

NH Audubon's Notes from the Field



The improved view of the Willard Pond Wildlife Sanctuary in Antrim from the ledges of its highest summit, Bald Mountain. Photo by Phil Brown

From the President

Welcome to *Notes from the Field*, an expanded version of last year's popular Conservation and Sanctuary Notes. You'll find all the past year's highlights from our Sanctuaries, Policy and Conservation Departments in the next 20 pages.

Did you know that buildings kill a billion birds annually throughout North America? Did you assume that high rises are to blame? Get the answers in Laura Deming's note on Bird Friendly Buildings. Inside you'll also find out if LED lights deter Osprey nesting on cell towers and the position taken by NH Audubon on the proposed Bobcat season.

Have you visited a NH Audubon sanctuary lately? Phil Brown tells you about improvements he is making at many of our sanctuaries, particularly Willard Pond in Antrim and Hancock, and the Thompson Sanctuary in Sandwich. We invite you to enjoy them.

I'm proud of all the great work enclosed in these pages. The critical role that NH Audubon plays in the state is so very important for wildlife....for all of us. I've spent almost fifty years of my life in wildlife conservation and, in my opinion, the need for strong wildlife advocates has never been greater – whether it's sound research, advocacy, land stewardship or education. As I prepare for my (second!) retirement, I am confident that NH Audubon is well positioned to help fill that need far into the future.

And now, I invite you to sit back and enjoy our *Notes from the Field*.

Michael J. Bartlett

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A very special thank you
to Joanne and Kevin Jones
for helping to make this
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NH AUDUBON
Protecting our environment since 1914

Protecting New Hampshire's
Natural Environment
for Wildlife and for People
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From the Conservation Department Director

I am truly honored to be working with the dedicated and amazing Conservation Department staff here at NH Audubon. Every year they put tireless hours in during the field season, from patrolling the back roads at night in search of bats, to battling the black flies of the North Country in order to document Rusty Blackbird nests. In my professional capacity here at NH Audubon, as well as being a New Hampshire native, a lover of wildlife, and a mother to two little nature explorers, I want to express my gratitude for all they do to conserve our state's natural resources.

I am pleased to share this report on the 2015 activities of New Hampshire Audubon's Conservation Department. As always, it is the support and help of our dedicated volunteers that allows the Conservation Department to further New Hampshire Audubon's mission to protect New Hampshire's environment for wildlife and for people. We thank everyone who has supported the Conservation Department in this way, along with our many donors and grant funders.

Thank you for being a part of New Hampshire's conservation community.



Vanessa Jones, Director of Conservation

Conservation Department Personal & Professional News

by Vanessa Jones



Conservation Department staff (left to right), back row: Pam Hunt, Vanessa Jones, Carol Foss, Becky Suomala; front: Laura Deming, Chris Martin, Diane De Luca.

Becky Suomala took a trip of a lifetime in June – a month-long birding excursion to Alaska, from Barrow to Dutch Harbor. She greatly appreciated her volunteers carrying on nighthawk surveys while she was gone, especially Jane Kolias and Connie Linna.

In January, Chris Martin celebrated 25 years of work at NH Audubon. In July, participants from across the eastern US, Quebec, and beyond attended the 2015 Eastern Golden Eagle Working Group meeting on the tranquil shores of Rangeley Lake. During one field trip, Chris guided the group to the top of one of New Hampshire's historic Golden Eagle nesting cliffs near Lake Umbagog for a bird's eye view of northern New

England Golden Eagle habitat.

Laura Deming is enrolled in the Environmental Studies doctoral program at Antioch New England, where she is studying how fluvial hydrology and geomorphology influence turtle populations.

In June, Pam Hunt travelled to Costa Rica for a regional meeting of the Dragonfly Society of the Americas, where she learned about tropical species with a group of 33 old and new friends.

Vanessa Jones celebrated 2015 with a volunteer trip to Pacuare Reserve on the Caribbean coast of Costa Rica in March. The timing was just right for working with Leatherback Turtles during their nesting season.

Rusty Blackbird Project 2015

by Carol Foss



Rusty Blackbird egg and newly hatched young. Photo by Rachel Rabinovitz.

The Rusty Blackbird team continued to push the edges of their study area in 2015, monitoring 50 nests in Coos County, NH and Oxford County, ME. We confirmed the return of four individuals that received geolocators in 2014, but all four had shed their harnesses so we were unable to learn anything about their travels. Nesting activity was more synchronized than usual this year, and 30 nests fledged within a period of five days! We used tiny temperature loggers in the nests for the first time this year, so we were able to determine fledge dates more accurately than in the past.

Master Bander Patti Wohner banded 11 adult female, 14 adult male, and 109 nestling Rusty Blackbirds during the pre-fledging period and the team recaptured or resighted 22 individuals that had been banded in previous years. Three of these individuals were initially banded in 2010 and two were adults then, so they were at least six years old. While most of the birds banded as adults stayed in the same territory, seven moved several kilometers. Two females originally banded as nestlings were captured at nests about 11 miles from their hatch sites. We plan to explore even more area in 2016 and hope to find more of our banded nestlings!

Funding for Rusty Blackbird research is provided by the Conservation Biology Research Fund at the NH Charitable Foundation, Wagner Forest Management, Ltd., and Plum Creek. High Branch Conservation Service provided funding for a Rusty Blackbird habitat manual.

New Hampshire Butterfly Surveys

by Vanessa Jones

Although more than 120 species of butterflies have been recorded in New Hampshire, the actual status of most remains unknown. Most conservation work on butterflies in New Hampshire has focused on a few rare species, and as such, the butterfly distribution and diversity of the state as a whole remains a mystery. NH Audubon is trying to unravel this mystery, with projects to compile existing data (2012-2013) and conduct new surveys (2014, 2015). During the 2015 field season, we conducted 31 formal butterfly surveys in 24 different locations, including NH Audubon sanctuaries. Multiple incidental butterfly sightings were recorded as well. The total effort resulted in 356 observations of 41 species.

Of note during the 2015 season was the documentation of Henry's Elfin (*Callophrys henrici*) in Hopkinton, NH, an uncommon butterfly previously observed in this location in 2006. Revisions to the 2015 Wildlife Action Plan may help to guide future work, with three species added to the list of Species of Greatest Conservation Need: Edward's Hairstreak (*Satyrrium edwardsii*), Hessel's Hairstreak (*Callophrys hesseli*), and the Monarch butterfly (*Danaus plexippus*).



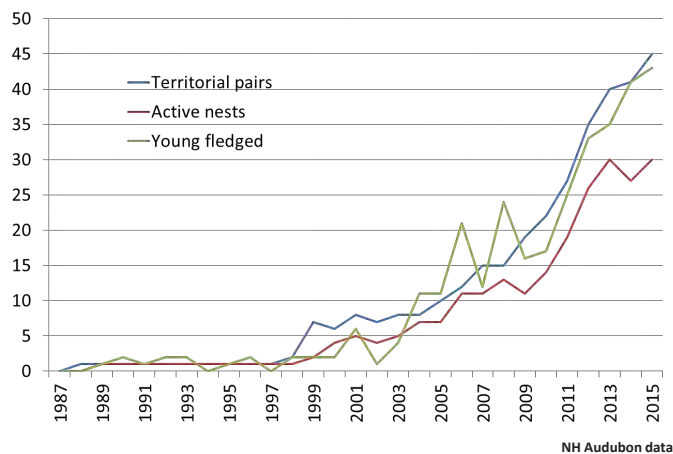
Henry's Elfin, May 2015. Photo by Vanessa Jones.

Raptor Monitoring and Management

by Christian Martin

Bald Eagles

New Hampshire Bald Eagle Productivity, 1987-2015



New Hampshire's recovering Bald Eagle population continued to make considerable progress in 2015. NH Audubon monitors and manages the Granite State's eagles in coordination with the NH Fish and Game Department's Nongame Program. Each year, many experienced volunteers scattered across the state report on progress of individual breeding pairs and the outcomes of their nesting attempts.

We documented 45 territorial Bald Eagle pairs in New Hampshire in 2015, an increase of 10% compared with 2014. A total of 43 young eagles fledged, up from 41 fledglings produced in 2014. And we tallied a total of 25 productive nests in 2015, up from 24 the previous year. Each parameter represents the highest total seen in the state since post-DDT era eagle recovery began more than 30 years ago.

We also continued our multi-year collaboration with Vermont Fish and Wildlife to document and enhance Bald Eagle recovery throughout the Connecticut River watershed. Note that New Hampshire's statewide breeding season totals

for 2015 do not include at least 10 additional border-nesting pairs (seven in Vermont, three in Maine) with territories that include New Hampshire, but whose nest trees are rooted in soil just outside of our state's border.

In January 2016, we completed our 36th annual New Hampshire Mid-winter Bald Eagle Survey, part of a nationwide count coordinated by the US Geological Survey. The 2016 Count Day results of 89 individual eagles essentially matched the record-high 90 eagles tallied in January 2015. But in contrast to 2015, this year's 94 volunteer participants encountered exceptionally mild conditions and far less frozen water than usual. Results included 22 eagles in the Lakes Region, 21 in the Connecticut River valley, 18 in the Merrimack River valley, 16 in the Great Bay/Coastal area, 8 along the Androscoggin River, and 4 elsewhere in the state.

Bald Eagle monitoring and management work in New Hampshire was funded in 2015 by a federal State Wildlife Grant to the NH Fish and Game Department's Nongame Program and by a generous multi-year grant from TransCanada Corporation. We received additional support from the American Eagle Fund and NH Audubon donors and volunteers.

Peregrine Falcons

Spring 2015 marked the 35th post-DDT era breeding season for Peregrine Falcons in the Granite State. Ever since a cliff-nesting pair was found in Franconia Notch in 1981, our state's Peregrine population has been very slowly rebounding. New Hampshire's Peregrines are now part of a well-established regional population comprised of both rural and urban-nesting pairs.

In 2015, NH Audubon staff and volunteers confirmed 20 occupied territories, actually down from a record-high 23 in 2014. We confirmed 16 pairs incubating eggs, and 13 pairs that each successfully fledged at least one young. The 13 successful nests were also a slight decline from a record-high 14 in 2014. A total of 34 young fledged in 2015, an average of 2.0 young fledged/nesting pair, which is above the state's 34-year average of 1.65 young per pair.

Unexpectedly, 30% of the state's falcon fledglings in 2015 came from urban nest sites located in the Merrimack River valley, including three from Concord, four from Manchester, and three from Nashua. We also documented a new breeding territory at Mascot Pond in Gorham. At least temporarily, the Granite State lost claim to the Rt. 95 bridge pair in 2015 because the birds chose to lay their eggs on the Maine side of the state line. We hope they will return to our side of the bridge in 2016!



Bald Eagle photographed by David Lipsy during the Mid-winter Survey in Hooksett, 1/9/16.

In collaboration with raptor biologists from Stantec and from BioDiversity Research Institute, we continued to monitor daily movements of an adult female Peregrine nesting at Bear Mountain using a lightweight solar-powered satellite transmitter that we placed on her in May 2014. She spent the winter of 2014-15 in a 65x35 square mile area of eastern Pennsylvania, and returned again to that same area for this past winter of 2015-16. We also placed a motion-sensitive game camera next to her nest in 2015 to monitor productivity which resulted in several outstanding images.



Since Peregrine Falcons nest on tall vertical cliffs and buildings, we rarely get images that look directly into the nests from close-range. At the Bear Mountain site, we rappelled down and attached a game camera to a sapling that grew right past the nest ledge. This view of the male Peregrine Falcon guarding chicks is rarely seen, except by the Peregrines themselves. Photo courtesy of Biodiversity Research Institute.

Thank you to all who supported ongoing Peregrine Falcon recovery efforts in New Hampshire in 2015, including natural resource managers, private landowners, volunteer observers, rock climbers, NH Audubon members and others. Management activity at breeding sites was supported by the NH Fish and Game Department's Nongame Program. Monitoring support for two breeding sites located near the Groton Wind Farm was provided by Iberdrola Renewables through a contract with Stantec.

Wildlife Action Plan Revision

by Pamela Hunt

On September 30, 2015, NH Fish and Game officially submitted a revised Wildlife Action Plan (WAP) to the US Fish and Wildlife Service. This was the culmination of over a year of work by NH Fish and Game and its many partners, including NH Audubon. NH Audubon staff wrote 62 of the 169 species accounts, and I was heavily involved in most stages of the process as a result of my being on the WAP Implementation Team. Broader tasks included developing templates for various sections, helping to compile and rank the threats, and working on parts of several other chapters.

Other Raptors



Golden Eagle photographed by a game camera placed at food pile near Umbagog National Wildlife Refuge.

In the Fall of 2015, we expanded an effort to document the presence of migratory and over-wintering Golden Eagles in the state with support from the Blake-Nuttall Fund. This included establishing game camera sites in the Connecticut River valley and elsewhere in hope of documenting state-endangered Golden Eagles feeding on carrion. We also increased outreach to farmers, hunters, and resource managers who may be aware of eagle activity that has been under-reported. Stay tuned for more!

In 2015, we continued to assist Iain MacLeod of the Squam Lakes Natural Science Center and internationally recognized Osprey expert Dr. Rob Bierregaard as they use solar-powered satellite transmitters to monitor foraging activities of New Hampshire's breeding male Ospreys, and to follow both adults and fledglings on their long and hazardous migrations to and from the tropics. In 2015, the team managed to fit transmitters on adult males from the Hampton-Seabrook estuary, from the Lakes Region, and from the North Country.

The new plan provides information on 169 species of conservation concern and 27 habitats. It identifies threats to these species and habitats and in many cases outlines conservation actions that have the potential to aid them, or provide still-missing information. This document will now serve as a blueprint that will help guide NH Fish and Game, NH Audubon, and all our partners through another decade of conservation to benefit our nongame wildlife and their habitats. The full plan is available at <http://www.wildlife.state.nh.us/wildlife/wap.html>.

Olive-sided Flycatcher Surveys

by Pamela Hunt



*Olive-sided Flycatcher habitat at Nash Stream, Odell.
Photo by Pamela Hunt.*

For the second year volunteers ventured into the bogs and beaver swamps of northern and western New Hampshire in search of the declining Olive-sided Flycatcher. In 2015 a total of 25 survey quads were visited to some degree, from Sullivan County north to Columbia. As in 2014, the results are sobering: flycatchers were found in only four of the 14 quads that received adequate coverage, and not in any of the partial quads. Particularly disconcerting was the lack of birds in two seemingly suitable quads in central Coos County. On the plus side, a presumed territorial bird was found in Lempster, in a quad that lacked the species in 2014. Overall however, the species appears to have disappeared from more areas that we thought after the 2014 season.

There are still a few high-priority quads that haven't been visited, and several need a little more work, so I've decided to extend the project into a third year. Most of the areas still in need of surveys are in the central part of the state, with a few in the north, so interested parties – especially in Grafton County, are encouraged to contact me for more information.

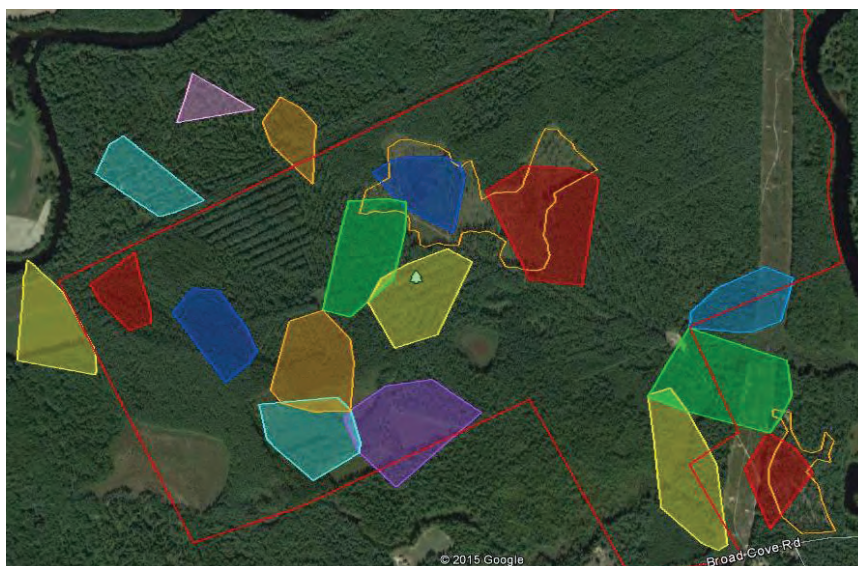
Funding for this project was received from the Blake-Nuttall Fund and the Davis Conservation Foundation.

Eastern Whip-poor-wills Revisited

by Pamela Hunt

Whip-poor-will studies in the Mast Yard State Forest from 2008-2012 confirmed that this declining species prefers areas with edges or recently-disturbed forest, including burns, powerline corridors, and regenerating timber harvests. Birds can colonize such habitats relatively quickly following the initial disturbance. There have been two more cuts at Mast Yard since the original study ended, and I was curious to learn if birds had also moved into these new areas of habitat. I gathered a team of volunteers and spent May through July mapping whip-poor-will locations in the State Forest.

When all the data were analyzed, the pattern from the original study was still present. One bird had settled into a small area thinned in 2013, while two had taken up residence



*Whip-poor-will territories (colored polygons) at Mast Yard State Forest in 2015.
Irregular polygons with no color represent areas of forest thinned in 2013.*

in a much larger cut from the same year. Two additional whip-poor-wills adjacent to the large cut may have been responding to a cut from back in 2011, but without territory data from the intervening years it's impossible to say for sure. These five "new" territories brought the site total up to a record high of 17 for the Mast Yard State Forest (8-11 previously). The pattern of preference for open areas of forest was

maintained, and the high activity in the new cut strongly suggests that larger openings are more valuable than smaller ones. All this information can be taken into consideration by landowners who might want to manage habitat for this declining species.

Whip-poor-will research was supported by private donations and NH Fish and Game.

Project Nighthawk

by Rebecca Suomala



When the Franklin nighthawk chick was returned to the roof, the female and the other chick were snuggled up to a beer bottle! Photo by Rebecca Suomala, 7/8/15.

The 2015 Common Nighthawk nesting season was an exciting one, with two successful rooftop nests. One in Concord fledged a single chick and the other was in Franklin, the first there since Project Nighthawk started in 2007. One of the two chicks took an early flight down to the street and had to be returned to the rooftop. Special thanks to White Mountain Imaging and Todd Workman for their monitoring help. Successful nighthawk nests continue to be a rarity, especially on rooftops.

Phil Brown came across a female nighthawk near an eggshell while hiking Black Cap Mountain in Conway. The chicks were not found, despite several searches, but the male was present and displaying over the summit area. We conducted the first ever coordinated nighthawk watch in Grantham in mid-July, and had nine nighthawks but no behavior that indicated nesting. Activity at other locations such as Keene and Ossipee was challenging to figure out, with potential nesting but no confirmation.

Project Nighthawk is funded by donations and a grant from the Blake-Nuttall Fund. For the full 2015 summary, check the Project Nighthawk web page.

Swallow Management

by Pamela Hunt

After the success of the gourds installed at the Seabrook Purple Martin colony in 2014, we had high hopes in 2015. The season couldn't have been any better: all twelve gourds were occupied (as well as the original "yellow house") and at least 45 young martins were fledged. When we dismantled the tower at the end of the season, we were already trying to figure out where to go next. Given that the martins continue to harass the Tree Swallows, much to the dismay of the local bird lovers, we're not sure another set-up in the same spot is a good idea. Over the winter I'll be exploring alternate locations nearby, but still within range of the Seabrook colony. I may also try to reestablish colonies at a couple of other seacoast sites, particularly the Portsmouth Country Club, where a single young male was present for part of the summer. If there are any volunteers in the seacoast area that are interested in helping with this effort, please let me know!



Mara Silver installing Cliff Swallow starter nests made of clay in Pittsburg. Photo by Pamela Hunt.

At the opposite end of the state (literally!), we partnered with NH Fish and Game and Mara Silver, a swallow aficionado from Massachusetts, to see what we could do about maintaining a Cliff Swallow colony at a private residence in Pittsburg. The issue was that the house where the colony is located was being re-sided, and the owners wanted to keep the swallows, but didn't want them making a mess on the new siding. Mara installed several clay "starter nests" under the eaves, but in the end swallows only used one of them. We'll see what transpires in the spring of 2016 and we'll keep experimenting. Lessons learned in Pittsburg may eventually help this declining species at other sites in New Hampshire.

Projects involving swallows are funded by private donations.

LED Bird Deterrent Update

by Carol Foss

Testing of high-brightness, single-wavelength light-emitting diode (LED) technology as a bird deterrent continued in 2015 with installations on three Maine cell towers with Osprey nests. Unfortunately, it was not possible to install the lights before the Ospreys returned from the wintering grounds, so their attachment to these nests was strong when the experiment began. One light was installed on each tower, aimed directly at the existing nest. All the birds stopped spending nights at the nest once the lights were activated. Two of the three pairs laid eggs shortly after installation, so the lights were turned off for the duration of the nesting season. The third pair began to construct a second nest farther from the light, then abandoned that effort and started another nest still farther from the light, and ultimately began to deposit sticks *behind* the light equipment box before abandoning the site entirely. The LEDs show promise for deterring Ospreys from nesting on cell towers, but existing

nests must be removed and lights installed before pairs return in the spring for best results.



Osprey nest construction attempts to avoid effects of high-brightness LED.
Photo by Don Ronning.

Bird-friendly Buildings

by Laura Deming

Building collisions kill up to a *billion* birds annually in North America, particularly during migration. Recent research by the Smithsonian Conservation Biology Institute and the US Fish and Wildlife Service indicates that, although high-rises (over 12 stories) kill large numbers of migrating birds, they account for only one percent of annual building collisions, whereas smaller buildings and homes, which are far more numerous, account for almost all bird mortality associated with buildings (S.R. Loss, et al. in *The Condor*, 2014).

The American Bird Conservancy (ABC) has been leading the charge to determine how building design and materials, particularly glass, may attract or confuse birds and result in window strikes. They have found that, because birds do not see glass, the only way to reduce window strikes is to make glass “visible” to birds through strategies ranging from building design to windows

with manufactured features that birds can see. The ABC has compiled their research into a new *Bird-Friendly Buildings* program which has been endorsed by the American Institute of Architects for educating architects, builders, and building

owners about ways to design, build, retrofit, and manage buildings that are safe for birds.

NH Audubon received a grant from the Biber Foundation to promote the ABC's *Bird-Friendly Buildings* program through presentations to various audiences across the state. The focus of the program is to raise awareness of the bird collisions problem and provide solutions that everyone can use, whether architect or homeowner. To find out about upcoming

presentations, visit the NH Audubon website, www.nh Audubon.org. For information on the ABC's *Bird-Friendly Buildings* program, go to <http://collisions.abcbirds.org>.



2015 NH Bat Survey Field Season

by Laura Deming

Bat Survey volunteers were busy this year, logging hundreds of miles and long hours scanning for foraging bats. One set of volunteers, equipped with sensitive recording units, drove acoustic survey routes along the state's back roads to record bat vocalizations. Another group spent their evenings keeping watch at maternity roost sites to count emerging female bats. Acoustic teams ran 25 routes statewide, recording 2,365 individual bats. As in the past four years, all but a few were Big Brown Bats or one of the "tree" bat species (Eastern Red, Hoary, or Silver-haired). Only 30 bats were smaller cave-hibernators (Little Brown, Eastern Small-footed, and Northern Long-eared). Cave-hibernators have all but disappeared throughout much of eastern North America due to the fungus, *Pseudogymnoascus destructans*, which causes White-nose syndrome.

Evening counts at 29 maternity roost sites revealed that numbers of females ranged from just four to 144, with an average of 49 bats per colony. Although bats zipping in and out of buildings in the near darkness are impossible to identify, nearly all bats that roost in buildings are Little Brown or Big Brown Bats. Some volunteers also collected bat scat for a UNH researcher using DNA analysis to investigate bat diets. In addition to learning about what insects are eaten throughout the season, this research may help identify new locations of invasive insect species that end up as bat prey.

Data collected by dedicated, intrepid bat volunteers is essential for bat researchers and managers in their efforts to protect remaining bats. This project received generous support from the Parker-Nelson Foundation for new acoustic recording units, and from the Max and Victoria Dreyfus Foundation for overall project support.

If you have any questions about the NH Bat Survey Project, please contact Laura Deming (ldeming@nhaudubon.org).



Volunteers conducting an emergence count at a maternity colony in Antrim, NH. Photo by Laura Deming.

Citizen Science Bird Data

New Hampshire Bird Records, NH eBird, and the Backyard Winter Bird Survey

by Rebecca Suomala



This Northern Shrike, an uncommon winter visitor, was photographed by Leslie Bergum during the 2015 Backyard Winter Bird Survey.

Your bird data make a difference and forms the backbone of distributional information on all bird species in the state! NH Audubon's annual Backyard Winter Bird Survey has almost 30 years of data on population trends in resident and wintering birds thanks to 1,500 participants. Bird sightings submitted to NHeBird are used for research, conservation, planning, and monitoring, as well as the basis of *New Hampshire Bird Records*, our quarterly publication all about birds and birding in New Hampshire. Volunteers provide quality control for this valuable data and funding is provided

by private donations (including sponsors of the Twitchers in the Rye birding team), the Milne Fund, and the New Hampshire Bird Records Endowment Fund. We are grateful for donors to these efforts.

Bird sightings submitted to NH Audubon from 1986 through 2009 are gradually being uploaded into NHeBird, making them publicly accessible, available for download, and viewable on a map. Thanks to the efforts of many volunteers, we have completed 73 towns with more than 80,000 bird sighting records! The Seacoast Region is complete and the Concord area towns are nearly done.

Phenology

by Diane De Luca

Phenological events such as flower blooms, insect emergence and animal migration, can be an indicator of the sensitivity of ecological processes to climate change. Birds time their nesting so that the eggs hatch when insects are abundant. Insect emergence is often synchronized with the leafing out in their host plants. A mismatch in the timing can disrupt these interactions. Successful pollinator-host plant interaction is critical for the reproduction of over 85% of the world's flowering plants. Understanding this complex relationship is important with the decline of pollinators worldwide.

In the fourth year of tracking phenology at Deering Wildlife Sanctuary we added a new dimension of time-lapse photography to document complete records of pollinator visitation. Williams College Professor, Joan Edwards, pioneered the use of a portable camera system that uses three second time lapse video (described in the *Journal*

of Pollination Ecology, 2015). Data collected by Edwards from 2007 to 2014 showed distinct temporal and spatial differences in the species of pollinators. Study sites within 300 meters were documented to have an entirely different suite of pollinator species visiting the blooms. Dr. Edwards expanded the scope of the study in 2015 by adding additional sites across a wide region that included the targeted species of Bunchberry (*Cornus canadensis*) and Blue Bead Lily (*Clintonia borealis*). Both of these plants are also part of the long term phenology study at Deering which made this a good site for the expanded study. We installed cameras at a Bunchberry and Blue Bead Lily patch in 2015

Preliminary data analysis from Deering shows pollinator species from a minimum of six insect orders with multiple species. The next step will be to compare the results in Deering with other sites included in Edwards study. The phenology project is funded by a private donation.

All photos by Diane De Luca.



Video camera setup on Bunchberry study site.



Bunchberry (Cornus Canadensis).



Camera setup on Blue Bead Lily.

Conservation Department Contract Work

by Vanessa Jones



Diane De Luca surveying for Eastern Whip-poor-wills in buggy, 85 degree weather. Photo by Laura Deming.

In 2015, NH Audubon's Conservation Department continued its long history of providing contracted services to state and federal agencies, municipalities, corporations, and individuals in need of natural resource information. Some of our larger projects are mentioned elsewhere in this newsletter, including our continued work with the Nongame and Endangered Wildlife Program of the NH Fish and Game Department. Wildlife Biologist Laura Deming surveyed for Bicknell's Thrush distribution and abundance on the Mittersill Tract at Cannon Mountain in Franconia as part of an agreement with several New Hampshire agencies. We

completed nesting bird surveys at the NH Army National Guard Regional Training Institute in Pembroke. The purpose was to identify ground nesting birds utilizing the site, with a focus on Common Nighthawk, Eastern Whip-poor-will, American Woodcock and Grasshopper Sparrow. In Brookline and Merrimack, Laura Deming performed bird surveys in support of land conversation work with Moosewood Ecological LLC. In addition, a Connecticut River dragonfly survey with Normandeau Associates, Inc. was performed by Pam Hunt. Please visit the Professional Services page of the Conservation section of our website at www.nhaudubon.org to learn more about the professional services that we offer.



Five Eastern Screech-Owl fledglings pose for a photo at the Ponemah Bog Wildlife Sanctuary, Amherst. Photo by Laura Deming.

Thank You

Donations and grants to the Conservation Department and its specific projects are critical to the support of our work. Thank you to everyone who contributes to these efforts. We are grateful for donations of all sizes and we're sorry we cannot list all donors to the Department and its projects.

Conservation Department programs are also supported by funds from NH Audubon's Dr. Margery J. Milne and Dr. Lorus J. Milne Biological Science Research Fund. Other

sources of funding include New Hampshire Audubon's Annual Appeal, Birdathon/Bloomathon contributions, and contracts with partner agencies, organizations, and corporations. Funding from NH Fish and Game Department contracts comes from the federal State Wildlife Grants program.

Volunteer contributions of time and talent are also essential to what we do. We are very grateful to their ongoing dedication and generous support.

Conservation Department grant support:

The American Eagle Foundation – Bald Eagles
The Biber Foundation – Bird-friendly Buildings
Blake-Nuttall Fund – Project Nighthawk, Golden Eagles and Rusty Blackbird Blowfly Research
The Couch Trusts – Project Nighthawk
The NHCF Conservation Research Fund – Rusty Blackbirds

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 Bruce and Sarah Schwaegler
 Mary Wright

Black Fox Pond, site of phenology surveys at the Deering Wildlife Sanctuary. Photo by Diane De Luca.

by Carol Foss

Senior Advisor for Science and Policy



Bobcat by Mark Suomala.

Energy was a major focus of policy activity during 2015, with pipelines taking center stage. I participated in monthly meetings of the Pipeline Spill Response Plan Rules Work Group, convened by the NH Department of Environmental Services (DES). The Work Group is in the process of reviewing federal regulations for spill response planning and identifying areas to strengthen in proposed rules for New Hampshire. In August of 2015 I attended the first inland spill response exercise (held on the Connecticut and Israel rivers in Lancaster) involving both DES and Portland Montreal Pipeline personnel. I also attended a spill response command center exercise (held in Portsmouth) involving numerous state and federal agencies. NH Audubon was awarded a full travel scholarship for me to attend the Pipeline Safety Trust's annual conference in New Orleans.

We continue to monitor potential futures for the Portland Montreal Pipeline in a very dynamic market and political environment both in the US and in Canada. We evaluated environmental impacts of the proposed Tennessee Gas Pipeline/Kinder Morgan Northeast Energy Direct gas pipeline project in southern New Hampshire and provided scoping comments to the Federal Energy Regulatory Commission (FERC). This included evaluating potential impacts to our own Ponemah Bog Wildlife Sanctuary (which was initially along the route of the proposed pipeline) by contracting with a consultant who performed a Rapid Ecological Assessment. We also intervened with FERC to be a party to the regulatory process.

We joined partner organizations in requesting a supplemental Draft Environmental Impact Statement for

Northern Pass, which was completed. We are currently reviewing it. We also collaborated with partner organizations to provide extensive comments at several stages of the rule-making process for the NH Site Evaluation Committee (SEC). This Committee was established by the legislature for the review, approval, monitoring and enforcement of compliance in the planning, siting, construction and operation of energy facilities.

In July, the SEC voted to accept jurisdiction of Antrim Wind Energy's revised proposal to construct a wind energy facility on Tuttle Ridge in Antrim, abutting our Willard Pond Sanctuary. The turbine closest to the sanctuary in the previous application, which was denied by the SEC in 2013, has been eliminated and the remaining turbines are now proposed to be slightly shorter. However, concerns about the impacts of the proposed facility remain. NH Audubon's Environmental Policy and Sanctuaries and Land Management committees reviewed the application, and voted to intervene in opposition – a position which the full board adopted.

On the wildlife front we provided comments on revisions to the New Hampshire Wildlife Action Plan and on the Silvio O. Conte National Wildlife Refuge Comprehensive Conservation Plan. During the 2015 legislative session, members of NH Audubon's Environmental Policy Committee provided testimony on seven bills and signed in support of or opposition to 11 others. Most recently we testified in opposition to NH Fish and Game's proposed bobcat season. NH Audubon's letter to the NH Fish and Game Commission outlining our concerns and position is posted on the web site.



Ponemah Bog Wildlife Sanctuary by Vanessa Jones.

From the Director of Land Management

The past year saw heightened activity on New Hampshire Audubon's wildlife sanctuaries. Expanded public access, field trips, and education were a focus at many of our locations, and wildlife habitat improvements were put into motion on several others. Sanctuary stewards expanded their reach through helping improve trails and work for wildlife – in particular, at the Deering, Silk Farm, Scotland Brook, Abe Emerson Marsh, Follett's Brook, Dahl, and Ponemah Bog wildlife sanctuaries. Two of these stewards, Bill and Carol Vose, were awarded NH Audubon's Volunteers of the Year in 2015.

Volunteers, supporters, and many other partners were instrumental in helping us provide new recreation opportunities on wildlife sanctuaries, including continued steps towards the completion of an ADA accessible trail at the Thompson Wildlife Sanctuary, and the restoration of trails at Ponemah Bog and Willard Pond. AmeriCorps conservation crews from two different programs, through two separate Student Conservation Association/NH Corps service contracts, were a huge part of the stewardship successes of the sanctuaries in 2015.

Timber harvesting plans at the Deering and Silk Farm wildlife sanctuaries were implemented over the winter, the result of which will benefit early successional wildlife species. The USDA's Natural Resources Conservation Service continues to provide cost-share funding to implement conservation and stewardship initiatives. One such initiative was a native shrub planting for New England Cottontail and associated wildlife species, which utilized the services of 45 volunteers for the installation of almost 5,000 shrubs over several acres of the Smith Sisters Wildlife Sanctuary. This was one of several widely-read stories from the sanctuaries this year as this particular story made state and national news.

Environmental education is another major focus of NH Audubon sanctuaries. Field trip offerings at a handful of sanctuaries each season allow members and visitors the chance to learn about the ecology, history, and management of these special properties. Some popular and now annual field trips include a Silk Farm woodcock walk, International Migratory Bird Day at Pondicherry, Ponemah Bog summer field trip series, forestry tours, and the return of the now-annual North Country Nature Tour.

NH Audubon's wildlife sanctuaries depend upon your support, whether as a volunteer or financial supporter. Please sponsor a wildlife sanctuary today (<http://nh-audubon-nature-store.myshopify.com/products/sanctuary-support>) or pledge your support to the Wildlife Sanctuaries Team in this year's NH Audubon Birdathon/Bloomathon. I hope to see you in the field!



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Phil Brown and field trip participants at the Ponemah Bog Wildlife Sanctuary in Amherst. NH Audubon photo.

Phase Two of Boardwalk Completed at Thompson Wildlife Sanctuary

by Phil Brown

In October of 2015, a conservation crew from the Student Conservation Association's AmeriCorps program completed a ten-day service project at NH Audubon's Alice Bemis Thompson Wildlife Sanctuary in Sandwich. The goal of the project was straightforward, but not necessarily simple: to construct phase two of a boardwalk into the wetland system that is the central ecological feature of this property. Working in wetlands can be challenging, but this crew of six young adults was able to extend the boardwalk over 100 linear feet to give visitors a more enjoyable experience with improved views and to bring them closer to nature. The crew was made possible through generous support from the Alfred Quimby Fund of Sandwich. With the acquisition of additional funds this spring, NH Audubon plans to complete a third and final phase of the Thompson boardwalk this coming summer, which includes an expanded viewing platform and an upgraded upland trail that will meet ADA accessibility requirements, making it the first fully accessible trail on a NH Audubon sanctuary. Plans to provide access to a one-mile loop trail on the southern side of the sanctuary should also be complete by then.

This most recent work was completed just in time for hikers to enjoy peak fall foliage from the platform, as well as excellent bird migration – from Merlins and Mallards to sparrows and siskins. A visit to this short trail will convince you that the project was an unequivocal success.

To make a contribution to the last section of boardwalk, please contact me.



Homeschooler, Larkin Kjellberg, in her "favorite outdoor classroom" at the new Thompson boardwalk. Photo by Suzy Kjellberg.



Below: A view of the marsh and Sandwich Range of the White Mountains from the new boardwalk at the Alice Bemis Thompson Wildlife Sanctuary, Sandwich. Photo by Phil Brown.

Carol and Bill Vose Named NH Audubon Volunteers of the Year

by Phil Brown



Bill and Carol Vose at the Dahl Wildlife Sanctuary. Photo by Phil Brown.

Sanctuary stewards volunteer to help with activities such as education, management, or stewardship on any of the organization's properties around the state. Bill and Carol Vose have been sanctuary stewards of the Dahl Wildlife Sanctuary in North Conway for the past six years. They have been active in all of the aforementioned activities surrounding this sanctuary in the Mt. Washington Valley. In September of 2015, Bill and Carol were named Volunteers of the Year at NH Audubon's Annual Meeting. Thanks in a large part to the Vose's constant presence and involvement in all aspects of conservation land stewardship, the Dahl Wildlife Sanctuary has seen a transformation from a seldom-visited and often inhospitable place to a wonderful place to explore. We thank and applaud Bill and Carol profoundly for their efforts.

For more information about volunteering as a Sanctuary Steward, please contact me.

Shrub Planting for New England Cottontail at Smith Sisters Wildlife Sanctuary

Adapted from an article written by Phil Brown and Haley Andreozzi, UNH Cooperative Extension

NH Audubon and The Stewardship Network: New England (based at UNH Cooperative Extension) are doing their part to help the New England Cottontail at NH Audubon's 115-acre Smith Sisters Wildlife Sanctuary in Durham and Newmarket, NH. Using shovels, planting bars, and plenty of elbow grease, volunteers planted native shrubs to help New England Cottontail rabbits, a state-endangered species here in New Hampshire, as well as over 100 other wildlife species that use shrubland habitat. They planted approximately 5,000 shrubs of ten different species along a formerly forested section of Follett's Brook that had already been cleared for shrubland habitat restoration. American Woodcock, Blue-winged Warbler, Chestnut-sided Warbler, Eastern Towhee, and Brown Thrasher are just some of the many avian beneficiaries of improved shrubland habitat in this mosaic of fields and forests.

It was important work that could only be accomplished with the help of volunteers. For the volunteers, it was a great opportunity to get outside, learn about shrubland habitat, and do good work for the benefit of an endangered wildlife species here in New Hampshire. This management, along with invasive species control and a variety of other practices, has been made possible through stewardship funding provided by the Natural Resources Conservation Service (NRCS).



Volunteers plant shrubs in a reclaimed opening for New England cottontails. Photo by Phil Brown.

SCA Crew Improves Trails at Willard Pond

by Phil Brown

In September of 2015, a conservation crew from the Student Conservation Association's AmeriCorps program completed a ten-day service project at NH Audubon's largest wildlife sanctuary, the dePierrefeu-Willard Pond Wildlife Sanctuary, in Antrim. In addition to trail improvement, the crew installed a new loop at the end of the Goodhue Hill Trail and cleared a grown-in section near the summit, where improved views and access can again be enjoyed. In total, this crew of six young adults cleared over one-half mile of new trail (including switchbacks and re-routes), cleared problem vegetation from atop and below the Willard Pond dam,



The conservation crew poses for a brief rest on Goodhue Hill. Photo by Phil Brown.

closed eight unofficial sections of trail, removed a few dozen trees to open up views and clear trails, and constructed two water bars, one stone turnpike, and an earthen berm. On the final day, they were able to install the first part of what ultimately became a 70-foot long railing along a potentially-hazardous section of the Mill Pond Trail. They were busier than the Mill Pond beavers!

The crew, which spent ten days camping at scenic Willard Pond, was made possible through a Quabbin-to-Cardigan Trails Grant. This work was completed just in time for hikers to enjoy peak peak fall foliage from the sanctuary's several miles of trails.

Boardwalk Improvements for Ponemah Bog Wildlife Sanctuary in Amherst

by Phil Brown



The conservation crew working to replace the bog boardwalk at the Ponemah Bog Wildlife Sanctuary in Amherst. Photo by Phil Brown.

On consecutive Saturdays in May and June, volunteers removed and rebuilt a degraded 450-foot section of bog boardwalk at the popular Ponemah Bog Wildlife Sanctuary in Amherst. The "Sundew View" area now has safer, longer-term, and more attractive access thanks to over 200 combined hours of volunteer labor from NH Audubon's Nashaway Chapter, AmeriCorps' National Civilian Conservation Corps and the Student Conservation Association/NH Corps. Planks

of lumber first had to be removed and carried out of the bog – a one-half mile walk each direction – and new material then brought in and cut to length with power tools run off of generators. A systematic approach, excellent communication and teamwork all led to the success of the weekend projects.

Funding for the lumber was provided through a grant from the Robin Colson Memorial Foundation. Visitors can now enjoy the plentiful and colorful sundews, a carnivorous plant, for which this trail is named. Other species of interesting and rare bog plants like pitcher plant, bog rosemary, sheep laurel, and black spruce can also be seen from the boardwalk.

NH Audubon hosts an annual field trip series that explores the wildlife and plants of Ponemah Bog from May through July each year – see the Afield newsletter or the NH Audubon web site for more information.



Some of the 450-foot section of improved access along the trails at Ponemah Bog. Photo by Phil Brown.

Forest Management on NH Audubon's Wildlife Sanctuaries

by Phil Brown



The Ruffed Grouse is just one of several forest bird species that will benefit from NH Audubon's early successional forest management projects in Deering and Concord. Photo by Phil Brown.

Forest management (aka – timber harvesting, or forestry) can be a very effective tool for managing wildlife habitat, and more conservationists in the Northeast have become accepting of this technique. NH Audubon has owned land across much of the state for several decades, but forest management is still a relatively new concept for the organization. The transition has occurred slowly over the past decade, and

NH Audubon has now taken a close look at forestry (either through conducting it directly, or through planning it) on about half of its acreage, including several of its larger wildlife sanctuaries. The Willard Pond Wildlife Sanctuary in Antrim and Hancock is one such location where forestry has been incredibly beneficial in accomplishing multiple objectives: improving wildlife habitat diversity (through forest openings), benefiting forest structure and health, improving aesthetics (improved views), and, not unimportantly, providing a sustainable stream of stewardship funds which feeds directly back into managing recreation and natural resource protection.

During the winter of 2015-2016, wildlife habitat work was carried out on parts of the Deering Wildlife Sanctuary (in Deering) and on the Silk Farm Wildlife Sanctuary (in Concord) in order to benefit wildlife of young forests. Three forestry-related tours were conducted to demonstrate different stages of forest management: pre-harvest (Silk Farm), during-harvest (Deering), and post-harvest (Willard Pond).

NH Audubon is preparing for additional forestry opportunities beginning the winter of 2016-17. Consulting foresters from Meadowsend Timberlands have, most recently, worked with NH Audubon in developing a bird-focused forest management plan for the nearly 600-acre Kensan-Devan Wildlife Sanctuary in Marlborough.

Thank You

We wish to thank all our donors, grantors, and volunteers for their support, in particular:

Quabbin-to-Cardigan Trails Grant – Willard Pond Wildlife Sanctuary, Antrim

USDA's Natural Resources Conservation Service – trail restoration and stewardship

Alfred Quimby Fund – Thompson Wildlife Sanctuary, Sandwich

Bihua Chen – Thompson Wildlife Sanctuary, Sandwich

Student Conservation Association/NH Corps – land stewardship

Robin Colson Memorial Foundation – Ponemah Bog Wildlife Sanctuary, Amherst

Francie Von Mertens – Willard Pond Wildlife Sanctuary, Antrim

Joanne and Kevin Jones – Scotland Brook Wildlife Sanctuary, Landaff

Many generous individuals contributing to Birdathon/Bloomathon, specific sanctuary projects, memorials, and in-kind gifts.

Sanctuary stewards, and many individuals and groups who have volunteered their time in helping NH Audubon manage wildlife sanctuaries, monitor wildlife, or educate the public.

Silver Maples dominate the canopy of the floodplain forest at the Dahl Wildlife Sanctuary, North Conway. Photo by Phil Brown.

North Country Nature Tour 2015

by Phil Brown

The second annual North Country Nature Tour in August of 2015 was a four-day exploration of locations mainly north of the White Mountain. Scenery and wildlife observations provided many of the highlights, but great company, accommodations and food were also memorable. The tour focused on the NH Audubon connection to these special landscapes, bringing the group together with several NH Audubon sanctuary stewards and the wildlife sanctuaries they care for – Pondicherry, Scotland Brook, and Hebron Marsh. The group also got to enjoy watching “Oscar,” the resident



North Country Tour participants at Scotland Brook Wildlife Sanctuary, Landaff in August, 2015. Photo by Phil Brown.

Monroe Sandhill Crane and his family, declining breeding raptors such as American Kestrels and Northern Harriers, migrating Common Nighthawks and Chimney Swifts, and boreal bird species including Boreal Chickadee and White-

winged Crossbill. Other highlights included a River Otter feeding on a sunfish, and interesting plants, lichens, and mushrooms. A Newfound Lake pontoon boat eco-tour was a fine beginning to the tour as we enjoyed great weather and interpretation, as well as raptors and water birds, and a walk to Pondicherry's Mud Pond Bog was an excellent way to end it.

3rd Annual North Country Nature Tour: Boreal Birds & Wildlife of Northern New Hampshire – June 11-15, 2016

Leaders: Phil Brown (NHA's Director of Land Management) and Bob Quinn (Merlin Wildlife Tours)



Moose at the Thompson Wildlife Sanctuary in Sandwich. Photo by Robert Ridgely.

The North Country Tour returns for its third consecutive year in a new month (**June**) and adding an extra day to the itinerary. A boat tour of Lake Umbagog, a high-elevation birding experience in the White Mountains, and visits to special locations at the right times will help us track down many of our target bird and wildlife species. All with a focus on NH Audubon's very own wildlife sanctuaries – Pondicherry, Thompson, and Dahl – and attention on raptor, marsh bird, and nightjar projects directed by NH Audubon.

Contact Phil Brown at pbrown@nhaudubon.org or (603) 224-9909 x334 for more information and to book your spot. Space is limited!

by Phil Brown



NH Audubon members atop Pack Monadnock celebrate a new site and state record for migrating raptors. Photo by Francie Von Mertens.

The 2015 fall hawk migration season was a memorable one for NH Audubon's raptor observatories, Pack Monadnock in Peterborough, and Carter Hill in Concord. At each site, a NH Audubon seasonal naturalist and a team of volunteers collected hourly migration data almost daily for two and one-half months (a new record with over 1,100 hours between the two sites). We reached many thousands of visitors during the fall months through new formal on-site education programs for several schools, adult education programs, and the constant, casual learning opportunities that the observatories afford. Our hosts, Miller State Park in Peterborough and Carter Hill Orchard in Concord, continue to strongly support our efforts, and community support continues to grow with both returning and new sponsors.

Pack Monadnock recorded its highest overall count of migratory raptors with 19,845, a total that nearly doubles the previous ten-year average! Broad-winged Hawks accounted for the vast majority (84%) of migrants, with an incredible number of 16,693. Initial analysis suggests that Pack Monadnock was simply well-positioned for a big flight this year. Record-high totals for five other raptor species, including both Bald (132) and Golden Eagle (13), as well as Northern Harrier (125), were also set. Pack Monadnock's 11-year dataset is now part of The Raptor Population Index (RPI), a tool that helps determine continent-wide raptor population estimates. To be part of this dataset a site must have 10 years of continuous, standardized coverage. RPI utilizes raptor data from the HawkCount.org database made available by the

Hawk Migration Association of North America (HMANA), a project partner.

Carter Hill had another solid year with 8,887 migrant raptors tallied, but fell far short of the record season enjoyed by Pack Monadnock. Broad-winged Hawk numbers were on par with average years, and the totals of many species continue to normalize after a standard methodology was adopted by this site five years ago. The excitement of the season came in late October, when the site recorded a season-high three Golden Eagles – in a single day!

Both sites celebrated HMANA's International Hawk Migration Week in late September, complete with vibrant and memorable raptor release events attended by hundreds. The annual Big Sit birding event returned, as did the "Big Soup" and "Core Wars" culinary events, and a festive mood was enjoyed for much of the beautiful fall season.

Thanks to the many volunteers, donors, supporters, and visitors who continue to make NH Audubon's raptor migration monitoring efforts successful year after year. In particular, we wish to thank these observatory sponsors: Ed Reilly Subaru, The Mountain Corporation, The Gilbert Verney Foundation, Nature's Green Grocer, and a growing list of individual sustainers.

For more information or to see final season reports from each site, visit nhaudubon.org/get-outside/raptor-observatories/.



Sam Cole releases a rehabilitated female American Kestrel into the wild at the Carter Hill Raptor Observatory. Photo by www.RoughLeggedPhotography.com.



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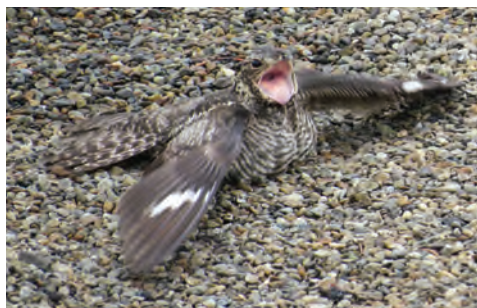
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PHOTO GALLERY

Clintonia borealis flowers in the phenology and pollinator study at the Deering Wildlife Sanctuary. Photos by Diane De Luca.



Below: Female Common Nighthawk doing a distraction display on a Franklin rooftop. Photo by Rebecca Suomala.



Above: A summer day at the Bellamy River Wildlife Sanctuary, Dover. Photo by Phil Brown.



Left: Hikers on a field trip enjoy the improved tread along the Goodhue Hill Trail at the Willard Pond Wildlife Sanctuary. Photo by Francie Von Mertens.

Right: Pitcher plants in bloom on Meetinghouse Pond/Kensan-Devan Wildlife Sanctuary in Marlborough, NH. Photo by Phil Brown.

