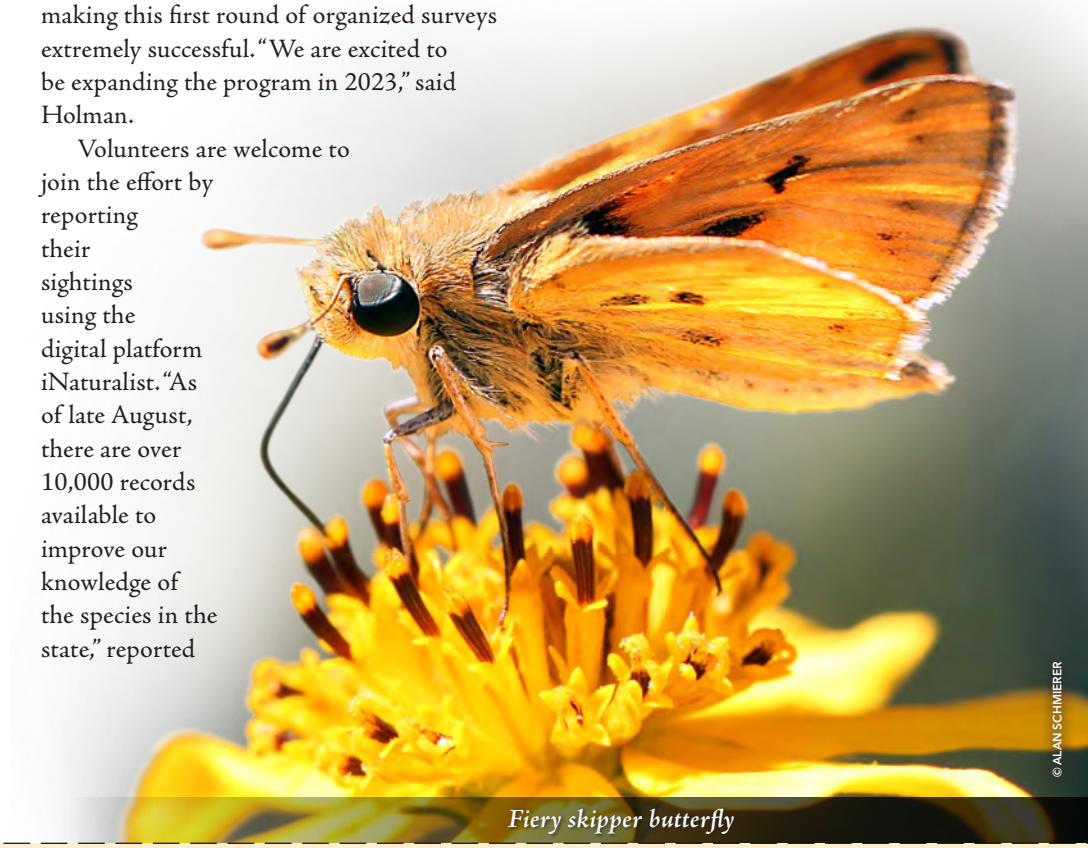
Volunteers across the state made exciting progress regarding the conservation of butterflies this season. The newly formed New Hampshire Butterfly Monitoring Network intends to help track butterfly populations and inform the need for action to protect them into the future, including observations over time that may signal shifts in distribution or phenology. The Network relies heavily on volunteers with a willingness to learn how to identify the state's butterflies while also collecting data on their status.

"Most people know something about monarch butterflies, but they are often unfamiliar with the other species in the state that number over one hundred," said Nongame Biologist Heidi Holman. Participant training began by introducing volunteers to the different groups of butterflies found in the Granite State, such as fritillaries, blues, browns, and swallowtails, and then determining how to tell each of them apart. "Other than monarchs, the butterflies that people are most often aware of are the larger tiger swallowtails or mourning cloaks. Many people are not familiar with the smaller skippers, for example, which might be confused with a moth or a cricket," explained Holman.

The Butterfly Monitoring Network collects standardized data using a method developed and shared by the North American Butterfly Association. Six 15-mile-diameter areas have been established around the state for long-term data collection. Trained groups of volunteers met to perform butterfly counts within three of these circles. The curiosity and dedication of these volunteers has been inspiring, making this first round of organized surveys extremely successful. "We are excited to be expanding the program in 2023," said Holman.

Volunteers are welcome to join the effort by reporting their sightings using the digital platform iNaturalist. "As of late August, there are over 10,000 records available to improve our knowledge of the species in the state," reported Holman. "Unique observations have included the documentation of a species moving north along the Massachusetts border and an errant species that may have blown in from a weather event in July."

Learn more by visiting ***inaturalist.org/projects/nh-butterfly-monitoring-network.***



© ALAN SCHMIERER

Fiery skipper butterfly

SUPPORT THE NONGAME AND ENDANGERED WILDLIFE PROGRAM

Please count on me to help protect nongame wildlife! Enclosed is my gift of:

☐ $35 ☐ $50 ☐ $100 ☐ $250 ☐ $500 ☐ $1,000 ☐ Other $_____ ☐ Check enclosed

Charge to: ☐ VISA ☐ MasterCard ☐ DISCOVER Signature_____

Card Number_____ Exp. Date_____

Name_____ Phone # (if paying by credit card)_____

☐ *Please check here if you wish to remain anonymous.*

Address_____ City_____ State_____ Zip_____

Mail to: New Hampshire Fish and Game Dept., Nongame Program, 11 Hazen Drive, Concord, NH 03301

All gifts are tax-deductible. Please make checks payable to NHFG/Nongame Program

or, make your donation online at ***www.nhfishandgame.com/donations.aspx***

FALL Wildlife Almanac

OCTOBER

• Deciduous trees are shedding leaves, and this leaf litter creates tiny ecosystems which are critical in the winter. Earthworms, amphibians, and many insects at different stages rely on this thick leaf layer.

NOVEMBER

• This season's bird nests may be utilized by other animals as temperatures drop. White-footed mice may renovate an old nest, adding material for extra insulation or using them to cache food.

DECEMBER

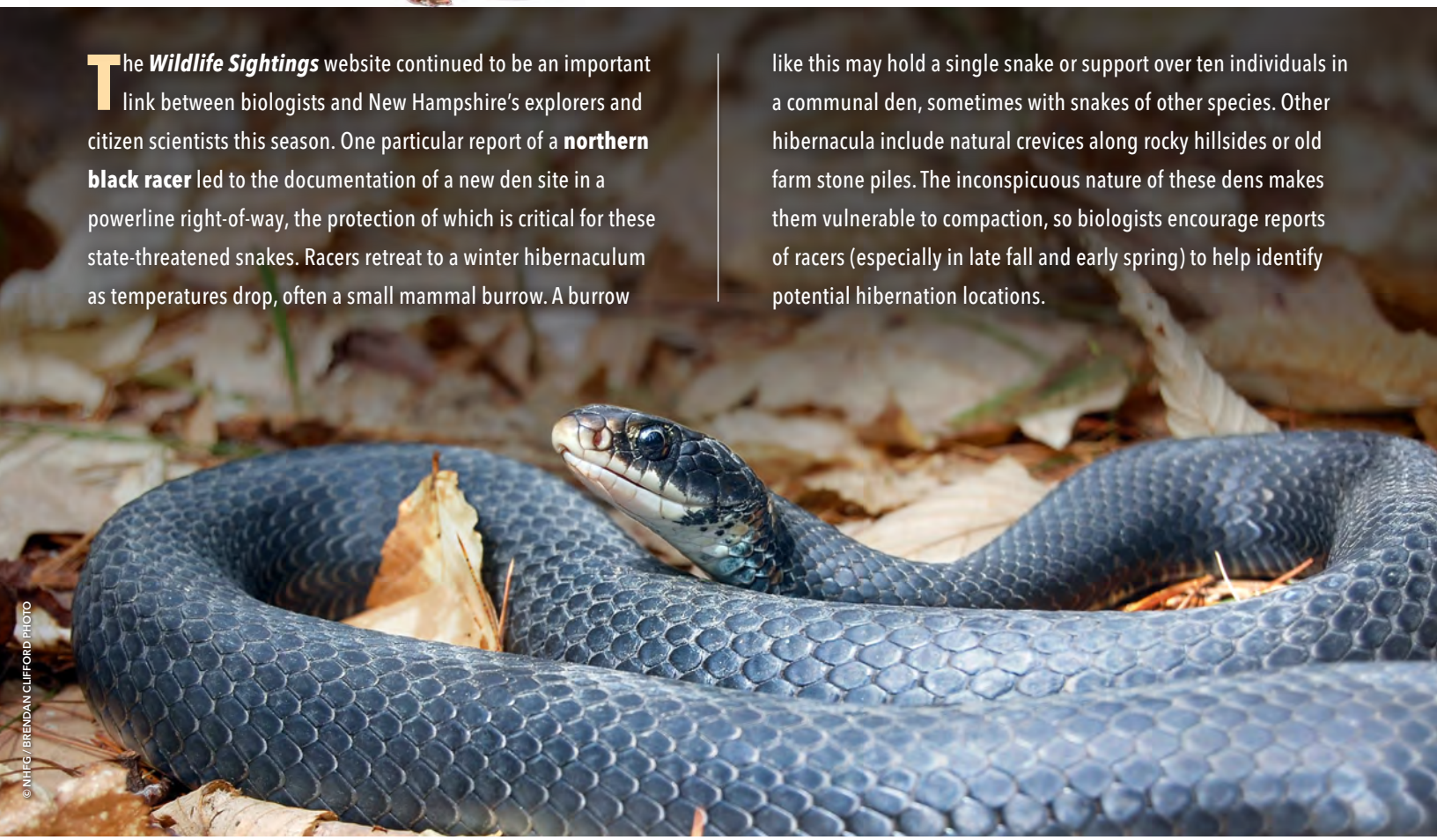
• Salamanders are surviving in underground crevices. Eastern red-backed salamanders do not have lungs and have retreated to moist burrows under tree roots or in tunnels where they can best absorb oxygen through their skin.

New Hampshire
Fish and Game Department
11 Hazen Drive
Concord, NH 03301

RETURN SERVICE REQUESTED

PRSRT STD
U.S. POSTAGE
PAID
CONCORD, NH
PERMIT #1478

The ***Wildlife Sightings*** website continued to be an important link between biologists and New Hampshire's explorers and citizen scientists this season. One particular report of a **northern black racer** led to the documentation of a new den site in a powerline right-of-way, the protection of which is critical for these state-threatened snakes. Racers retreat to a winter hibernaculum as temperatures drop, often a small mammal burrow. A burrow like this may hold a single snake or support over ten individuals in a communal den, sometimes with snakes of other species. Other hibernacula include natural crevices along rocky hillsides or old farm stone piles. The inconspicuous nature of these dens makes them vulnerable to compaction, so biologists encourage reports of racers (especially in late fall and early spring) to help identify potential hibernation locations.



COVER BANNER PHOTOS: *UPLAND SANDPIPER* - PUBLIC DOMAIN • *BLANDINGS TURTLE* © PAUL REEVES / DREAMSTIME.COM • *PIPING PLOVER CHICK* - © PS50ACE / iSTOCKPHOTO.COM