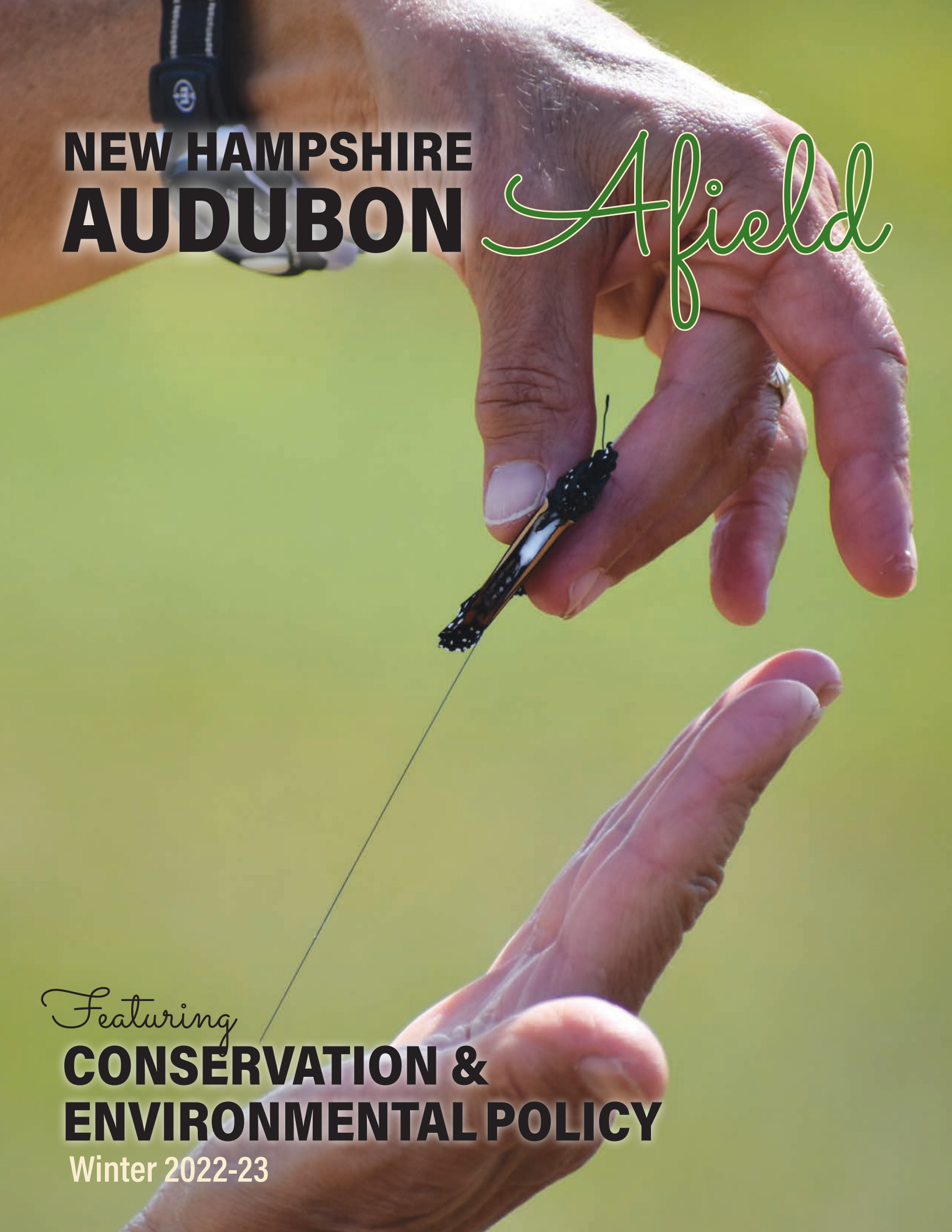


NEW HAMPSHIRE AUDUBON *Afield*

Featuring

CONSERVATION & ENVIRONMENTAL POLICY

Winter 2022-23

FROM THE PRESIDENT'S DESK

Looking back on our list of accomplishments is always somewhat stunning to me. How did we fit all that in? The wide range of species that we monitor, track, manage habitat for, tell stories about, and teach people about is inspiring.

I am so grateful and honored to work with our science team; they turn their love and interest in wildlife into a passion to conserve. Remember that it is not just that we like birds, but we also really pay attention to how they help us learn and tell stories about other environmental issues.

Rusty Blackbirds, and their nesting success, may tell us about climate change. Our Motus project tells us where migratory pathways are, which could lead to conservation efforts that ensure they can continue to move successfully, year after year. Pollinator habitat restoration will tell us how best to support more abundant food insects for birds and other wildlife. Fluctuating populations remind us how important our climate is for long-term success of all species.

Our policy work is equally inspiring when looking at our efforts over the past legislative session. We supported bills that when enacted, will provide legal protection, or regulation, or rules that will ensure our wildlife continue to thrive.

While this issue highlights our science and policy work, don't forget that our

education and lands staff (and their volunteers, of course) have an equally impressive list of accomplishments and impact. Check out our Year In Numbers summary for fun facts about that.

I have optimism our impact will continue to follow this path of better conservation efforts ahead. Our world's challenges are becoming more and more complex. With your help, NH Audubon will continue to grow and improve, and we will be a force for positive change for all wildlife in New Hampshire, and for all people who live and play and work in New Hampshire.

Our donors are amazing. *Thank You* for what you help us do, day in and day out. And next year, when we again look back, our list of accomplishments and impact will be even greater, thanks to you.

See you out there,

Doug Bechtel, President

Two Gifts in One!

This season, give the gift of membership* and send along a bonus gift, one of these two choices: a beautifully hand-crafted glass ornament from Old Hancock Glassworks, or a seed packet perfect for pollinator gardens.

Purchase a gift of membership online at www.nhaudubon.org/join/

Cover Photo:

Senior Biologist Diane De Luca delicately holds a Monarch butterfly, showing the tiny nanotag attached to its abdomen—one of 59 tagged this year for the Motus project. Read more about the project's expansion on page 8, and pages 10-12. Photo taken by Motus volunteer Kate Osgood.

Conservation Notes

2022 Summary of Conservation Department Activities

First wave of BioBlitzers get pumped for an awesome day of observing nature during McLane Center's first BioBlitz, by Marc Nutter.

From the Director of Conservation

Marc taking a selfie in front of the pollinator meadow.

If you've ever met one of our biologists, at least two things have probably occurred to you – this person is extremely knowledgeable, and this person is really fun to talk with! I couldn't agree more with these sentiments. I am lucky to be able to support this incredible group of smart, passionate, and friendly people. I hope you will attend an outing or become a volunteer and get to know our team even better.

Our Conservation Team pushes the boundaries of avian wildlife biology in the state and region, putting long hours and miles into projects that have a real and meaningful impact on the wildlife and human communities throughout the state. From analyzing movements and nest success of species of greatest conservation need to bringing the joy of birding to more and more people, this team does it all, fueled by an insatiable curiosity as well as your membership and support.

I am pleased to announce that, under the leadership of Becky Suomala and Hope Jordan, the department has established an endowment to honor the wildlife biology legacy of current (and long-time) staff member Carol R. Foss. The Foss Endowment will be held in perpetuity and used to support the Conservation Department's work. Thanks to the founding donors, the endowment will lay the foundation for a long-term base of support for conservation research. We continue to accept gifts to the endowment in addition to your annual support, which make possible all the amazing projects you will read about in this issue of *Afield*. We simply couldn't do any of this without you.

Thank you for being part of our Conservation Family,

Marc Nutter
Conservation Program Director

New Endowment for Wildlife Conservation and Research

We are excited to announce the establishment of the Carol R. Foss Wildlife Conservation and Research Fund. The fund is named in honor of Carol Foss who has been working for NH Audubon since 1975. She has been instrumental in the growth of nongame bird and wildlife research and conservation in New Hampshire. The goal of the fund is to provide long term support to NH Audubon's Conservation Department and its monitoring, management, research, and wildlife conservation activities. Carol has always been committed to conservation science and she led the Conservation Department for many years. The Fund is a fitting tribute to help ensure this work will continue into the future. In case you are wondering, Carol is continuing her work as Senior Advisor of Science and Policy for NH Audubon — she has not retired yet!

We are grateful to the founding donors who established the fund:

George Clark
David Donsker
Anne and David Forsyth
Kate Hartnett and Racheal Stuart
Betsy Janeway
Tom Lee
NH Audubon's Capital Area Chapter
Paul Nickerson
Stephanie Parkinson
Dawn and Arthur Stavros
Lawrence B. Sunderland
Rebecca Suomala
Margaret Watkins
CherylAnne Williams

If you are interested in making a contribution to the Fund or would like to see the complete fund language approved by the NH Audubon Board of Trustees, please contact Hope Jordan.

Andrea Robbins photographed this female Common Nighthawk on the ground in Ossipee, NH on August 12, 2022. Most chicks have fledged by then, but the female only flew 20 feet suggesting that a young bird might have been roosting on the ground nearby. Adult nighthawks typically roost in trees and we usually only see them on the ground near a nest or young. This sighting wasn't far from an active territory.

Common Nighthawk 2022 Nesting Season

by Rebecca Suomala

It was a challenging summer for nighthawk monitoring. Although we confirmed five nests in the state (compared to nine last year), none were visible and there are, amazingly, no photos from a nest site this year. How can we confirm a nest if it's not visible? We use behavioral patterns that we associate with nesting based on years of observations by Project Nighthawk staff and volunteers. It takes multiple observations and a little luck to record enough behavior to confirm nesting. This summer we had nine sites where we suspect nesting but just couldn't confirm.

Although there were similar numbers of birds in the Concord area, June temperatures were fairly cool and activity was subdued. When it heated up in July, birds became regular at sites we thought were inactive! Unfortunately, that didn't happen in Keene, and they had no nighthawks there this year for the first time since Project Nighthawk began in 2007. It was very sad for the Keene volunteers and Brett Thelen who coordinates the Keene watches, especially after having a chick each of the last two years. Keene was the last remaining downtown area in New Hampshire where nighthawks were present. Concord had two downtown nighthawk territories in 2007 but they are gone, and nighthawks are now present only outside of town to the east where there are still pine barrens. Many years ago, Manchester was a stronghold for nighthawks but they were long gone before Project Nighthawk even started.

Nighthawks were also missing from a site in Lempster where there were two nests last year. Fortunately, the number of birds and active sites in the Ossipee pine barrens was similar to other years. These pine barrens remain a stronghold for the species in the state but there are fewer than ten potential nesting sites and typically only five or so are active in a given year.

Project Nighthawk is funded by private donations.

Northern Harriers Still Hanging on in Coos County

by Chris Martin

NH Audubon technician Katrina Fenton carefully scans for harriers at the Whitefield airport (left), photo by David Govatski. One of three juvenile Northern Harriers fledged from the local nest takes a break by the main runway at the Whitefield airport (below), photo by Tom McShane.

The 2022 breeding season was a good one for New Hampshire's state-endangered Northern Harriers. Fieldwork in Coos County in 2022 revealed six successful nests that fledged 15 juveniles, a considerable increase over 2021 when we found only two nests that produced just three young. This was the third straight year of full-season (May-August) monitoring, and the fourth year in a row with at least several weeks of focused breeding season effort.

NH Audubon was lucky that Katrina Fenton returned for her fourth straight year as our harrier field technician in 2022. Katrina knows the hayfields and backroads of the state's northern fringes better than many longtime residents, and her keen eye and patience has been key to this project's overall success. Over the past several summers, she has spent countless hours monitoring from roadsides, walking tractor paths through hayfields, and scanning cattail marshes in places with quirky names like "Bungy" and "Creampoke."

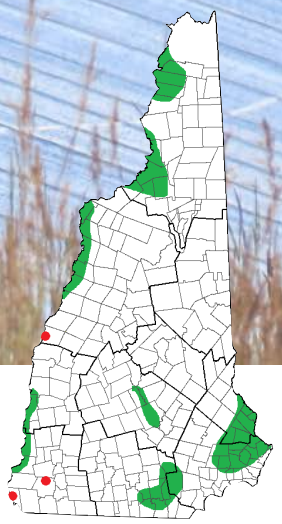
Hidden on the ground in brushy red-osier dogwood and willow patches, harrier nests aren't easy to locate. Finding breeding pairs during their spring courtship and nest-building phase is very important. There are twice as many birds to see, lots more activity, and much vocalizing! Once females settle into a month-long incubation period, things get very quiet indeed. Males hunt a long distance away from nest sites to find enough food for nesting females and their hungry hatchlings. In August, juvenile harriers finally show themselves after weeks in concealment. The first half of August is time to "count heads" as awkward fledglings begin to appear.

NH Audubon resumed harrier fieldwork in 2019 with State Wildlife Grant contract funding provided by NH Fish and Game. Prior to this, no formal harrier surveys had been done in the state since 1997. Our primary goals include determining breeding season distribution and monitoring reproductive success. We focus mostly on several Coos County towns around Colebrook, but we also visit historical and potential breeding areas elsewhere around the state. No successful nesting has been detected south of Coos County either in 2021 or 2022, despite volunteer monitoring effort focused on select sites in Carroll, Grafton, Hillsborough, Merrimack, and Strafford counties.

New Hampshire's breeding harriers likely once nested statewide near freshwater and saltwater marshes, large beaver meadows, and other natural and human-made openings. Agriculture in the 1800s created an extensive mosaic of fields and edges that turned many spots into suitable harrier habitat. But in recent decades, both development and forest succession have greatly reduced this acreage. As a result, current management practices in remaining open areas are becoming even more critical if we hope to see harriers endure as a breeding species in the Granite State.

NH Audubon has now completed three consecutive years of May-August monitoring. Our next steps include reviewing breeding season data and working closely with NH Fish and Game to develop management suggestions that could benefit this State-listed endangered species.

Grassland Bird Conservation in New Hampshire: The Big Picture



photos and story by Pamela Hunt

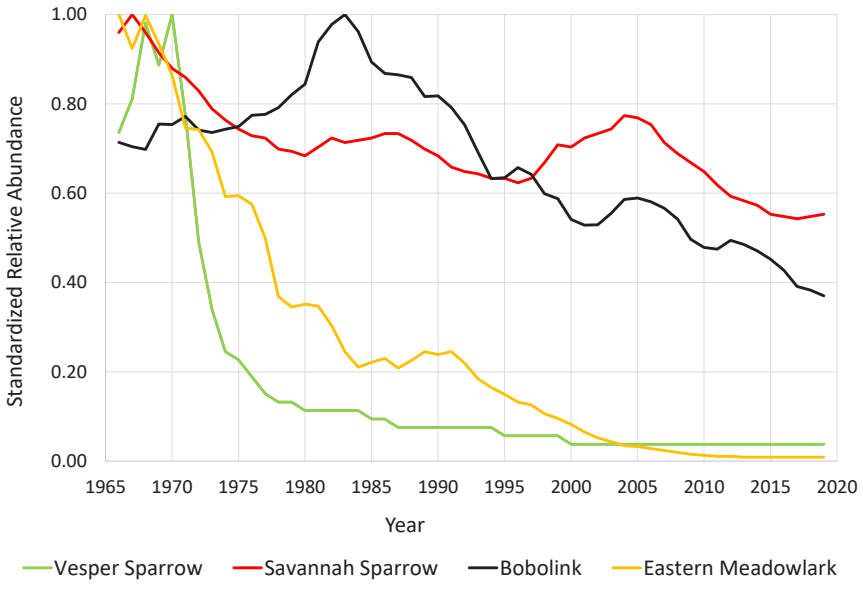
Grasshopper Sparrow (left) and Eastern Meadowlarks (right) perched on a solar panel at the old Manchester landfill. Map: Grassland focal areas in green; red dots are important sites that don't fall within a focal area.

While the 2021 breeding season was focused on statewide surveys for grassland birds, 2022 saw a lot more in the way of conservation actions. We can count Bobolinks and meadowlarks as much as we want, but it's critical to protect habitat and ensure reproductive success if we want there to be birds to count.

To put all of this into a larger perspective, consider the history of grassland birds in the Granite State (see also the grassland section in *The State of New Hampshire's Birds*, 2020). Prior to European colonization and subsequent forest clearing, grasslands and their attendant species were rare over most of the Northeast, and only became common during the peak agricultural period in the late 1800s. As farming declined in the early 1900s, our native forests came roaring back, and in recent decades many former farms have been lost to development. It should come as no surprise that grassland species are almost all declining, with several listed as threatened or endangered in multiple states.

This "long view" of these species' history prompts questions about whether we should prioritize birds that were not historically common on our landscape to begin with. With limited conservation resources, is it more important to focus our efforts on organisms more "native" to northern New England? This is not a simple question since grassland bird populations are declining rapidly over their entire continental range and local conservation may be more important than we realize. It behooves us to at least try to keep what we've got, while acknowledging that we're never going to return to conditions in the 1880s when half of New Hampshire was farmland. This leads to a very focused approach of working at specific sites where conservation can do the most good for the rarer species, and hope the rest get brought along with the habitat.

To this end, NH Audubon has proposed seven "grassland focal areas" defined by presence of the rarest species and extensive areas of remaining grassland (see map): Northern Coos, Southwest



Population data for four grassland birds in New Hampshire from the Breeding Bird Survey. Data were standardized so trends can be easily compared. Bobolink is up to three times as common as the other species.

Coos, Upper Connecticut Valley, Lower Connecticut Valley, Upper Merrimack Valley, Lower Merrimack and Souhegan Valleys, and Seacoast. Within these areas, we can target particular sites for outreach to landowners. Such work is never easy, since economic factors play a critical role in most agricultural landscapes, and our goal is to have birds *and* farmers thrive. The intent is for all parties to reach a compromise, which can involve incentive payments to delay mowing, partial mowing, and all manner of options in between. Options in non-agricultural sites (airports, solar installations, etc.) are sometimes more numerous, but there are still usually constraints imposed by existing land use.

Activity at five locations in 2022 illustrates the diversity of approaches and outcomes in grassland bird conservation.

We can count Bobolinks and meadowlarks as much as we want, but it's critical to protect habitat and ensure reproductive success if we want there to be birds to count.

The old Manchester landfill was capped in 1999, and in the mid-2000s small populations of Grasshopper Sparrows and Eastern Meadowlarks were documented there. In the fall of 2021, a new municipal solar array was installed at the top of the landfill, essentially right where grassland bird activity was concentrated in the past. As a condition of the permit, NH Fish and Game required 2-3 years of post-construction surveys to determine if there were impacts on threatened species, and NH Audubon visited the site five times in May-July 2022. The good news is that both species were present in typical numbers and successfully produced young. They even used the solar panels as perches! The bad news is that Bobolinks, formerly common at the site, were not present. We are proposing two more summers of surveys to make sure habitat remains suitable, and perhaps during that time Bobolinks will recolonize. Either way, this project is providing valuable information on the effects of solar installations on grassland birds.

Solar panels are also being proposed for a large field at the **Rockingham County Farm in Brentwood**, where they would occupy (along with a new municipal complex) roughly half of a 100-acre field historically used by Bobolinks and Eastern Meadowlarks. Once again the permitting process was employed in an effort to conserve these species, this time by stipulating that the remaining portion of the field not be mowed until after August first. As at the Manchester landfill, monitoring in future years will be an important way to determine if birds continue to use the site, including the portion used for the solar panels.

We were able to modify mowing timing at two sites this year. Meadowlarks have used a large field at **Elm Brook Park in Hopkinton** for several years, and this year I reached out to the Army Corps of Engineers (who manage the site) to learn more about their plans for mowing this field. I learned they usually mowed it in late July and was able to convince them to delay the mow until after August 1—another win for meadowlarks. Meanwhile, after a birder discovered a singing Grasshopper Sparrow in **Greenfield**, our partners at the Harris Center were able to convince the farmer to leave the occupied portion unmowed until later in the season. Although it appears the sparrow(s) didn't stick around to nest, this was a great example of how relationships with landowners can be extremely helpful when trying to implement conservation.

Efforts such as those described above don't always work however, and our final story relates to Grasshopper Sparrows in **Hollis**. Sparrows first appeared at **Woodmont Orchard** in 2019, likely as a result of extensive fallow fields. As more of these fields became used for active agriculture, the suitable area for sparrows has declined, and multiple stakeholders have been discussing conservation options for the last two years. These discussions have often been contentious, and at present the primary concession to sparrows is a small area with poorer soils at the top of a ridge. Sparrows regularly use this section, but time will tell what happens as the rest of the surrounding landscape is dominated by corn and pumpkins, and it remains a cautionary tale of the difficulties inherent in implementing grassland conservation on working farmlands.

NH Audubon's Chris Martin found meadowlarks (while looking for harriers!) at two locations in southwestern Coos County this summer—the first time since 2017 that this species has been reported in the area. At the other end of the state, Matt Tarr reported both Grasshopper Sparrow and Eastern Meadowlark on the capped portion of the Turnkey Landfill in Rochester. This would appear to be a new long-term site for both species and represents a good opportunity for future conservation as discussed above.

Conservation planning and technical assistance related to grassland birds is funded through a federal State Wildlife Grant to NH Fish and Game's Nongame Wildlife Program.

Singing male Eastern Meadowlark at the Manchester Landfill solar installation.

New England Motus Installations Nearing Completion

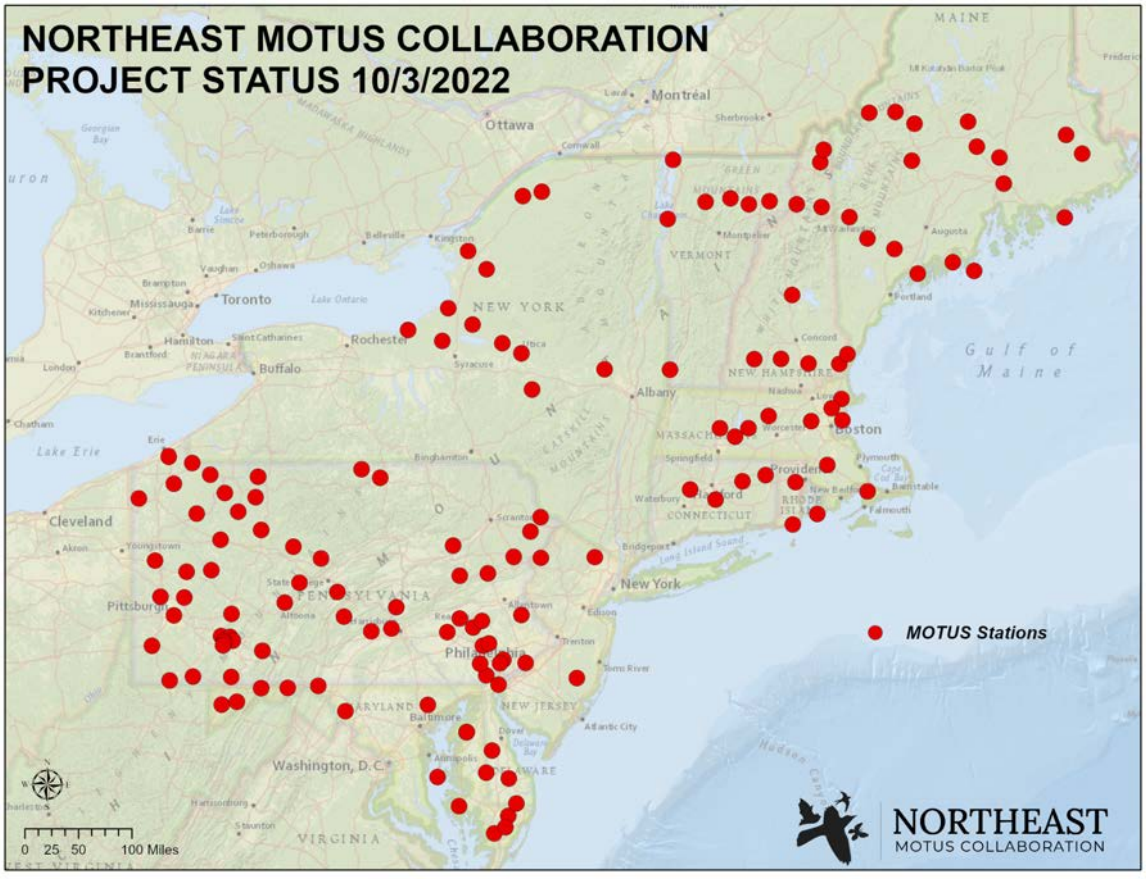
by Carol Foss

It has been a busy year for the New England Motus installation crews. From Rhode Island to northern Maine, teams from the Carnegie Institute and Willistown Conservation Trust have installed 22 receiving stations so far during 2022. The spring started off with our own Massabesic Center and Paul and Debbie Doscher's Windcrest Farm in Weare. In the following weeks, three stations in Connecticut, seven in Maine, four in Massachusetts, and one in Rhode Island joined the 20 of the New England network installed in 2021. Together, these installations detected 534 different tags as of mid-September 2022. From locally deployed tags, including those on Monarchs at the Massabesic Center and Rusty Blackbirds in Coos County, to tags deployed on shorebirds breeding at Hudson Bay and thrushes wintering in South America, these detections contribute to emerging pictures of the amazing migrations occurring over New Hampshire skies.

NEXT STEPS

As installations of receiving stations in New England wind down, the next major initiative for the Northeast Motus Collaboration will begin to gear up in October. This group, with which NH Audubon is now a partner, formed in Pennsylvania in 2017 to create a network of Motus receiving stations in the interior of the northeastern United States.

Colleagues in state wildlife agencies and conservation organizations from Maine to Alabama spent much of December and January developing the latest Competitive State Wildlife Grant (CSWG) proposal to expand the Motus network in the eastern United States. This $1 million project, which was approved in July, will fund maintenance of the 150 receiving stations in the New England and mid-Atlantic states (funded by two previous CSWG), upgrades of 20 existing stations, and installation of at least 35 new stations in eight southeastern states from Virginia to Alabama. The grant will also fund research on Eastern Towhees, Golden-winged Warblers, Northern Saw-whet Owls, Rusty Blackbirds, and Swainson's Warblers using the Motus network to study these species over their full annual cycles. The Rusty Blackbird funding will cover purchase of nanotags for deployment on birds from the northern New England breeding population and installation of two receiving stations in the southern states sited near Rusty Blackbird wintering areas.



All of the New England Motus receiving stations installed by Northeast Motus Collaborative teams as of October 3, 2022. Map created by project partners at Willistown Conservation Trust.

The New England Motus project is funded by a Competitive State Wildlife Grant, grants from the Butler Foundation and the Hayden Family Foundation, and private donations.

The Motus tower at Massabesic Center was installed in April. To see a record of what it detects, visit: https://bit.ly/3WgkoNT.

Counting on Nature
BioBlitz in Concord

photos and story by Marc Nutter

Whack! Whack! Whack! A galvanized steel pipe is smacked against the low branches of an oak tree. Little tube feet and even hooked tarsi are no match for the change in inertia on what was seconds ago a great place to find a bite to eat. Insects of all different orders enter freefall, wondering what the heck just happened to their previously protected perch. Inquisitive eyes meet them as they softly land on what looks like a white insect trampoline. Insects are photographed, identified, and released back to the wild without harm. Each photo and identification is uploaded to iNaturalist and joins dozens of other observations in a concerted effort to observe and document as many pollinator species as we could in one day.

A grand total of 184 observations were recorded by a dedicated group of community scientists in NH Audubon's first annual BioBlitz at our state headquarters in Concord on June 25, 2022. Organized by Diane De Luca (with support from me), the BioBlitz welcomed 15 people to the McLane Center on one of the hottest days of the summer to focus our observations of plants and insects. With the help of our expert guests, we enjoyed seeing our pollinator habitat with new eyes. A huge thanks to Emma Erler, Horticulturist for Squam Lakes Natural Science Center, who led explorations on pollinator plants; Heidi Holman, Wildlife Habitat Biologist for NH Fish and Game, who led butterfly explorations; Mike Thomas, retired entomologist for USDA, who led explorations focused on insect pollinators; and the McLane Pollinator Garden volunteers, who led explorations focused on the Pollinator Garden that they help manage.

At the BioBlitz, Emma Erler leads a group focused on pollinator plant identification (above), and community scientists learned from Mike Thomas, a retired USDA entomologist (below).

All told, we identified 106 species in just about 5 hours! To check out the BioBlitz stats and see what we saw, visit the project page at: https://www.inaturalist.org/projects/2022-bioblitz-at-the-mclane-center-pollinator-habitat

If you are new to the iNaturalist platform, but still want to help document and identify organisms in your backyard or at NH Audubon Wildlife Sanctuaries throughout the state, you're in luck! You can learn more about how iNaturalist works by watching our how-to webinar which is available on our YouTube channel: Pollinator Speaker Series: iNaturalist Training, https://www.youtube.com/watch?v=X3ts9kKa--4

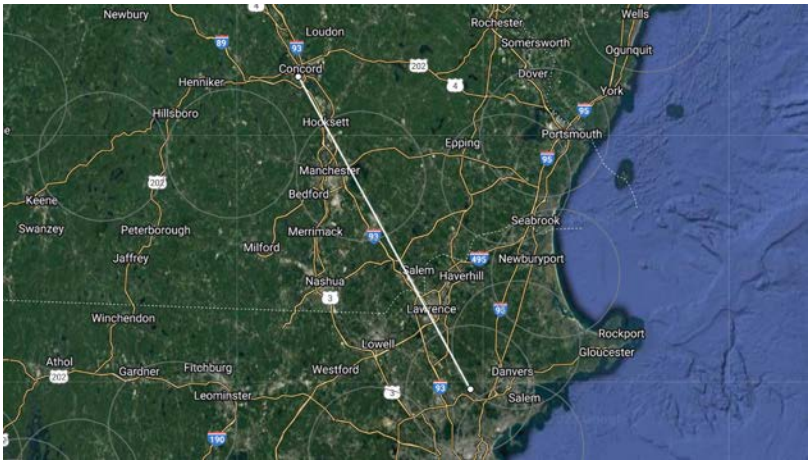
MONARCH TAGGING

by Diane De Luca

After a small pilot tagging program in 2021, we expanded both the number of Monarchs tagged and the geographic locations at which the tags were placed. The placement of tiny nanotags on migrating Monarch butterflies is part of a larger Motus project, a global migration tracking system that NH Audubon and many partners are expanding in the Northeast. Nanotags are lightweight radio-transmitters with unique signals that can be detected by Motus receiving stations placed throughout the landscape. These nanotags will allow biologists to track fall movements of Monarch butterflies. The last generation of summer Monarchs travel south to overwinter in central Mexico, a journey of close to 3,000 miles. Tracking information can help determine timing, travel speeds, and migration routes of the tagged Monarchs. In addition, this information has the potential to identify target areas for habitat improvement, such as planting fall-blooming nectar sources to support migrating Monarchs.

In contrast to 2021 when we tagged only four Monarchs in a single day, this field season stretched from September 1-18. A total of 58 tags were placed on Monarchs at both coastal and inland sites. Great Bay National Wildlife Refuge was the focus of our coastal tagging effort. Massabesic Audubon Center (MAC) was the original focus for our inland effort. Both sites have Motus towers which allow us to determine how long the Monarchs remain in the field where they were tagged. Because of the low number of Monarchs in the MAC fields, the capture site shifted to the community gardens in Concord. The many gardens with flowering plants and adjacent field with flowering asters allowed for easy capture of many Monarchs. Nearby gardener, Mary Malan, provided a site for a temporary receiving tower so that we could hold and release the Monarchs near their capture site, and monitor any that stayed to nectar on her flowers. Annual Meeting attendees were fortunate enough to witness the tagging of the last four Monarchs.

We learned much in the process—perhaps more than anything, the need for patience and perseverance. The first half of September was quite warm with few days of northerly winds. This translated to slow Monarch migration until a change in the weather brought cool temperatures and northerly winds. Past research has noted that Monarchs follow the declination of the sun during migration. Using the identified declination of the sun, and the New Hampshire records that are available, peak migration is predicted



The route that tagged Monarch #69 took after release in Concord, NH on September 15 and detected at a Motus tower in Lynnfield, MA on September 17, 2022. Map generated through the Motus platform.

to occur from September 9-12. Not so this year, with significant movements all occurring after this window; a lesson in the intricacies of the natural world.

TAGGING RETURNS

Where and when our tagged Monarchs are picked up by a Motus receiving tower will help to further our learning about Monarch migration. It can take some time to get this information uploaded and analyzed so we are still early in the process at this writing. We are excited that one of our Concord tagged Monarchs was picked up by the MAC tower on the same day it was released, and two were picked up by a tower in Lynnfield, Massachusetts. Interestingly, each of these Monarchs in Lynnfield were tagged and released on different days. The Monarch carrying tag #69 was released on September 15 and detected by the Lynnfield tower on September 17. In less than 48 hours this Monarch flew about 60 miles – definitely impressive flight speed. The second Monarch (carrying tag #45) was released on September 16 and detected by the tower on September 23. It is fascinating to contemplate the difference in flight speeds, potential trajectories, and the fact that they were both picked up at the Lynnfield tower. This tower is close to the Lynnfield Marsh (Reedy Meadow). Reedy Meadow is the largest freshwater cattail marsh in Massachusetts with over 540 acres of cattails, purple loosestrife, scrub swamp. Although invasive, purple loosestrife is known as a nectaring target for migrating Monarchs. Was this the attraction?

We are excited that one of our Concord tagged Monarchs was picked up by the MAC tower on the same day it was released, and two were picked up by a tower in Lynnfield, Massachusetts.

THANK YOU

The Monarch tagging effort was supported by a Competitive State Wildlife Grant and grants from the Cricket Foundation, the Butler Foundation, and the Fuller Foundation. The success of the Monarch tagging season was made possible by the many dedicated and diligent volunteers that gave of their time and energy to make it happen. Our sincere and heartfelt thanks to these volunteers: Phebe Brooks, Doris Buco, Laura Deming, Heidi Holman, Christian Kishida, Sandy MacIntyre, Mary Malan, Heather McIntosh, Ken Munney, Steve Mirick, Rob Nute, Kate Osgood, Ellie Peabody, Stacey Scaccia, Jonah Walker, Kiah Walker and Stephen Walker. Thanks also to the hastily activated Squam Lakes Natural Science Center volunteer team that helped us survey an additional tagging site in New Hampton.

Sincere thanks to the staff of the Parker River Wildlife Refuge for facilitating the assembly and access to the Motus tower at the Great Bay National Wildlife Refuge. Thanks also to Mary Malan for opening her home and beautiful gardens to Monarch tagging.

Opposite, left: Monarch, showing the transmitter antenna, takes its time during release as Marc Nutter tracks it with the hand-held receiver and Becky Suomala takes data notes in the background (photo by Vanessa Johnson). Above, left and middle: Applying a nanotag to a Monarch's abdomen (photos by Dyanna Smith). Above, right: Nanotagged Monarchs awaiting release (photo by Doug Bechtel).

Monarch Tagging: *a Day in the Field*

photos and story by Diane De Luca

GREAT BAY NATIONAL WILDLIFE REFUGE
SEPTEMBER 15, 2022

We are back for a second year of placing nanotags on Monarch butterflies at the Great Bay Motus Tower located on the high point of the Thomas Field at the Great Bay National Wildlife Refuge. This expansive field of goldenrods, asters and milkweeds is a perfect location to monitor and capture Monarchs. We are thankful to the refuge staff that support us and allow the work to continue for a second season.

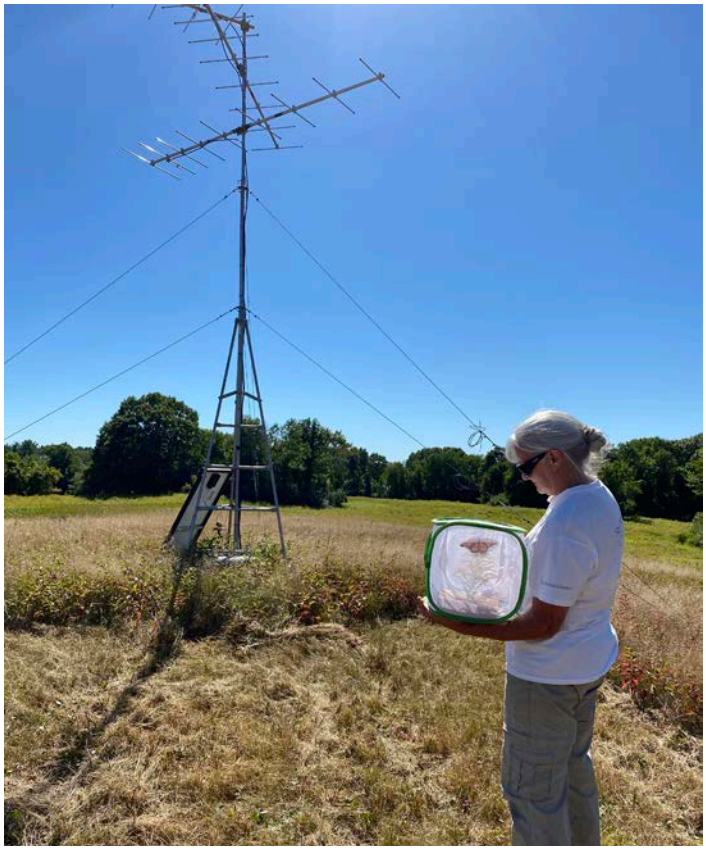
It is cool and crisp on arrival at the top of Thomas Field. After many warm days, the wind has shifted to the northwest bringing cooler temperatures and the hope for good Monarch movement. We notice Monarchs immediately as they seem to be following a trajectory that brings them low along the field and up over the tower area. The goldenrod and asters show the impact of a very hot and dry summer. Scattered patches still glow yellow and purple, but many blooms have now gone by.

The team starts to assemble. We have been gathering for almost two weeks and there is familiarity in the routine. The expanse of the field and the "outside" set up necessitate a crew that can spread out, with comfort in the wandering and netting. I am very thankful for each and every member as we could not accomplish Monarch tagging without this enthusiastic and rugged crew.

First task: release of the Monarchs tagged yesterday. They spent the night in the shelter of a nearby shop and are back at the tower for release. All are doing well—always a relief. They hang peacefully from the top of the cage and begin to show signs they are ready to take flight as the sun warms. We organize our team to cover compass direction, operate the handheld receiver and scribe the release notes. The first Monarch is removed by hand from the cage, the tag ID# is noted and photographed, and the Monarch is lifted up for flight. With a northwest wind we are hopeful that flight direction will be southerly. We are not disappointed as the Monarch quickly lifts and moves high across the field to the south. Perfect!

Once releases are complete, we settle into the task of netting and processing the next Monarchs for potential tagging. Part of the team heads out with nets to capture Monarchs across the field. The rest of us set up butterfly cages within a screened tent. The field is expansive and takes a bit of hiking, but Monarchs are present and soon start filling up our cages. There is excitement in every Monarch that is brought to our tagging station, with stories behind the location, the "chase," and the teamwork, as reasons for success. Always there are shared observations on the beauty of the Monarch, the size, the brilliance, the wing condition. These observations have been defined by hours of hard work and a learned understanding of Monarchs that will likely be deemed large enough and in a suitable condition to allow tagging.

Each Monarch is slipped into a small envelope and weighed. Although we are using the very smallest nanotags available at 0.13g this is still a significant weight for a Monarch. We select only the largest of our captured Monarchs for tagging. The tags are glued in place on the underside of the abdomen. A tiny amount of glue is placed on the nanotag and, after a 30 second count, attached to the Monarch's abdomen. We work as a team to accomplish the tagging, and are grateful for each success.



Volunteer Ellie Peabody successfully nets a Monarch (left). Laura Deming releases a Monarch at the Great Bay Tower (above).

Cliff Swallow Study Enters Second Year

photos and story by Pamela Hunt

Cliff Swallows using natural and artificial clay nests at a colony in Pittsburg, NH. Note how the birds add mud to the clay nest's opening to make it smaller and more closely resemble a nest made from scratch (top). Cliff Swallow eggs and newly hatched chick photographed with a fiberoptic camera at one of the Tamworth, NH colonies (inset).

The Cliff Swallow study entered its second year at three colonies in the Lakes Region and had mixed results. A colony in Holderness almost failed entirely because most nests fell from under the eaves of the barn and silo that host this colony. Only one nest appears to have been successful, and I only know this because fledglings were seen at the site in late July. Nests are more likely to fall under dry conditions (such as we had with the drought this summer), which loosen their connection to the supporting wall and probably make high quality mud harder to find. All this said, there was also good news in Holderness. I was able to reach out to the landowner, and they are amenable to installing some artificial Cliff Swallow nests (see photo) in preparation for the 2023 season. At the same time, we discovered an additional small colony on the home of one of their neighbors down the road. Evidence indicates that there used to be a lot more nests at this new location, so there's another opportunity for future management.

With the aid of a new fiberoptic camera with a 5-meter reach, I was able to determine nest contents at the two Tamworth colonies and better track their progress. Overall nest success was similar to 2021 with 68% of nests producing at least one fledgling (70% in 2021) and was higher in the earlier part of the season. The first round of nests fledged roughly 35 chicks from 15 nests, while a second round starting in late July fledged 10 chicks from 10 nests. Late nests were much less successful overall, and several were apparently abandoned prior to the eggs hatching. The number of late nests seems high for this species, which doesn't have second broods, although they will re-nest if there's an early failure. We may need to start individually marking birds to get a better handle on who's doing what in future years. For example, are some late nests local birds that failed earlier in the season, or are they new birds that arrived from a completely different colony?

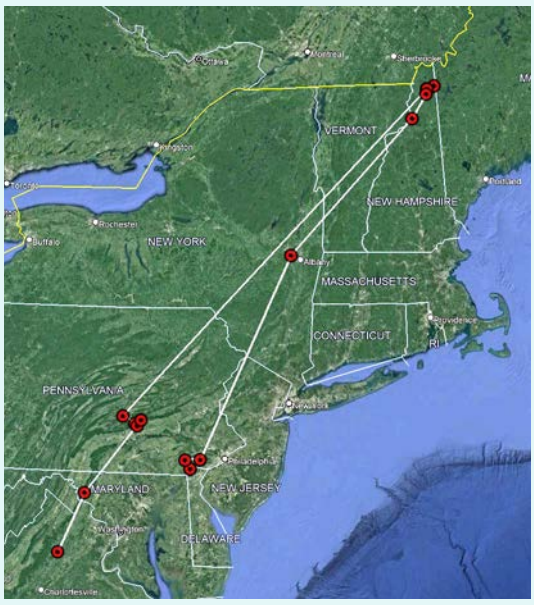
Summer 2022 also saw the first year of detailed monitoring of the Cliff Swallow colonies in Pittsburg, where most of the state's population occurs. This was a volunteer effort, and data are not yet fully available, but we estimate at least 50 nests spread among three or four colonies. The largest of these contained over 30 nests on a farmhouse along Tabor Road. Roy Amey, the owner of Maple Ridge Farm, is quite proud of his swallows, even going so far as to create mud puddles so they have easy access to nesting materials. Last year we installed several artificial clay nests at this site and the birds took to them immediately—always adding more mud to the opening. More clay nests were added in 2022 and it appears that over half of them were used. Birds also started building new nests on top of the artificial ones. One of the benefits of artificial nests is that they are not likely to fall down, and they can also be easily removed to clean them and remove parasites between breeding seasons. Installation of artificial nests in Holderness and Tamworth in 2023 will allow us to compare nesting success to that in natural nests.

The largest of these [colonies] contained over 30 nests on a farmhouse along Tabor Road. Roy Amey, the owner of Maple Ridge Farm, is quite proud of his swallows, even going so far as to create mud puddles so they have easy access to nesting materials.

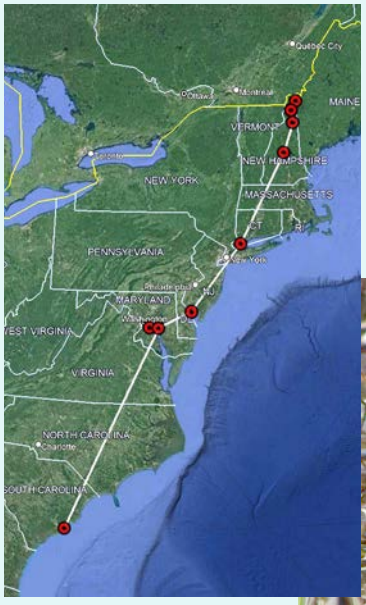
The Cliff Swallow study is funded by a grant from the Butler Foundation.

Conservation Notes

Male Rusty Blackbird (left) with PinPoint GPS tag—can you find the biting insects the field biologists endure? Rusty Blackbird nestling with nanotag (top). Photos by Anna Peel.



This female eluded receiving stations south of Pennsylvania on her fall 2021 migration and wintered at an unknown location in the southeastern states. She appeared in Virginia on March 29, 2022 and was back in northern New Hampshire on April 5.



A female that nested near the Maine-New Hampshire border in 2021 departed from the North Country on October 8. Receiving stations detected her passage over Chesapeake Bay on October 28 and along the coast of South Carolina on November 14. Although she was never detected on her journey back north, we found her incubating five eggs back in her previous nesting area on May 21, 2022! Photo by Levi Burford.

Rusty Blackbird Breeding Season Summary

by Carol Foss

Neither mud nor mosquitoes deterred the Rusty Blackbird crew from their goals during the 2022 field season. The intrepid team of Levi Burford, Anna Peel, Patti Wohner, and Elora Grahame located and monitored 34 nests, and banded 45 adults and 95 nestlings in Coos County, NH and Oxford County, ME.

We are using Motus technology to investigate how Rusty Blackbirds are using the Northern Forest between the end of the nesting season and fall departure, as well as their migration routes and timing. As of the end of September, we are awaiting detection of seven adults and eight juveniles along their journey south. As we go to press (mid-October), we just learned that two of the juveniles have been detected at receiving stations in Vermont. These birds will provide the first opportunity to document the migration patterns of juveniles and compare them to those of adults. We also deployed PinPoint GPS tags on 11 adult males. Obtaining data from these tags will require locating and recapturing the birds next spring, but every tag recovered will provide invaluable information on habitat use from July through April and will help to inform siting decisions for new Motus receiving stations in the southeastern states.

We are grateful to our cooperating landowners, LandVest, Savannahwood LLC, Seven Islands Land Company, Umbagog National Wildlife Refuge, Wagner Forest Management, and Weyerhauser (formerly Plum Creek); and to the Conservation Biology Research Fund at the New Hampshire Charitable Foundation, the Maine Outdoor Heritage Fund, and Wagner Forest Management for continuing support of this work.

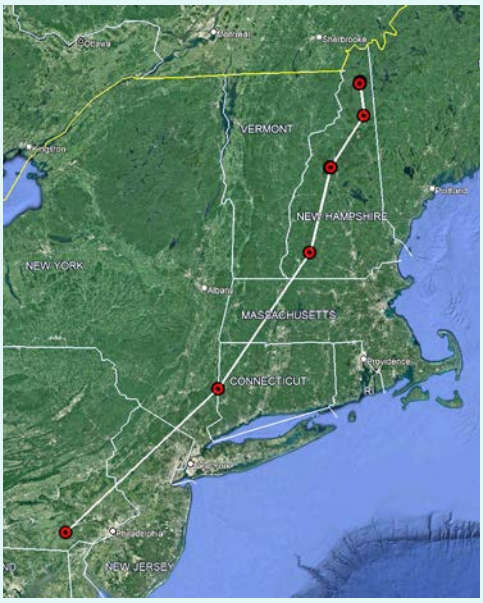
Motus Insights into Rusty Blackbird Migration

by Carol Foss

Fall foliage had passed its peak in the Upper Androscoggin watershed when the local Rusty Blackbirds headed south last fall. Coos County Motus receiving stations documented the departures of nine nanotagged Rusties from October 5-24 in 2021. These map examples illustrate some of the paths these birds took on their migrations south (and back north for two birds).

Maps generated using Google Earth and Motus data by Pam Hunt.

This male followed very similar routes on its spring and fall migrations. After leaving Berlin on October 18, 2021 it traveled from Connecticut to Chesapeake Bay on November 4 at estimated speeds of 34 to 44 mph. Its return north was more leisurely, covering the same distance over five days. It arrived back in Berlin on April 21, 2022.



Five New Hampshire receiving stations detected this female on her way south in October 2021, but she completely eluded detection on spring migration and during the breeding season. However, she appeared at a wetland near her 2021 nest site in October 2022, recognizable by her color bands.

Conservation Notes

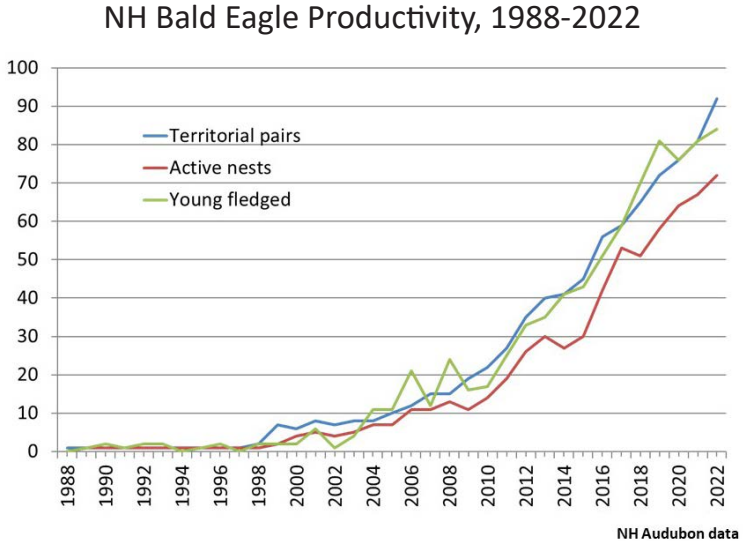
An adult Bald Eagle at a nest in Bennington tends her three downy chicks, all which eventually fledged. Photo by Wayne Courtemanche.

Bald Eagles, the Best Breeding Season Yet!

by Chris Martin

Due to robust population recovery recorded since the 1980s by NH Audubon staff and volunteers, NH Fish and Game removed the Bald Eagle from our state's Endangered and Threatened Wildlife List in March 2017. Since then, our eagle population has continued to grow, doubling in size about every 5-7 years since the late 1990s, now testing our ability to keep tabs on the increasing number of pairs and nests across the state. It's worth recalling that just 25 years ago we had only one known nesting pair of Bald Eagles in the entire Granite State!

With that in mind, here are New Hampshire's impressive Bald Eagle breeding statistics for 2022. NH Audubon staff and volunteers confirmed 92 territorial pairs, up nearly 14% compared to 2021. We documented 72 incubating pairs, up more than 7% from last year. We counted 51 successful nests, surprisingly down 4% compared with 2021. And we tallied 84 young fledged, up almost 4% over 81 fledglings in both 2019 and 2021. This year's numbers set new state record-highs, and if the present growth rate continues for the rest of this decade, we could have 200 territorial pairs of eagles in the state by 2030!



Bald Eagles resumed breeding in New Hampshire about 35 years ago, but nearly half of the fledglings have come in just the last five years. Our major rivers and large lakes are now well-supplied with eagles. For example, our state's 190-mile shared border with Vermont now has 27 territorial pairs, if you include pairs that nest on either side of the Connecticut River. That's roughly one pair every seven miles over our western border's entire length. In the state's busy Lake Region – an area designated for focus in our 2022 state monitoring contract with NH Fish and Game – we found 20 territorial pairs that produced 15 fledglings. Good numbers of pairs indeed, but not especially good nesting success.

On a less positive note, over the past year we documented 11 Bald Eagles found dead, and another seven that died or were euthanized during treatment. Several of these birds were struck by vehicles, a big risk for eagles and other scavengers. Working with wildlife rehabilitator Maria Colby from Wings of the Dawn and Dr. Michael Dutton and his veterinary staff in Hopkinton and Weare, a rehabbed 17-yr old female eagle was released at Lake Horace in Weare in August. One other adult, an 11-yr old male, was still awaiting release this fall.

NH Audubon volunteers track progress at nests from February, when the earliest pairs lay eggs, through August, when the last chicks fledge. In addition to following activity at known sites, we also found seven new breeding territories (in Auburn, Deering, Durham, Hinsdale, Hooksett, Lyme, and Wilton). Our volunteer observers and photographers who contribute so much to our monitoring efforts each year deserve thanks for gathering data and sharing many wonderful images for our educational outreach. These folks remain an essential ingredient in our successful eagle monitoring recipe!

Our work with eagles is funded in part by a federal State Wildlife Grant to NH Fish and Game. We also received generous grants from the Knopf Family Foundation and the Sally Sanderson Cutler Wildlife Conservation Fund, as well as several generous gifts from NH Audubon members and others.

More Progress for Peregrine Falcons

by Chris Martin

NH Audubon staff and volunteer falcon-watchers reported a record-setting Peregrine Falcon breeding season in 2022. We confirmed 27 territorial pairs, up slightly over 2021, including one new site at Band M Ledge, a cliff just south of Conway. We documented 24 incubating pairs and 18 successful pairs. A total of 47 young Peregrines fledged, topping our previous state record high of 43 set back in 2018. Manchester's Brady Sullivan Tower fledged five young this year, marking only the third time over the past 42 years of organized monitoring in the state that five chicks fledged out of a total of 348 successful nests.

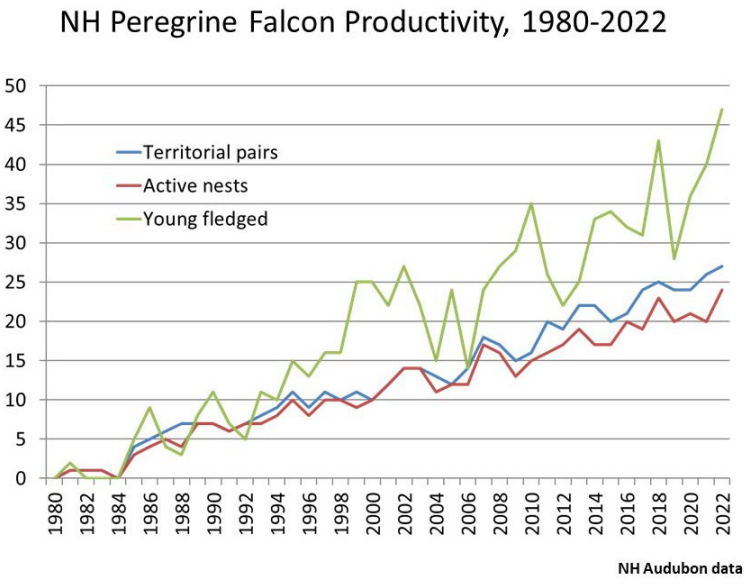
Still listed as state-threatened, New Hampshire's Peregrine population has been rebounding at a very gradual pace. Some years, such as the one just ended, show a solid increase. Other years are not as good. Nevertheless, the Granite State's falcons contribute to a healthy regional population that includes both cliff-dwelling and urban-nesting pairs.

One of the true thrills of working with these incredible raptors is visiting the dramatic places that they nest. NH Audubon field volunteer Robert Vallieres knows this well, having helped us monitor Peregrines for more than 25 years! He has "perched" with them in some truly magnificent locations, including in the vastness of Franconia Notch and up close and personal at Russell Crag (Woodstock, NH). A salute to Robert, and to our many other fanatic falcon volunteers, for their dedication!

Management actions taken by NH Audubon on behalf of the state's Peregrines are funded in part by a federal State Wildlife Grant to NH Fish and Game's Nongame Wildlife Program. A generous grant from the Dorr Foundation funds educational initiatives for middle school students and others. Additionally, we greatly appreciate generous gifts to the project from NH Audubon members and others.

Adult female Peregrine Falcon at Russell Crag stares warily at a familiar volunteer near her nest on May 14, 2022. Photo by Robert Vallieres.

As always, a huge "Thank You!" goes out to all who support these ongoing efforts. We also thank our partners at NH Fish and Game, other state and federal natural resource agencies, corporate partners such as Peregrine Networks, as well as private landowners, rock climbers, and volunteer falcon-watchers. I am already looking forward to another exciting season in Spring 2023!



Stars of the show in 2022! Well-known Peregrine breeding site at the Brady Sullivan Tower in Manchester has produced five fledglings twice in 22 years. The 2022 crew posed for this photo after being banded before being returned to the nest. Photo by Willa Coroka.

Phenology Reflections *the power of close focus*

photos and story by Diane De Luca

For the last ten years, we have made consistent phenology observations of selected species at the Deering Wildlife Sanctuary. These observations provide a baseline for the sanctuary and contribute to a national database managed by the National Phenology Network (NPN). The power of the NPN's database is in the species-rich, long term data sets collected across large areas. This database is important to researchers trying to determine which species are most vulnerable to climate change, and how these changes impact ecosystems. The data will also help inform management in a way that promotes resilience to climate change.

Documenting plants as they grow, flower, and fruit requires frequent and careful study, sometimes from down on your knees with a magnifying glass and other times looking through binoculars at the buds in the treetops. It means looking closely at details we usually pass by. The power of close observation is certainly reflected in long term data, allowing us to see impacts and changes. Examples at Deering include the dramatic evidence of the effect that local weather can have on species that hold their flower buds through the winter. Data over the years show that first flowering in Red Maple (*Acer rubrum*) and Trailing Arbutus (*Epigea repens*) has spanned a period of more than three weeks. The earliest flowering was documented at the end of March with the latest spilling into the beginning of May. Emergent wildflowers, however, such as Canada Mayflower (*Maianthemum canadense*), Red Trillium (*Trillium erectum*) and Blue Bead Lily (*Clintonia borealis*) have only fluctuated by 7-10 days over this same period. Continued monitoring may help discern what this plasticity might mean for both the ability of the plant to adapt to a changing climate and the pollinators reliant on their blooms.

Beyond the value of these observations as a contribution to our knowledge of climate change impacts, they also reflect the power of close focus, or perhaps, the gift of close focus. It's a gift that comes through a familiarity and place-based learning, being present enough to catch some of the subtle beauty that is often fleeting and short-lived.

I am thankful for these gifts of close focus. I encourage you to take the time to experience these gifts in your own backyards.

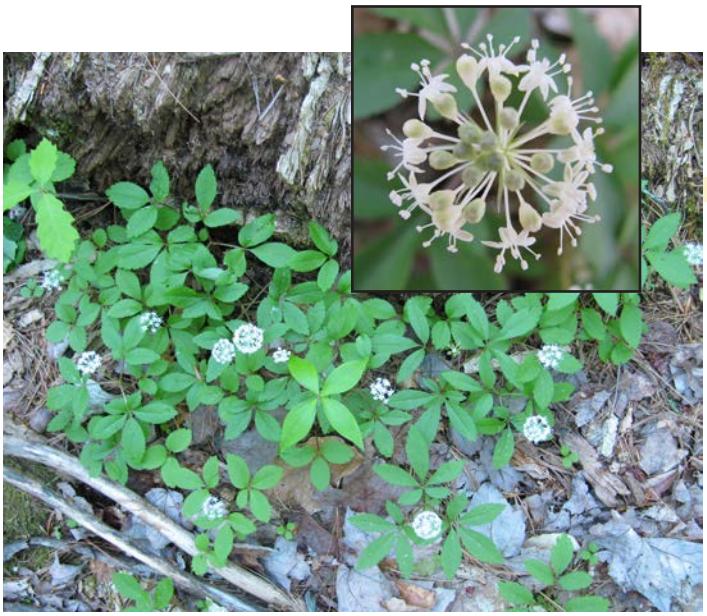
Grateful thanks to an anonymous donor for supporting the NH Audubon Phenology Project.

A glimpse into my journal reveals a few of the many gifts:

May 13

*Small rocky ledges peak through the soil here. It is shady and cool with an understory of hobblebush and mixed hardwoods above. Patches of goldthread (*Coptis trifolia*) arise from rich green moss that blankets the rocky protrusions. The spring growth of the evergreen leaves shine in the sun. Dotted with small white flowers that reveal added complexity with closer examination. The white portions of this flower are actually modified leaves that protect the delicate yellow petals that fold up over the center. I move some soil at the base of one of the plants to reveal the brilliant gold root…. the derivation of the name.*

Photos: Patches of Goldthread across the rocky outcroppings (top), a single small Goldthread flower showing white modified leaves and delicate yellow petals (inset left), brilliant gold root from which the name Goldthread is derived (inset right).



May 21

*The path is wet along here, with standing water in the center and mats of sphagnum moss along the edge. Above the moss, dwarf ginseng (*Panax trifolium*) blooms grace the moist understory highlighted by the sun. I lean in close to examine the blooms, which are always a delight and never last long. Tiny, delicate white flowers cluster to create a feathery umbrella of bloom. The flowers sit atop a whorl of green leaflets.*

Photos: Dwarf Ginseng blooms fill the understory (left), the feathery umbrella of bloom on the Dwarf Ginseng (inset left).

June 1

*The trail opens up just off the edge of the pond, with a thick ground cover of bunchberry (*Cornus Canadensis*) and partridgeberry (*Mitchella repens*). Lichens and moss carpet the edge of the trail, and the gnarled roots of hemlock extend from a graying trunk. The sun gets into this spot. It glints off gossamer wings. A quick count and I estimate more than one hundred Chalk-fronted Corporal dragonflies. The majority are males but a few dark grayish brown females are seen in the mix. They perch along the downed wood, gnarled trunk, moss and lichen. My movement spurs their movement, as they shift in waves ahead of me.*

Photos: A lineup of Chalk-fronted Corporals (top left), Chalk-fronted Corporals filling the sunny spaces (right).

Conservation Notes

Purple Martins Bounce Back

by Pamela Hunt

After a miserable breeding season in 2021 due to unseasonable weather, Purple Martins on the Seacoast had another banner year. Although numbers of nests and eggs were slightly lower than last year, the 46 nests in Seabrook, Hampton, and Rye produced 210 young martins, up from 104 last year and surpassing the 150 fledged in 2020. Looking ahead, there's a good chance of a new colony next year thanks to the efforts of the Rye Conservation Commission, who installed a gourd array at the town-owned Goss Farm. Although martins didn't nest there in 2022, a pair paid a visit in early May and an adult male in mid-June. These were probably birds from the colony less than a mile away at the north end of Awcomin Marsh, which we hope will serve as a source colony to get this new one started. The Rye team has high hopes for 2023, and in the meantime will continue their vigilance to prevent House Sparrows from taking over this site.

The Purple Martin project is funded by private donations and a grant from the Butler Foundation. Be sure to contact me if you are interested in trying to attract a colony to your own property or wish to join our dedicated cadre of coastal martin volunteers.

Members and friends of the Rye Conservation Commission at the newly-erected martin gourds at Goss Farm. Photo by John Cavanagh.

New Hampshire Bird Records and NH eBird

by Rebecca Suomala

New Hampshire Bird Records *is finally coming out on schedule! Each issue is coming out before that season comes around again. So the Winter 2021-22 issue was in subscribers' hands by December 1 so they could read about what to look for and where to bird in winter.*

We are trying a new experiment with *New Hampshire Bird Records*—this quarterly publication will now be available to subscribers via email, as a PDF. Some folks have been asking for this, but it will also allow people to see the inside pages in full color. With so many great photos now, it has been frustrating to have the inside pages black and white. There simply isn't the funding to print in all color. We'll be relying on the honor system to make sure subscribers don't share the PDF to non-subscribers for free.

New Hampshire Bird Records relies on subscribers, private donations, the Milne Fund, and the New Hampshire Bird Records Endowment Fund. We are grateful to the many donors who have brought the Endowment Fund over $50,000. The Fund supports all facets of New Hampshire Bird Records, including data collection and organization, and eBird quality control. It also has the flexibility to respond to future changes in the form and function of the *New Hampshire Bird Records* publication. If you would like to make a donation to the Fund, please contact me. For more on *New Hampshire Bird Records* check the web site, nhbirdrecords.org.

Do you remember back to the days when bird reports were submitted to NH Audubon on 3x5 slips? Beginning in 1986 the sightings on those slips were computerized in an old DOS-based program until we converted to eBird in September of 2009. We've been working to upload those 190,000 historic bird sightings into eBird for ten years and we're almost done! Stay tuned for a celebratory announcement next year.

MEMBER BENEFIT: NEW HAMPSHIRE BIRD RECORDS SUBSCRIPTION

NH Audubon members receive $10 off the regular subscription price of $35. If you join or renew your membership at the $250 level, you will receive a complimentary one-year subscription.

Annual Meeting at McLane Center

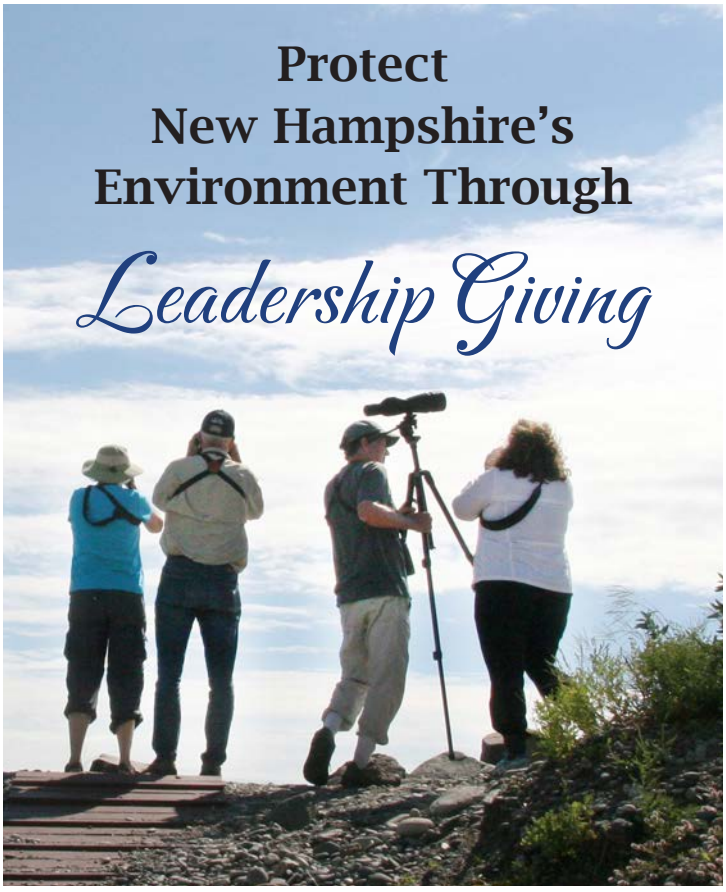
The 2022 Annual Meeting on September 17 was full of sunshine, members and supporters, outdoor adventures, and Monarchs! We began the day with a thank you breakfast to honor our amazing volunteers, followed by guided explorations of the pollinator meadow, gardens, and woodland trails, plus an indoor option to learn nature photography techniques. In an unexpected bonus during lunch, attendees had a close-up look at the Motus research team tagging Monarch butterflies in the garden courtyard.

The day included a panel discussion on climate change where NH Audubon biologists shared the effects of climate on their research subjects, ending with an in-depth look at climate change by Toni Lyn Morelli, our keynote speaker. Attendees and members were also presented with details of NH Audubon's successes over the years by President, Doug Bechtel, and Board Chair, Tom Lee.

Thank you to everyone who attended, adding to our wonderful day together, and special thanks to our activity leaders, climate change panel, moderator Julia Furukawa, keynote speaker Toni Lyn Morelli, and our sponsor, Normandeau Associates.

Congratulations to the following recipients of the Golden Binocular Award for outstanding volunteer service: (top, left to right) Bob Hamm, Jon Woolf, Sandra Bowles, Ellen Nunes, Tabor Browder; (front, left to right) David Saxe (presented posthumously to his partner Barbara Benton), Marsha Richelli, Karen Roy (not present were Anne Forsyth, Kathryn Frieden, Paul Hasenfuss, and Brenda Sens).

Congratulations to our Annual Award winners (left to right): Tudor Richards Award to Sarah Thorne; Goodhue-Elkins Award to Rob Woodward; John Thalheimer Volunteer Award to Wendy Chatel.



This fall, NH Audubon has introduced new Leadership Giving Circles – for a small but instrumental group of advocates within the larger NH Audubon world of members and supporters, who give $1,000 or more during the fiscal year.

These gifts have a sizeable influence on NH Audubon's critical work – conducting conservation research, maintaining biodiverse habitats in our 39 sanctuaries, influencing environmental policy at the state and federal levels, and educating our citizens. Leadership Circle members help protect our state's natural environment, promote climate resilience, and enhance the health of future generations of Granite Staters.

As a New Hampshire-based, statewide nonprofit, we put your dollars to work right here, in the places you call home. In the past few years, we've all seen what can happen when people unite behind a common cause. We're hoping to grow that influence to protect New Hampshire's natural environment for wildlife and for people.

Here are some exclusive benefits to Leadership Circle members:

- Invitations to special events and bird walks throughout the year
- Bimonthly insider updates from our leadership
- A free subscription to *New Hampshire Bird Records*
- An invitation to a behind-the-scenes raptor feeding

If you would like to request a brochure or are interested in learning more, please contact Hope Jordan, Director of Development, at hjordan@nhaudubon.org or by phone at 603-224-9909x307.

Policy Notes

Environmental Policy Activities

by Carol Foss, Senior Advisor for Science and Policy, and Nisa Marks, Environmental Policy Committee Chair

This summary covers policy activities from October 2021 through September 2022, including the 2022 legislative session in New Hampshire. NH Audubon's Environmental Policy Committee members provided testimony on seven bills and joined partner organizations (e.g., Society for the Protection of NH Forests, The Nature Conservancy, Appalachian Mountain Club, Loon Preservation Committee) in testimony on another four; four of these bills became law, as detailed in Table 1. In addition, we signed in for or against 21 bills without submitting testimony, listed in Table 2. Full text and docket details for these bills are available through the New Hampshire General Court website (https://www.gencourt.state.nh.us).

HIGHLIGHTS OF THE NH LEGISLATIVE SESSION

The outcome of the 2022 legislative session was mixed with respect to NH Audubon interests. Two bills that we supported were enacted: SB267 which established an upland invasive species program, and HB1066 which required the commissioner of the Department of Environmental Services to prepare a plan relative to cyanobacterial blooms in New Hampshire.

Two bills that we supported were killed. HB1071 proposed a minimum distance of 250 feet between operating wake boats and other vessels, docks, and shorelines. While we recognized this distance as an improvement over current law, we recommended increasing the minimum distance to 300 feet for wakeboarding and at least 450 feet for wakesurfing based on research that documented the effects of waves generated by these activities on shoreline erosion and resuspension of sediments from lake bottoms. HB1172 required that composting and waste recycling be made available to residents of public housing. Disposal of solid waste is an increasing challenge in New Hampshire, and recycling solid wastes reduces the volume of material sent to landfills and incinerators, provides a domestic source of materials that reduces extraction of natural resources, prevents pollution and greenhouse gas emissions, and saves energy.

Two bills that we opposed were killed as well. HB 1167 established specific maximum contaminant levels for six different perfluorinated chemicals (PFAS) in surface water. We recognize that PFAS in surface waters are likely having significant effects on fish, aquatic birds, and other wildlife. However, we feel strongly that all water quality standards should be set through rulemaking by the responsible agency (NH Department of Environmental Services), rather than by legislative action. Setting water quality standards by rule is the appropriate way to enact policy that reflects the evolving science and is consistent with other federal and state efforts to address detrimental effects to the public and to wildlife from PFAS chemicals. We joined with the Loon Preservation Committee to oppose HB1424 which would eliminate the daytime speed limit for boats on Lake Winnepesaukee, creating dangerous conditions for loon biologists as well as loons. This bill was voted Inexpedient to Legislate.

The Legislative Office Building where most of the public hearings for the NH House of Representatives committees are held. Photo by Carol Foss.

We provided comments on two bills, neither of which passed. HB1292 permitted the use of drones or unmanned aerial vehicles on the statewide trail system. We recommended that a stake-holder discussion of risks and potential regulations be held before drone use is authorized over such a large geographic area. Our concerns focused on the potential to disturb or deliberately harass sensitive species nesting or wintering near trails. We recommended Interim Study and the vote was Inexpedient to Legislate. HB 1652 provided a financial incentive for recycling beverage containers. While we supported the bill's goal, we had serious concerns about how the bill proposed to achieve it. Experience in other states suggests that the most successful programs use redemption centers as return locations, rather than placing this burden on retailers as the bill proposed. We also questioned the choice of the Department of Revenue Administration as an appropriate agency to administer the program. We recommended Interim Study and the Legislature agreed.

We opposed HB1229, which proposed to make it easier to import wildlife into New Hampshire. The proposed changes increase the risk of introducing diseases such as chronic wasting disease into New Hampshire's wildlife populations. The bill passed with an amendment that authorizes the Chief of the Wildlife Division to determine in writing that issuing a permit may pose a significant risk to persons, marine species, or wildlife.

We also provided comments on the proposed revision of the NH Fish and Game Department's rules on Conservation of Threatened and Endangered Species.

FEDERAL LEVEL POLICY ACTIVITIES

At the Federal level, we continued working to support passage of the Recovering America's Wildlife Act. This

legislation would make federal funding available for state conservation and restoration programs for fish and wildlife species of greatest conservation concern. The Recovering America's Wildlife Act would make a huge difference in New Hampshire by supporting efforts to conserve declining species identified in the Wildlife Action Plan for which no funding is currently available.

We also signed on to group letters in support of:

- increased funding for threatened and endangered species recovery on public lands;
- a climate change education grant program to be administered by the National Oceanic and Atmospheric Administration;
- banning agricultural pesticides on National Wildlife Refuges;
- phasing out use of toxic lead ammunition on National Wildlife Refuges;
- a pilot grant program to mitigate beaver conflicts;
- the Environmental Justice for All Act;
- increased federal funding for monarch butterfly conservation; and
- stronger protections for Stellwagen Bank Marine Sanctuary in the revised management plan.

We deeply appreciate the time and thoughtful input of Environmental Policy Committee members Michael Amaral, Dave Howe, Betsy Janeway, Paul Nickerson, Harry Vogel, and Margaret Watkins. We also gratefully acknowledge financial support of NH Audubon's 2022 policy work from Paul Nickerson.

make your voice heard

Recovering America's Wildlife Act (RAWA) could change the face of wildlife conservation in New Hampshire. Watch our social media feeds for ways you can support this federal legislative effort.

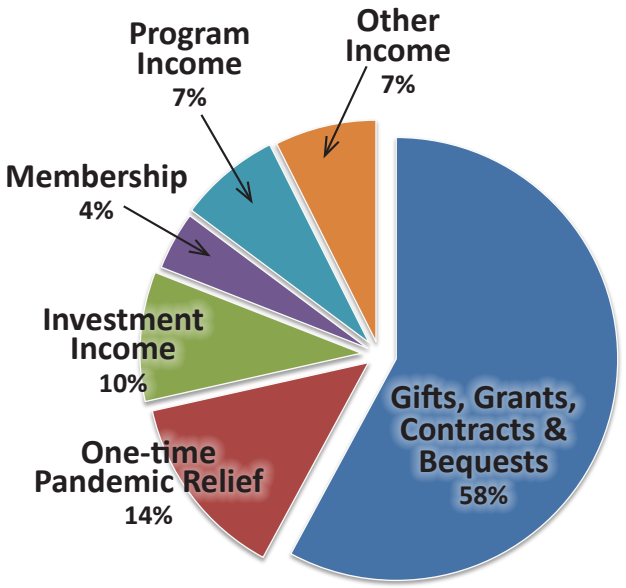
Table 1. NH Audubon provided testimony on these bills. "Inexpedient to Legislate" means that the bill was "killed" and went no further in the legislative process; "Interim Study" ended consideration of the bill in the 2022 session. All tabled bills died at the end of the session. The Governor signed passed bills unless otherwise indicated. A * indicates joint testimony with partner organizations.

Bill Number	Intent	NH Audubon Position	Outcome
HB 1066	requiring the Commissioner of the Department of Environmental Services to prepare a plan relative to cyanobacterial blooms in New Hampshire	Support	Passed with amendment
HB 1071	relative to wake surfing	Comment*	Inexpedient to legislate
HB 1167	establishing a maximum contaminant level for perfluorinated chemicals in surface water	Oppose	Sent to interim study
HB 1172	requiring composting and waste recycling to be made available to residents of public housing	Support	Sent to interim study
HB 1292	permitting the use of drones or unmanned aerial vehicles on the statewide trail system	Comment	Inexpedient to legislate
HB 1299	relative to the process for the importation of wildlife and creating an appeal process for denials of permits	Oppose	Passed with amendment
HB 1424	relative to the speed limit for watercraft on Lake Winnipesaukee	Oppose*	Inexpedient to legislate
HB 1611	relative to rules of the site evaluation committee	Oppose*	Inexpedient to legislate
HB 1652	relative to the recycling of beverage containers	Comment	Sent to interim study
SB 267	establishing the upland invasive species program, program fund, and program coordinator in the department of agriculture, markets, and food	Support	Passed with amendment
SB 269	relative to the New Hampshire weatherization program	Comment*	Passed with amendment

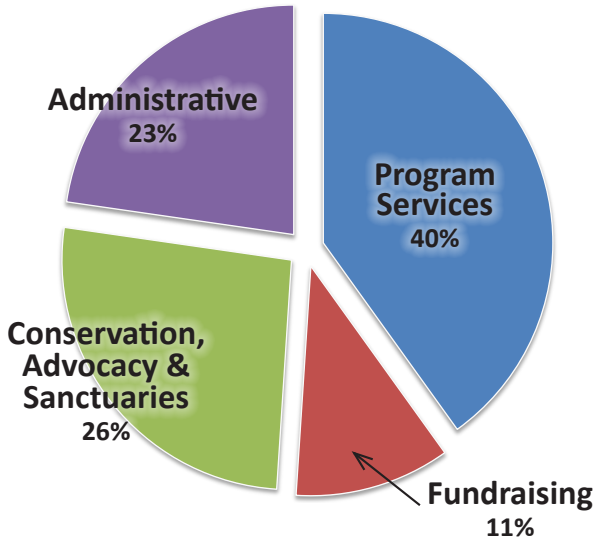
*Joint testimony with partner organizations.

Table 2. NH Audubon registered a position on these bills but did not provide testimony. See Table 1 for a definition of terms.

Bill Number	Intent	NH Audubon Position	Outcome
HB 1005	relative to the creation of a New Hampshire low-grade timber and wood emerging market commission	Support	Passed
HB1049	establishing a committee to study landfill citing criteria and methods for reducing pressure on landfill capacity	Support	Inexpedient to legislate
HB 1111	establishing a commission to study extended producer responsibility	Support	Sent to interim study
HB 1116	relative to renewable energy customer-generators accounts and credits	Support	Laid on table
HB 1184	authorizing the establishment of revolving funds	Support	Inexpedient to legislate
HB 1188	establishing a commission to study OHRV use in the state	Support	Passed with amendment
HB 1338	establishing a committee to study imposing a tax on manufacturers based on the cost of disposing the product packaging	Support	Inexpedient to legislate
HB 1395	relative to administrative rulemaking authority	Oppose	Sent to interim study
HB 1454	relative to permits for the siting of new landfills	Support	Passed with amendment, vetoed, sustained
HB 1471	to eliminate single-use plastic carry-out bags	Support	Withdrawn
HB 1506	establishing a revolving clean energy accelerator fund in the department of energy	Support	Laid on table
HB 1620	identifying part of the Merrimack River as a protected river	Oppose	Sent to interim study
HB 1635	relative to the purchase of output of limited electrical energy producers and including qualifying storage system	Support	Sent to interim study
SB 259	relative to the definition of "municipal host" for purposes of limited electrical energy producers	Support	Sent to interim study
SB 268	relative to the approval of power purchase agreements for offshore wind energy resources from the Gulf of Maine	Support	Passed
SB 321	relative to the purchase of output of limited electrical energy producers	Support	Passed with amendment
SB 370	allowing the university system and community college system to be municipal host electric customer generators	Support	Sent to interim study
SB 440	relative to approval of offshore wind energy contracts	Support	Passed
SB 447	establishing the electric vehicle and infrastructure fund	Support	Laid on table
SB 448	requiring the reduction of fossil fuel use across state facilities and establishing a state government energy committee	Support	Inexpedient to legislate



INCOME



EXPENSE

Revenue & Support	Fiscal Year 2022	
Gifts, Grants, Contracts & Bequests	$	1,608,254
One-time Pandemic Relief	$	378,000
Investment Income	$	262,519
Membership	$	117,983
Program Income	$	205,551
Other Income	$	205,724
Total revenue and support	**$**	**2,778,031**
Program and Functional Expenses		
Program Services	$	742,926
Fundraising	$	202,840
Conservation, Advocacy & Sanctuaries	$	486,514
Administrative	$	421,056
Total expense	**$**	**1,853,336**
Total Change in net assets	**$**	**924,695**

Notes

Our 2022 Fiscal Year (April 2021-March 2022) followed a pandemic year in which New Hampshire Audubon managed to thrive. FY22 continued a strong trend of fiscal health, led by generous bequests and a rebound in program income.

Below are some highlights of our finances from the Fiscal Year*:

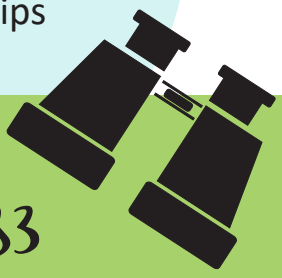
- Due to the loosening of COVID-19 restrictions, program revenues rebounded from $27,297 in FY21 to $205,551 in FY22, which placed this category closer to pre-pandemic levels;
- Compared to the previous year, revenues were up 81%, while expenses were up by 39%;
- Bequest revenue in FY22 was $587,391. Some of this revenue was designated by the donor for specific uses. Undesignated bequest income is divided into use for operations, capital expenses, and a reserve fund per the Board of Trustees;
- Disaster Relief grant and loan funding from the Federal Government (approximately $380,000) supported us while we were shut down in FY21, and are included in FY22 finance totals as "forgiven."
- Membership revenues were up 10%, and grants, gifts and other philanthropic giving remained strong as we continued to rebuild our program offerings.

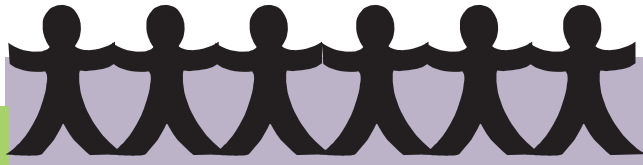
**All values based on Fiscal Year 2022 Profit & Loss data; figures are unaudited; final data to be recorded in IRS Form 990.*

2021 The Year in Numbers 2022

3,432 Members
including 340 new memberships

over 26,000 people reached
through online and in person programming





2,883 Eastern Bluebirds
counted in the Backyard Winter Bird Survey

33% decline in Purple Martin nesting success

198 Programs Presented
26 were webinars about pollinators or connecting with the land

68 Attendees for our 2021 IN PERSON Annual Meeting

222 Years
since Ash Cottage was built

seventy-five miles
of trails maintained

2.5 miles
of trails created

25,000
views of videos on our YouTube channel

Seven Hundred
hours of watch time

81 Bald Eagle Pairs
81 young fledged

26 Peregrine Pairs
40 young fledged

Northern Harriers
151 breeding habitat surveys conducted

95% carried out in 57 separate Coos County sites

34% of Coos surveys deteced harriers

Note: these numbers are for last fiscal year, 2021-2022.

NH Audubon is grateful for the generosity of our members and supporters at all levels. We are pleased to recognize the following individuals and organizations who contributed $500 or more during Fiscal Year 2022 in support of our mission. Please note that the names of some levels have changed. Contact the Development office at 603-224-9909 x307 with any questions.

PROTECTOR ($25,000+)

Elizabeth Janeway
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John F. and Dorothy H. McCabe Environmental Fund of the New Hampshire Charitable Foundation
Christopher & Dana Reeve Foundation
Barbara A. Rousseau

LEADER ($10,000+)

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Tom and Patience Chamberlin
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The Cricket Foundation
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Ms. Colleen O'Neill
The Samuel P. Pardoe Foundation
Red Acre Foundation
David M. Roby
The Tyrrell Foundation, Inc.
Frances Von Mertens
Margaret Watkins

BENEFACTOR ($5,000+)

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Squam Environmental Preservation Fund
Lawrence and Pia Sunderland

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Mr. Jack B. Beard and Ms. Rebecca Snider
Mr. Douglas A. Bechtel
Ms. Beth J. Bissonnette

We do our best to provide accurate appreciation and if you find any errors, please notify us.

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Alan's Restaurant
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Consider becoming a member of our Leadership Giving Circle by opting to contribute $100 per month.

Just click on the "Donate" button at nhaudubon.org, choose $100, and choose "make this a monthly gift."

Thank you!

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We are working to streamline our mailing list. If you would prefer to receive electronic communications from NH Audubon, please call 603-224-9909 or email nha@nhaudubon.org.

Save the Date!

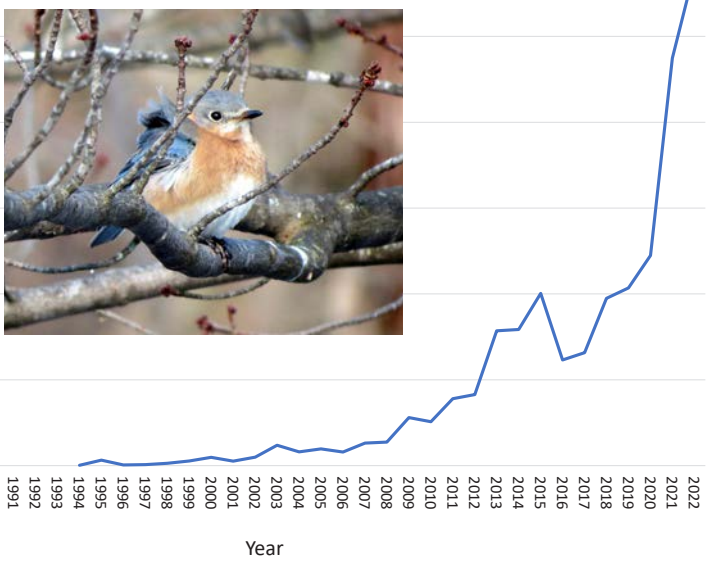
Backyard Winter Bird Survey

FEBRUARY 11 & 12, 2023

This annual Survey helps our biologists track what's happening with New Hampshire's resident bird populations thanks to over 1,400 volunteers who participate each year.

It's easy to do—just count the birds in your backyard on the survey weekend and send the results on the form or online. Past participants receive last year's results with their 2023 forms in the mail in January.

Check the web site for more information. To receive a packet in the mail, call NH Audubon.



Eastern Bluebirds hit a record high on the 2022 Backyard Winter Bird Survey. The graph shows their exponential growth on the Survey in recent years. They will feed on berries in the winter when insects are not available and many people put out mealworms for them. Eastern Bluebird photographed by Donna Ward on the 2022 Backyard Winter Bird Survey.