NOTES FROM THE FIELD 2020

2020 Summary of NH Audubon's Conservation Department Activities

Articles were not printed. They were posted on the *New Hampshire Bird Records* website.

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NOTES FROM THE FIELD 2020

CONSERVATION NOTES

2020 Summary of NH Audubon's Conservation Department Activities

Click each title below to read the summary article.

Endangered Northern Harrier Monitoring Success in 2020 by Chris Martin

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Whip-poor-will Summary by Pam Hunt

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Scott Kalter photographed this pair of Northern Harriers at a nest site in Lyme where he watched them for over a month. The nest failed for unknown reasons.

A Socially-Distant Christmas-in-May Birdathon 2020 Reprinted from the Spring 2020 issue of *New Hampshire Bird Records* and compiled by Rebecca Suomala and Kathryn Frieden

ENDANGERED NORTHERN HARRIER MONITORING SUCCESS IN 2020

Article by Chris Martin

Photos right: Scott Kalter photographed this pair of Northern Harriers at a nest site in Lyme where he watched them for over a month. The nest failed for unknown reasons. Scott's five photos on the right are of a prey exchange between the male (the gray individual) and the female (the brown bird) on 5-23-20.

NH Audubon began fieldwork in Summer 2019 designed to update the breeding status of state-endangered Northern Harriers in New Hampshire. Since work got started in the midst of the nesting season with limited funding we struggled in 2019 to confirm just one successful breeding pair at Pondicherry Wildlife Refuge.

It was quite a different story in 2020, with State Wildlife Grant (SWG) funds from NH Fish and Game sufficient to cover the full 2020 breeding season. What a difference a year (and adequate funding) makes!

In 2020, we confirmed at least 10 Northern Harrier breeding territories scattered across the state. Most sites were in Coos County, but we found three territories located south of the White Mountains (Conway, Lyme, and Tuftonboro). Four pairs were unsuccessful, but six successful pairs fledged a total of at least nine young, including four pairs in Coos County (Colebrook, Dummer, and Stewartstown (2)), as well as two pairs nesting in Carroll County. Notably, we did not find any territorial pairs in seemingly suitable habitat in Pittsburg, at Umbagog National Wildlife Refuge in Errol, or anywhere along the New Hampshire seacoast.

NH Audubon was fortunate to hire seasonal biologist Katrina Fenton starting in early May to track Coos County harrier activity starting with their return to breeding territories. Spring observations of courting harriers can be especially useful, since both members of a territorial pair are active and vocal, and engage in nest-building while the surrounding ground vegetation is low and nearby shrubs have not yet leafed out. Spring observations can also help us confirm breeding attempts that ultimately fail.

Levi Burford joined our team effort in July, as we focused on documenting prey deliveries to hidden nests and confirming presence of fledglings. Watching from a distance, our biologists obtained cross-bearings on activity hotspots, allowing us to pinpoint nests in what otherwise was rather nondescript field or marsh habitat.

In August, juvenile harriers finally revealed themselves after weeks concealed in their nests, and we spent the first half of the month "counting kids." Awkward fledglings began to pop up in places we had been watching all summer, places where adult harriers had repeatedly performed aerial prey transfers or lingered watchfully on dead snags or old cedar fence posts. Katrina first spotted three fledglings at Pontook Reservoir during the first week of August, and more airborne juveniles soon followed at other sites in both Coos and Carroll counties.

Katrina and Levi both did great work walking two-track paths through hayfields, scouring dense cattail marshes, and exploring maze-like Christmas tree farms. They logged hundreds of hours and many miles patiently search for these beautiful birds.

Thanks as well to our volunteers who watched at other sites, and several other birders who documented nesting attempts on eBird. We are already looking forward to beginning another field season in Spring 2021!

Photo bottom left: A female Northern Harrier at one of the Coos County nest sites, 4-29-20, by Lori Charron.

Photo bottom right: A female Northern Harrier carrying nesting material and being chased by a Red-winged Blackbird on 6-5-20 at the Pontook Reservoir, Dummer, NH. Photo by Lori Charron.

ANOTHER RECORD YEAR FOR NEW HAMPSHIRE'S PURPLE MARTINS

Article by Pam Hunt

Photo: Immature male Purple Martin at the new colony in Rye, NH. Photo by Pam Hunt.
Figure 1 (see bottom of page): Purple Martin productivity in New Hampshire, 2014-2020

We've been keeping records on the number of Purple Martin pairs in New Hampshire since the mid-1990s, but comprehensive data on productivity goes back only seven years, to the first time the majority of birds were nesting in easily-monitored gourd arrays. Over the years, two broad patterns have been pretty obvious: a consistent decline in the number of colonies since the 1980s, and a growth in the number of young fledged since 2014. Both of these trends can be largely tied to housing, specifically the increased use of gourd arrays that are easily cleaned and monitored.

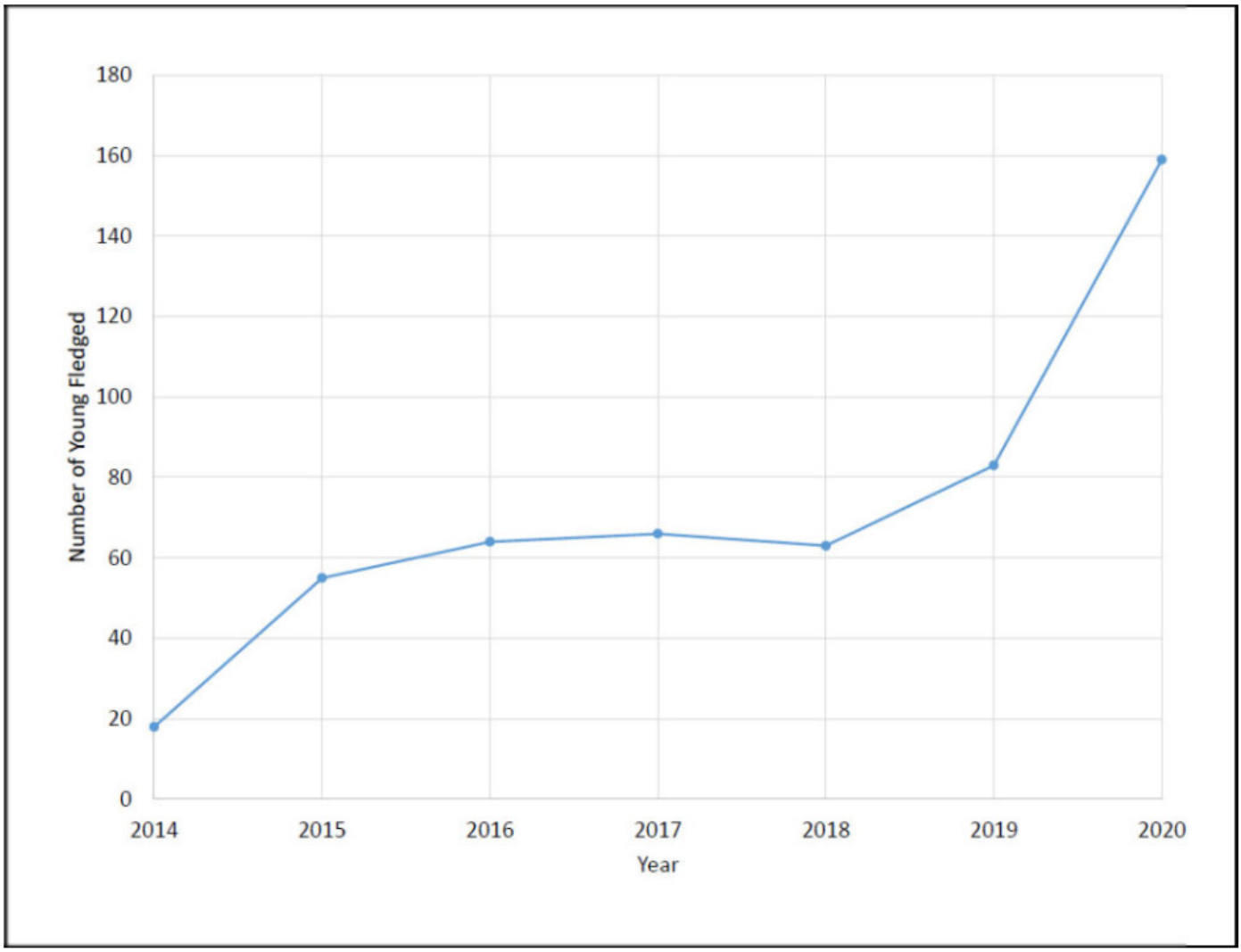
Prior to our first gourds going up in Seabrook in 2014, all martins in the state nested in "martin condos," those ubiquitous multi-holed boxes still scattered across the landscape – and almost entirely unoccupied. While these are perfectly fine places to nest, they have two drawbacks: not being as spacious and not always easy to access to monitor nesting success. Some, like the heavy wooden houses at the Fun Spot, could not even be lowered, so despite this being the largest colony in the state for many years, we rarely had a good idea of how many young were produced.

With the decline of our Lakes Region population through the 2010s (the Fun Spot colony abandoned in 2016, Wakefield in 2017), most martin activity shifted to the Seacoast, where almost all birds were in gourds (the exception being the Portsmouth Country Club, where martins are still off-and-on). Perhaps aided by dispersal from Massachusetts, the coastal population grew quickly, and our two main colonies in Seabrook and Rye are now maxed out with 18 and 16 pairs apiece. With the success of these colonies, we've hoped that overflow will establish new ones nearby, and there have been early signs of this in Hampton and Greenland where we've had martins investigating gourd arrays.

The arrival of COVID-19 limited how much work we could do in 2020 and efforts in Hampton and Greenland were put on hold. We focused on the two main colonies, but martins aren't terribly worried about global pandemics, and two pairs managed to find an old martin condo along Old Beach Road in Rye, less than a mile and a half from the colony at Awcomin Marsh. The birds even started using the box when it was only halfway up the pole and infested with House Sparrows! With the help of the landowner, we were able to raise the box, and while systematic monitoring didn't happen, periodic visits confirmed that at least one of the pairs had young at the end of July. Our plans for this site include a new gourd array on abutting property in 2021, and if the birds return and take a liking to it there's a good chance we'll have another success on our hands.

As for this year's numbers, the 36 known pairs produced at least 159 young (Figure 1, not including the new Rye site), which is double the record set just last year. This is encouraging news that it wouldn't be possible without a handful of extremely dedicated volunteers. These folks put up the gourds in the spring, make weekly visits to check on status, and evict invasive House Sparrows when needed. New volunteers will be needed as the number of colonies grows. Stay tuned for updates. Purple Martin restoration is supported by private donations.

Figure 1 below: Purple Martin productivity in New Hampshire, 2014-2020



MOTUS FOR NEW ENGLAND UNDERWAY!

Article by Carol Foss

Photo: Installing the Motus tower at the Harris Center for Conservation Education in Hancock, NH on 11-6-2020. Photo by Marc Nutter.

We are delighted to report that the US Fish and Wildlife Service issued a $998,000 Competitive State Wildlife (C-SWG) grant, matched by $357,000 of private funds and in-kind services, which will provide for installation of 50 Motus receiving stations throughout New England over the next three years. C-SWG grants require multi-state partnerships, and NH Audubon played a lead role in preparing the grant proposal and in recruiting the NH Fish and Game Department as the lead agency and the Maine, Massachusetts, and Pennsylvania wildlife agencies as partner states, and the Carnegie Museum of Natural History (Carnegie Institute), Maine Audubon, Massachusetts Audubon, and the Willistown [PA] Conservation Trust as collaborating organizations.

The Motus Wildlife Tracking System is a global network of automated telemetry receiving stations coordinated by Birds Canada. Stations detect very high frequency (VHF) radio signals from tiny nanotags that all transmit on the same frequency (in unique patterns for each tag) and can be deployed on small birds, bats, and even large insects. This new technology makes it possible to identify migration routes, stopover areas, and wintering locations for small animals whose travels have been impossible to study at a landscape scale. What's more, most stations will be connected to the cellular network and can upload this data directly to the Motus servers, making important migratory data available to both researchers and educators in near-real time.

The goal is to arrange the receiving stations in several "fence lines" across the region, designed to detect any tagged animals migrating through the region (Figure 1). While the majority of receiving stations will be installed in 2021, we anticipate getting three stations on line in 2020. We deeply appreciate the support of our partners at the Harris Center for Conservation Education, who are hosting the first receiving station to be installed as part of this project. Stations at Phillips Exeter Academy and Maine Audubon's Hamilton Sanctuary are also scheduled for 2020. Project partners will spend the winter investigating other potential locations, making site selections, completing necessary administrative work to prepare for next year's installations, and raising matching funds for the federal grant.

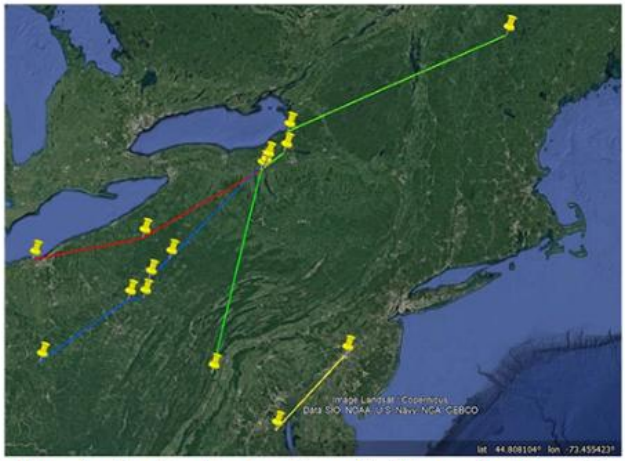
FIGURE 1 below shows potential locations for Motus receiving stations in New England. Red circles indicate existing stations. Pink circles indicate stations planned for installations in 2020. Green circles indicate possible sites yet to be investigated on the ground. Small circles indicate currently inactive, previously installed stations.

NH Audubon is working closely with the Willistown Conservation Trust to plan the locations and installations of the 50 regional stations, including 8-12 in New Hampshire. We are also raising $126,000 of matching funds for the federal grant through private grants and donations. All matching funds will be used to purchase the supplies and equipment to make this project a reality. Each station costs about $6,000 in supplies alone to construct, and we are looking to build a maintenance fund to ensure that we have the resources to keep these receiving stations supporting migratory research beyond the three year scope of this project. If you are interested in supporting the project financially at any level, or would like to volunteer your time in helping construct these stations, please contact Marc Nutter (mnutter@nhaudubon.org).

The grant also funds three associated research projects. The Carnegie Institute will be testing the detection ranges of various combinations of receivers and antennas in a variety of landscapes. Massachusetts Audubon and the Massachusetts Division of Fisheries and Wildlife will be collaborating on a study of American Kestrel movements and survival. NH Audubon will be testing detection ranges of new 0.15-gram nanotags and using them to study Monarch migration at the New Hampshire coast and in the Merrimack River Valley.

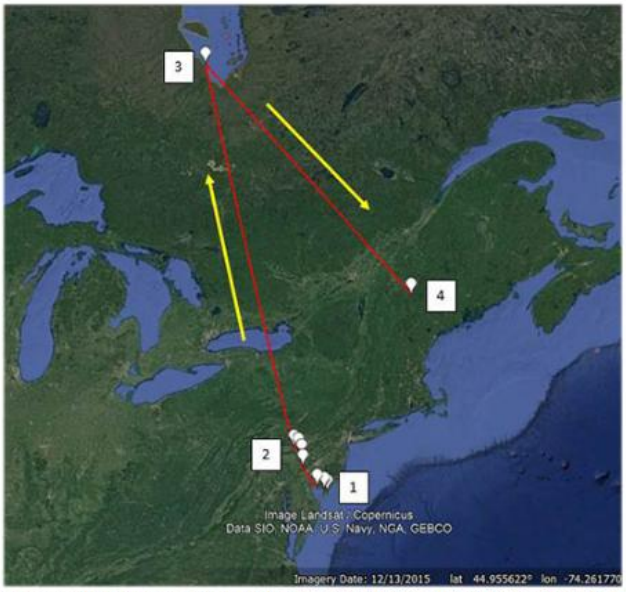
Motus technology has already been deployed in our Rusty Blackbird research with fascinating results (presented in a separate article). A receiving station in Dixville installed in 2019 located not only local Rusty Blackbirds but also detected passage of migrating Semipalmated Sandpipers tagged in Canada and Brazil, an American Woodcock on its migration (Figure 2 below), Red Knots tagged in South Carolina and New Jersey (Figure 3 below), a Whimbrel tagged on the shores of Hudson Bay, and a Willow Flycatcher tagged in Colombia. We look forward to learning about the travels of other migrants passing over New Hampshire and New England when the New England Motus network is up and running!

FIGURE 2 - AMERICAN WOODCOCK



Detections of an American Woodcock tagged in Ohio near the shore of Lake Erie on its spring and fall migrations in 2019 and 2020. Red line: 4/24-27, 2019; Yellow line: 11/9 2019; Blue line: 3/29-30, 2020; Green line: 10/26-11/9, 2020.

FIGURE 3 - RED KNOT



Red Knot tagged on Cape May, New Jersey, by Motus receiving stations in the United Stated and Canada.

1. May 21-31, 2019, migration stopover, Cape May, NJ.
2. June 1, 2019, passage through eastern Pennsylvania.
3. June 2, 2019, west shore of James Bay, Ontario.
4. August 9, 2019, passage over Dixville, NH!

To learn more about the New England Motus Project or how you can help, contact Carol Foss (**cfoss@nhaudubon.org**) or Marc Nutter (**mnutter@nhaudubon.org**).

BALD EAGLE 2020 BREEDING SEASON

Article by Chris Martin

Photos right:
Top: Bill Dean (left) and Bob Harcke (right) release rehabilitated juvenile eagle "Black C/H" near its nest in Hinsdale on 9/3/20. Photo by Chris Martin.
Middle: Wings of the Dawn wildlife rehabilitator Maria Colby checks out a juvenile eagle from Lake Massasecum that came out of its nest during Tropical Storm Isaias in early August. Photo by Chris Martin.
Bottom: Long-time Squam Lake breeding female "Gold WA8" (seen here in 2010) was found dead in Meredith in October 2020 at 21½ years old. Photo by Rick Libbey.

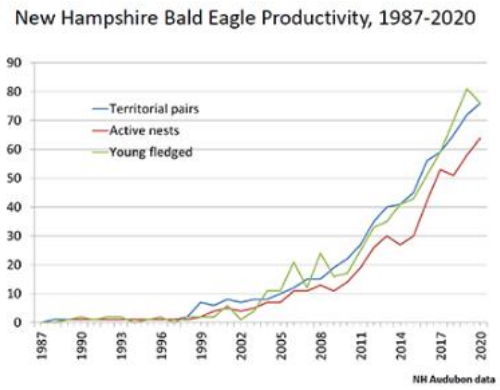
Despite challenges associated with COVID-19, NH Audubon biologists and volunteers confirmed 76 territorial pairs of Bald Eagles in New Hampshire in 2020, up from 72 in 2019. We found 64 pairs incubating and counted 51 successful nests, almost 16% more than last year. A total of 76 young fledged, which although less than 2019's record high of 81 young, was the second-most ever documented in the state for any year since recovery efforts began in the 1980s. One reason for this slight decline in young fledged in 2020 was that there were no New Hampshire nests that fledged three eaglets, unlike 2019 when a record five nests fledged three young apiece.

One of our broadest measures of breeding success – the ratio of young eagles fledged per territorial pair – was 1.00 young/pair in 2020, right on the state's long-term productivity average. A grand total of 654 young Bald Eagles have fledged from New Hampshire nests since the species resumed breeding here just over 30 years ago, and over one-third of all the young eagles produced in the state since 1989 have fledged in the past three breeding seasons alone! And we topped 60 incubating pairs and 50 successful pairs for the first time in 2020. Water bodies in the state with multiple eagle breeding pairs are becoming more numerous. Umbagog Lake, home to New Hampshire's first post-DDT pair in the late 1980s, now has five(!) pairs of breeding eagles (three nests in New Hampshire, two in Maine). Lake Winnipesaukee now has at least seven territorial pairs, Lake Winnisquam has two pairs, and the Great Bay/Little Bay estuary now has three pairs.

Since Fall 2019, we received band encounter reports on 20 individual color-banded Bald Eagles; 16 were seen/photographed alive, and four were found dead. The dead birds were 21, 13, and two 12-yr olds and all were members of long-standing breeding pairs. Two died after encounters with other eagles, one was hit by a vehicle while feeding on roadkill, and one died of an undetermined cause. Most banded birds were encountered in New Hampshire and all were originally banded in New England. The oldest bird was a 23-yr old seen close to its long-time Nubanusit Lake nesting territory, while the youngest was a 3-yr old NH-rehabilitated bird seen in Connecticut.

In 2020, we partnered with Wings of the Dawn Wildlife Rehabilitation Center in Henniker to rescue seven sick/injured juvenile Bald Eagles. All but one of those birds were fitted with a black New Hampshire color band and released back to the wild between late July and early September. Over the past year, we also worked with conservation officers from the US Fish & Wildlife Service, NH Fish & Game, and VT Fish & Wildlife in six additional cases where New Hampshire Bald Eagles were found dead. Two nestlings died in nest collapses, one nestling was electrocuted, and three other immature eagles were found dead.

Since NH Fish & Game removed the Bald Eagle from New Hampshire's Threatened List in March 2017, our eagle population has continued to double every 5-7 years, pushing the limits of our monitoring resources and state funding. We developed a new five zone protocol in which we are monitoring breeding sites in one zone per year, rotating throughout the entire state over a five year period. The 2020 focal zone was the North Country and next year we will focus on the Connecticut River Valley. Additionally, we continue to document new breeding sites anywhere in the state as they are reported, and add them into future monitoring in the appropriate zones.



We believe this zonal strategy will allow us to detect any significant population changes in a cost effective way. NH Audubon hopes to continue statewide eagle monitoring, but we need to raise additional funds each year to do that. We are grateful for individual donors who helped us raise enough funds to monitor eagles statewide during the 2020 season.

Photo bottom left: Two young eagles await their next feeding at their nest on the north end of Newfound Lake in Hebron, NH. Photo by Jack Dorsey.

Photo bottom right: Congratulations to Jack Dorsey, recipient of NH Audubon's 2020 John Thalheimer Volunteer Award. Jack is one of the many volunteer eagle observers who contribute much of the data we annually use to help NH Fish & Game manage the state's eagle population. He has also taken many photos, including this one of the Newfound Bald Eagle nest.

NEW HAMPSHIRE PEREGRINE RECOVERY TURNS 40!

Article by Chris Martin

Photos right:
Top: The female Peregrine Falcon whose satellite transmitter has been working since 2014, "Black/green A/G" was photographed in Boscawen by Todd Quinn on 10-4-20.
Both photos below: Chris Martin releasing one of the Peregrine Falcon fledglings from the I-293 bridge after being rehabilitated. Photos by Grace Preston, 6-16-20.

Spring 2020 marked the 40th consecutive year of Peregrine Falcon breeding season monitoring and management in New Hampshire in the post-DDT recovery era. Currently listed as state-threatened, New Hampshire's Peregrine breeding population continues its very gradual rebound. NH Audubon staff and volunteer observers confirmed 24 territorial pairs in 2020, the same number as found in 2019. We confirmed 21 incubating pairs, and 16 successful pairs that fledged at least one young each. A total of 36 young fledged statewide, second only to the record-high 43 fledged in 2018.

Roughly 25% of New Hampshire's Peregrine pairs now nest on human-created structures, including on buildings, bridges, stacks, and quarries. Construction projects at two New Hampshire bridges where Peregrines live continued to occupy our management focus during 2020. At the I-293/101 Bridge in Bedford/Manchester, a pair successfully raised two young on a New Hampshire Department of Transportation (DOT)-installed nest tray, although one fledgling had to spend three days in rehabilitation at Wings of the Dawn in Henniker before being banded and returned to her parents. We also collaborated with Maine DOT at the I-95 Piscataqua River Bridge in Portsmouth/Kittery, where a pair incubated eggs unsuccessfully inside a bridge beam located directly above a busy construction yard on the Maine shore.

Our last remaining transmittered falcon – fitted with her 12-gram solar-powered device back in May 2014 during our partnership with Biodiversity Research Institute (BRI) and Stantec – continues to send us her locations on an intermittent basis. After nesting at Bear Mountain in Hebron in 2014-17, "Black/green A/G" has been at Holts Ledge in Lyme for each of the past three breeding seasons. She typically spends her winters in southeastern Pennsylvania, but in early October she stopped off in Boscawen for a photo (see photo by Todd Quinn)!

More than two months after fledging in June from the Brady Sullivan Tower in Manchester, one of this season's juveniles returned to the nest box while both parents were dozing, and this triggered quite an interaction which was captured on video thanks to our friends at Peregrine Networks (formerly Genuity Networks) and one of our more fanatic Peregrine-watchers. For several minutes, "Black/green 90/BU" and his parents engaged in a somewhat conflicted mix of both territorial defense and family bonding … fascinating to watch! See for yourself at: **https://www.youtube.com/watch?v=uyuTl4WlabA**.

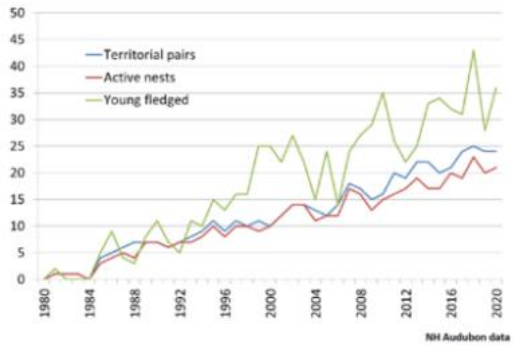
NH Audubon conducts Peregrine Falcon monitoring and management in New Hampshire in partnership with the NH Fish and Game Department's Nongame Wildlife Program, which provides funding for our breeding site management through the federal State Wildlife Grant (SWG) program.

NH Audubon received a grant from the Dorr Foundation for a new Peregrine Falcon education initiative. Our biologists and educators worked with Hooksett Memorial School 5th graders to develop and test a new Peregrine Falcon curriculum. You can see one of our Peregrine webinars with Hooksett students at: **https://www.youtube.com/watch?v=LQe6bBovCvE&t=21s**.

A big "Thank You!" to all our partners, individual donors, private landowners, rock climbers, and field volunteers.

Photo below: Students from Hooksett Memorial School (HMS) started their five-month learning journey in February 2020 focused on scientific observation of the resident Peregrine Falcon family by hearing from Chris Martin and education staff in the 2020 pilot project, *Learning as Scientists: Students Monitoring Peregrine Falcons in Manchester*. Teachers from HMS have partnered with NH Audubon again in 2021 to offer this unique curriculum. Photo by Dyanna Smith.

NH Peregrine Falcon Productivity, 1980-2020



2020 RUSTY BLACKBIRD BREEDING SEASON

Article by Carol Foss

Thanks to the hard work and determination of field technician Levi Burford, we were able to complete a modified Rusty Blackbird field season in 2020. He surveyed more than 60 areas of suitable habitat, documented activity at 40 sites, and confirmed fledging from 17 nests, an impressive achievement for a single pair of boots on the ground!

Particularly notable was the location of four individuals that received nanotags in 2019 and returned to nest in 2020. One of these individuals was never detected at any Motus receiving stations during fall or spring migration, but arrived safely back on the breeding grounds and nested about a third of a mile from her 2019 nest site.

Collectively, the eight other nanotagged individuals were detected by 18 receiving stations in seven states from Connecticut to Georgia, four on both spring and fall migrations and four on fall migration only. Five of 12 nests were infested with one of two bird blow fly species. While one nest contained 34 puparia, the other nests had fewer than 10.

We are grateful to our cooperating landowners, 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, and Wagner Forest Management for continuing support of this work.

Photos right (top to bottom):

1: This tagged female Rusty Blackbird was detected once during fall migration and spent nine days in the vicinity of a Motus receiving station on the way back north. She built her nest this year less than 200 ft. from her 2019 nest site. Photo by Levi Burford, 5/16/20.

2: Female Rusty Blackbird with a beak full of nesting material. Photo by Levi Burford.

3: This Rusty Blackbird nest is in a typical location, on intertwined branches of two young spruces. Photo by Levi Burford.

4: Just about every year we find one nest in a tangle of dead branches like this one. Photo by Levi Burford.

5: This nest in a small speckled alder is the first Rusty Blackbird nest we have found in a hardwood in 10 years of research! Photo by Levi Burford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CLIFF SWALLOWS IN 2020 AND BEYOND?

Article by Pam Hunt

Photos right:
Top: Roughly 20 pairs of Cliff Swallows nest on this bridge over the Androscoggin River in Milan. It is one of the largest colonies in the state and one of only a handful on bridges. Photo by Pam Hunt, 5-29-20.
Bottom: This young Cliff Swallow is almost ready to leave its nest in Danbury in early July. Photo by Pam Hunt, 7-5-20.

Summer 2020 was a good year for Cliff Swallows in New Hampshire. Our fourth summer of surveys revealed 25 colonies, which together supported at least 168 pairs. These are the highest totals in the four years this state-threatened species has been intensively monitored, largely due to six new colonies discovered by birders. Two other sites that hadn't been active since 2017 were also reoccupied.

Perhaps most exciting was the presence of at least four pairs on the Scammel Bridge over the Bellamy River in Dover. This used to be a significant colony that supported 20 or more pairs, but hadn't been occupied since 2013. Here's hoping it continues to grow! At the opposite end of Great Bay, a pair tried nesting on a bridge over the Sqaumscott River in Stratham, but a late summer check by kayak suggested the nest was not completed.

In 2021 we hope to follow up on some of these new colonies while continuing to at least keep an eye on the rest (volunteer monitors are always welcome!). NH Audubon has submitted a proposal that, if funded, will allow us to initiate a pilot project to determine productivity at a handful of colonies in the Lakes Region. While we now know where our Cliff Swallows are, effective conservation will require more detail about their nesting success, among other things.

Cliff Swallow monitoring was funded by NH Fish & Game and private donations.

NIGHTHAWK BREEDING SUMMARY 2020

Article by Rebecca Suomala

Photos right:
Top: Two Common Nighthawk chicks at a nest in the Concord area. Photo 7-3-20 by Rebecca Suomala.
Bottom: A female Common Nighthawk doing a distraction display to lure us away from two nearby chicks. Photo 7-3-20 by Rebecca Suomala (see the video link below).

Common Nighthawks had a good nesting season in 2020, perhaps because of the warm summer and lack of storms. Most years NH Audubon's Project Nighthawk monitoring shows a decline in the state's Common Nighthawks but this year numbers held steady or even increased in some areas. Despite COVID-19, volunteers and NH Audubon staff were able to do some monitoring.

There were ten confirmed nests in the state – a fantastic number. We were able to confirm fledged chicks at four of the sites, and failure at two sites (cause unknown). There were four additional sites with probable or possible nesting.

Keene confirmed a rooftop nest with one chick that stayed on site for 48 days, a record for Project Nighthawk. Brett Thelen of the Harris Center leads the effort in Keene and they followed the chick's progress. No other nighthawks were found in Keene this year. In the Concord area, we had five confirmed nests – the most in many years. Most nests were confirmed by the behavior of the adults but we did find one nest with two chicks. The female did a distraction display to lure us away and you can see the video on NH Audubon's YouTube channel: **https://www.youtube.com/watch?v=0xgmGz6nDEw**. This year Concord males were active as late as 11:00 pm, much later than the usual 9:30 quiet time, making for late watches. Why was this year different, and only in Concord? We have no idea!

The Ossipee Pine Barrens area was the usual hotbed of activity and we tallied a total of 13 males and 2-3 females during one watch. The Nature Conservancy did some management which improved the habitat for nighthawks at one site resulting in a remarkable five males and at least one female at that site. The pine barrens is the only natural area with a strong population of Common Nighthawks in the state.

Nighthawk males display over a potential nest site with a fluttery flight, loud peents, and regular dives which result in a whooshing noise called a boom. One Concord site had a male displaying loudly and persistently. Check the video to hear it: **https://www.youtube.com/watch?v=R1On-CRxLNc** (note that it's dark so you can't see the bird).

This project was funded by private donations and NH Fish & Game. For a copy of the full breeding summary check the Project Nighthawk monitoring page: **https://nhbirdrecords.org/nh-breeding-nighthawk-monitoring-and-behavioral-studies/(scroll down to the summaries for each year).**

WHIP-POOR-WILL UPDATE

Article by Pam Hunt

Photo: Eastern Whip-poor-will by Rebecca Suomala

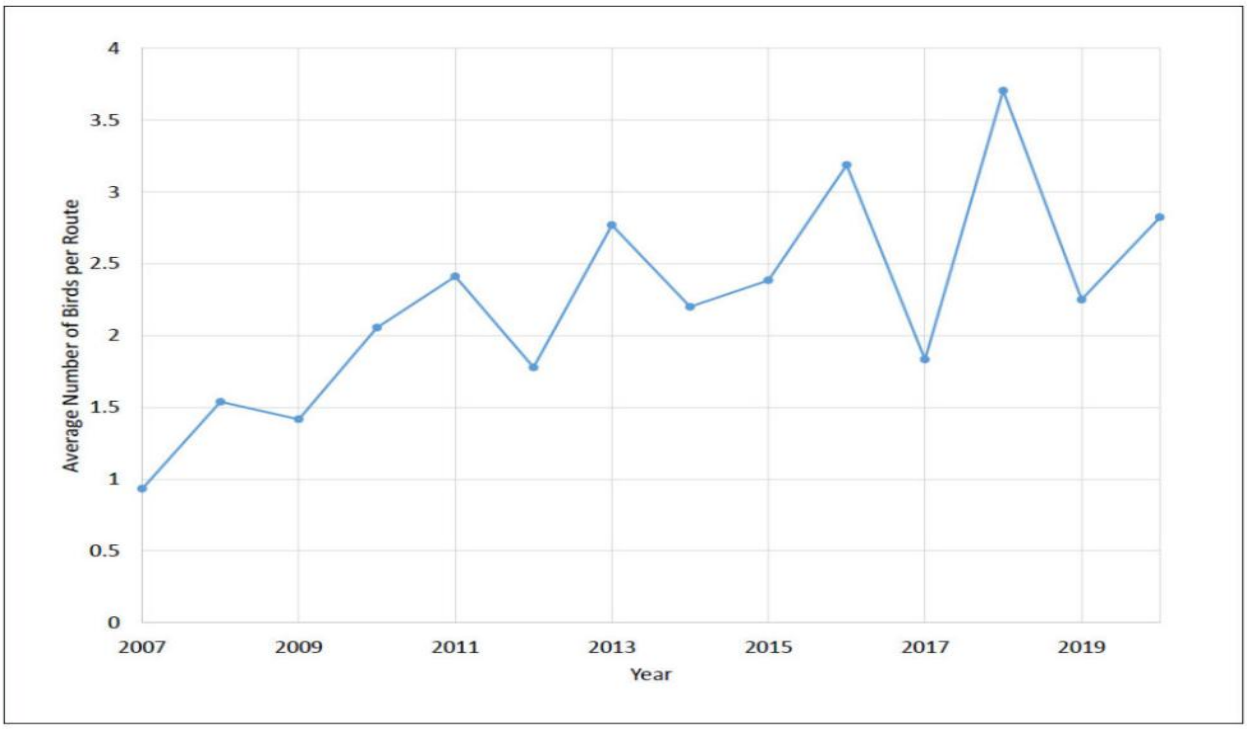
It's been a while since I've provided an update on NH Audubon's work on Eastern Whip-poor-wills in this newsletter. I stopped doing detailed habitat research in 2016 but another aspect to this project continues unabated: long-term monitoring along 18 roadside survey routes scattered across the state. These routes are the descendants of a pilot project in the Piscataquog River Watershed in 2003, and since 2007 use a protocol developed by NH Audubon and adopted by states and provinces across the species' range. Each route is nine-miles long, consists of ten stops spaced a mile apart, and surveyed once a year near either the May or June full moon. Other research has shown whip-poor-will calling to be more reliable and persistent when the moon is at least 50% illuminated. Such date restrictions, when combined with weather and volunteer schedules, mean that not all routes get covered in all years, but we've generally been able to get data from an average of 15 (of 18 total) routes annually since 2007.

Over those 14 years, the exciting news is that our whip-poor-will population appears to be steadily increasing, although with a lot of annual variation (Figure 1). This is particularly intriguing since this species is in decline over most of its range which has contracted by as much as 50% over the last 20-30 years. Thus, while whip-poor-wills aren't as widespread in New Hampshire as they were in the 1980s, they seem to be doing quite well in the areas where they still occur regularly. Even anecdotal data suggest that people are hearing them more often than in the recent past.

So why might whip-poor-wills be increasing? We really don't know, but from my earlier research we do know they prefer early successional or edge habitat, while avoiding areas too close to extensive development. One possibility is that land management in the state's core whip-poor-will hot spots (particularly the Ossipee Pine Barrens and parts of the upper Merrimack River watershed) has created additional suitable habitat for more birds. Without detailed habitat change data from across the state, or at least in the vicinity of the routes, we can't really test this hypothesis, but it's the most likely explanation so far.

Listen to whip-poor-wills calling on NH Audubon's YouTube channel: **https://www.youtube.com/watch?v=H1O80Vo1KPk**.

Figure 1: Eastern Whip-poor-will abundance on 18 New Hampshire survey routes since 2007.



A SOCIALLY-DISTANT CHRISTMAS-IN-MAY BIRDATHON 2020

Reprinted from the Spring 2020 issue of *New Hampshire Bird Records*
Compiled by Rebecca Suomala and Kathryn Frieden

Ken Klapper took this photo of his very snowy yard on May 9, the first day of Birdathon 2020.

NH Audubon's Birdathon took place on World Migratory Bird Day, May 9, 2020 but expanded to include May 10 thanks to a snowstorm. In keeping with the COVID-19 times, it had a local and socially-distant twist! Pam Hunt, who coordinated the event described it this way:

Birdathon 2020 is a celebration of local birding, whether it occurs in your yard, your town, or within walking range. Instead of teams competing against each other for high species totals and bragging rights, we're all in this one together. The contest is only against ourselves, and the more people we have the better we'll do, and perhaps set a bar we can try to overcome in a future year. The goal is simple; how many species we can collectively find within New Hampshire on May 9 [May 10 added].

Participants were restricted to local birding options (not mutually exclusive):

- Your own property, whether a small yard or 20 acre lot
- Your town or perhaps a couple of adjoining towns
- An area within a 5 mile radius of your house (measured as the crow flies!)
- One or more nearby conservation properties
- Human-powered, walking or biking (or paddling if you live on water)

The concept turned out to be very popular with 124 people participating and many sending email comments about the fun they had despite the weather. On Birdathon weekend, May 9 and 10, there were record low temperatures (even the high temperature of 42 degrees F. in Concord on May 9 was the lowest high in 150 years of data collection), up to a foot of snow, and winds gusting almost to 50 miles per hour.

We present excerpts from Pam's summary and highlights from individuals who took part.

Pam Hunt

The theme of Birdathon 2020 was of course "local birding," and only a handful actually left their home (or adjacent) town, and at least 55 never even left their yards. We collectively reported 161 species between Saturday and Sunday. Of those, a handful were reported by over 100 participants. As one might expect, these were the common backyard birds like Black-capped Chickadee, Blue Jay, American Robin, and Northern Cardinal. Less common, but still widely reported were many of the colorful migrants that had only just begun to return to New Hampshire for the summer. Having only recently returned from warmer climes, species like Rose-breasted Grosbeaks and Baltimore Orioles were probably caught a little off guard by the cold and snow, and as a result many ended up visiting feeders – much to the enjoyment of many observers. At the other extreme, 26 species were reported only once, with over half of these from Great Bay or the coast. Three species stand out: Horned Lark and Common Gallinule in Concord and a Long-billed Dowitcher in Hampton.

Birdathon is also about people and our enjoyment of birds (no matter the weather!) so I thought it worthwhile to provide some highlights from individual participants. Without a doubt, top honors go to NH Audubon's Phil Brown for finding 92 species in Hancock on Saturday. Not only did he accomplish this on the worse of the two days, but he also did it entirely on foot and bicycle (he even got a flat tire near the end). The next day, Becky Suomala and Zeke Cornell also found 92 species in Concord, but they had slightly better weather and used a car. A few other folks had good success in car-based local birding, usually restricted to either a town or within a five-mile radius of their homes. Two deserve "runner-up" status for finding at least 80 species: Kurk Dorsey with 85 species in the Durham area and Ken Klapper with 81 in Sandwich.

It's not surprising that people choosing the ultimate local birding experience – watching in their yards – generally found far fewer species. In such restricted spaces, a lot can vary based on the amount of habitat, size of your yard, weather (have I mentioned the weather?), or simply how long you watch. The average number of species reported from participants' yards was 18, with most tallies between 10 and 25. Two yards far surpassed this range, however, and it's no coincidence that both are the homes of highly-accomplished birders with a wide variety of habitat. Don and Lillian Stokes tallied 54 species on their property in Hancock, which conveniently looks out over a large pond, but top honors go to George and Andrea Robbins of Pittsfield. They found a remarkable 71 species in (or over) their six acre property in Pittsfield, which is also blessed with diverse habitats and a wetland.

As of the end of May, we received over $6,000 in donations, thanks to so many who made contributions to this event. Remember though, that Birdathon is not all about the numbers! Participants with far more typical yards related stories of life birds, or species they hadn't seen for many years and this is what it's really about. It's about enjoying the birds we have, where we find them, and retaining the strong connection to birds, and nature in general, that is arguably an important part of staying healthy.

Kurk Dorsey – Durham, 5/9*

The first (and hopefully not annual) Lee/Durham/Newmarket Christmas-in-May Bird Count was highly successful, with just a few cases of frostbite and hardly a polar bear in sight.

A few highlights:

- Gile Road Marsh, Lee: two Common Mergansers
- Old Mill Rd., Lee: Sora, Yellow Warbler in the snow (that has to be a first for me)
- Adam's Point, Durham: three Common Terns, but who could blame me for entering them as Arctics? 19 Greater Yellowlegs, continuing Common Loon
- Durham Point Rd. pond: two Ring-necked Ducks, Cliff Swallow in with the hordes (not hoards, but that would seem appropriate too) of Tree Swallows
- Long Marsh Rd., Durham: Winter Wren feeding on the ground with two Pine Warblers
- Lamprey River Preserve, Durham: kestrel harassing a Cooper's Hawk
- Piscassic Greenway/Neal Mill Rd., Newmarket: Veery, Hooded Mergansers, Osprey on the wetland expressing its opinion of my presence

My total count was around 85 species, which was pretty good given that my fingers are too cold to actually count anything right now. But at least the ticks weren't much of a problem!

Phil Brown – Hancock, 5/9*

I conducted my human-powered NH Audubon Birdathon in cold, windy and often, snowy conditions. I biked 13 miles and walked six in search of birds within 2.5 miles of my house, staying completely within the boundaries of Hancock. Considering the fairly miserable birding conditions and it being a delayed migration year for some species, I was quite pleased to find 92 species between 5:00 am and 5:00 pm.

All the pre-dawn birds cooperated in short order, American Bittern, Wilson's Snipe, American Woodcock, and a Barred Owl, which flew past me on my second hoot as I set foot out my door at around 5:00. As the snow was blowing across the Valley Farm around sunrise, I picked up Eastern Meadowlark and Solitary Sandpiper as I trekked across the field. The dawn chorus was impacted by blowing snow, which also made detectability challenging at times. I warmed up and enjoyed breakfast at home as I watched the feeders (success on hummingbird, although it looked miserable dodging the snowflakes!).

I spent the middle part of the day at Powder Mill Pond and was rewarded with an excellent showing of birds. It was windy, but most of the raptors showed, as did several waterbirds and even some migrant landbirds working a sunny edge that was out of the wind. I met up with Donald and Lillian Stokes and we tracked down a few species of swallows and a surprise Blue-gray Gnatcatcher.

One of the good things about conducting such a small radius human-powered big day is that the distances to bike and hike aren't vast (much lower mileage than county-wide or town-wide efforts) and this allows you to bird places a bit more thoroughly. Another is that it isn't much of a problem to walk home when one's bike tire blows out. Luckily, when this happened to me, I had already birded Powder Mill Pond and had only the home stretch to walk. The walk rewarded me with several new species in the mid-afternoon hours including a Northern Goshawk carrying food that I flushed from the roadside, a couple of unidentified gulls, and the anticipated Red-tailed Hawk, Killdeer, and Rock Pigeon that were hunkered down in a large field.

A snowy Birdathon, 5-9-20, by Phil Brown.

As I walked home, I reflected on how grateful I was to have had an excellent day of birding, enjoying fine scenery and even some company of friends, the support from many Birdathon donors, and the knowledge that birds are still there, bringing us joy and hope, especially now.

David Govatski – Pondicherry NWR, 5/9*

Killdeer in the snow on 5-9-20 in Whitefield, NH by Dave Govatski during his Birdathon.

Pondicherry National Wildlife Refuge (NWR): Saturday May 9, 2020 was an ideal training day for being in the Aleutians, six inches of fresh snow, winds northwest 10 mph, gusting over 20 mph, temperature 28 degrees F., and visibility that ranged from 300 feet to 1,200 feet in the blowing snow. Even my dog did not want to go with me. I saw no one else at Pondicherry from 0600-1100 and that was a first for a Saturday in May at Pondicherry. None of the other trailheads had any cars either.

Total Time: five hours
Total Distance Walked: six miles in the snow, and it was great, reminded me of a previous life humping a ruck.

I started at Airport Road and walked to Cherry Pond and planned to get there as the snow ended and before the strong winds from the cold front kicked in. I waited about twenty minutes and the snow sort of let up and I could see half way across Cherry Pond. I noted some Tree Swallows and felt bad for any insectivore knowing it was too cold for any insects to be flying around. After this, I went to Moorhen Marsh and added a few species. Then I backtracked to the platform and on to Little Cherry Pond. The winds picked up and the falling snow from the branches dropped visibility to 50 feet at times. I only saw two species at Little Cherry and they were seven Ring-necked Ducks and two Hermit Thrush. I could not see the far side of Little Cherry Pond. I walked back to the car and saw seven Yellow-rumped Warblers, the only warblers of the day.

I then walked the Localizer Road by the Airport and did not add anything new. I saw turkey tracks but did not count them. I only made it part way down the road because it was flooded by the beavers. I then went to Airport Marsh and added a Greater Yellowlegs, Savannah Sparrow, Common Merganser, and a female Northern Harrier.

The combined results:

- 24 Species: Record low Count
- 137 Total Birds: Record low number
- The numbers are actually pretty decent for the adverse weather conditions.

Molly Jacobson – Merrimack, 5/10*

I'm not sure if the birds got the memo that we were all looking for them today! The wind must have had them all hunkered down. I stayed within the Merrimack town limits and visited four places (three are hotspots): Grater Woods, Wildcat Falls, Watson Park, and Horseshoe Pond. The day was entirely devoid of thrushes and wrens, only one vireo, and woodpeckers were surprisingly scarce. Things started pretty slowly, with only 24 species at Grater Woods for a three hour hike (last year at this time I was getting ~45), 26 species at Wildcat Falls, 13 at Watson Park, and finally 26 at Horseshoe Pond, which is average for these three sites despite the weather. There were not nearly as many warblers as I was hoping, seven species total. In all, I had 53 species for the day, most of which came in the late afternoon. Highlights included Prairie Warbler, Spotted Sandpiper, Chimney Swift, and Green Heron(!).

Susan Wrisley – Hollis, 5/10*

All in all, I had a great Birdathon day, but cold morning temps and high winds made things more challenging. I opted for 5-mile radius birding, but most of my stops were in Hollis, or just across the town line into Nashua and Amherst. My circle extends into Massachusetts, but I stayed in New Hampshire.

Stop #1 (5:00am) – Home: I started my day at home where I picked up both Louisiana and Northern Waterthrush, Ovenbird, Black-and-white Warbler, and Pine Warbler.

Stop #2 (7:15) – Beaver Brook Great Meadow, Hollis: My plan was to arrive before the winds picked up too much and, although I succeeded, I still didn't see/hear the American Bittern I'd been hoping for. Common Yellowthroats that were non-existent a couple days earlier, were abundant today, but Eastern Kingbirds must have decided to take the day off. Notable additions to my list were a drumming Ruffed Grouse, Warbling Vireo and an Osprey, which saved me a trip to another spot. I spent too much time there waiting for grackles to turn into bitterns and before I knew it the wind had picked up considerably.

Stop #3 (9:35) – Lovewell Pond, Nashua: I had two targets at Lovewell Pond, Green Heron and Virginia Rail. The pond was devoid of Green Herons, but the marsh down the path was generous with four Virginia Rails. I planned to walk Yudicky Farm afterward to see if I could find a Nashville, Blue-winged or any other Warbler, but the place was infested with a swarm of mountain bikers, who seemed hell bent on running over anyone foolish enough to get in their way.

Stop #4 (1:17pm) – Hollis-Brookline High School: I didn't think the high school would add anything unique to my list, so it wasn't part of my original plan, but after skipping Yuddicky, I decided to take a look. It turns out the Green Heron I didn't find at Lovewell Pond was waiting for me at the high school, along with Yellow Warblers and Mockingbirds.

Stop #5 (2:45) – Woodmont Orchard: Woodmont was a blast, but not the "fun" kind of blast. More like a jet engine blast. The wind was so strong it literally almost blew me over. I still managed to pick up a kestrel, clinging to its perch for dear life, and a few pipits and Savannah Sparrows as they blew past me.

Stop #6 (4:15) – Hayden's Reservoir/Federal Hill Rd.: My targets here were the ever present Yellow-bellied Sapsuckers and Winter Wren…except neither was there. I walked my usual route, not finding much to add to the day's tally, then returned to my starting point and found the sapsucker and Winter Wren in their usual spots. A Pileated Woodpecker also joined the party, as did a pair of Wood Ducks.

Stop #7 (7:00) – Beaver Brook Great Meadow (again): It was getting late, but the wind was finally calming down and I had just enough time to get back over to Great Meadow to try again for the American Bittern. I hadn't even made it all the way to the marsh before I started hearing the classic kerplunk! Success! A Northern Rough-winged Swallow was a nice bonus, but still no Eastern Kingbird or Blue-gray Gnatcatcher.

Stop #8 (8:00) Dinner Break – Home: My often reliable Barred Owl spot had been a bust earlier in the day, so when I arrived home at 8:00 pm, I decided to stop at the end of my long driveway and try just one Barred Owl call. No sooner had I finished than a large bird came right down the driveway, flying straight at me! As the owl sailed directly over my head, I looked up at it and thought "please don't poop on me." I also thought it was an incredibly amazing experience…especially since I didn't get pooped on.

Stop #9 (9:15) – Howe Drive, Nashua: At 9:00 pm I set off for the final stop of the day, just over the Hollis line into Amherst. The moon hadn't risen yet, but I figured I'd try for whip-poor-wills and woodcocks anyway. An early-bird whip-poor-will was happily singing, but not a single peent was heard.

Rebecca Suomala – Concord, 5/10

A few of us decided to convert our Birdathon into a May "Concord Challenge," spending the entire day in Concord, NH. We wanted to see how many species we could find in a single day (something we do annually in November with Pam Hunt) while also contributing to the statewide Birdathon total.

Zeke Cornell and I were ready to go on Saturday, May 9, but it was snowing in the morning so I opted to just scatter some bird seed in my yard and wait for Sunday. Check out the video: **https://youtu.be/6CPJu37yP_g**.

On May 10, the skies were clear and we were ready to go. We started at 4:45 am with an Eastern Whip-poor-will and ended 16 hours later with a displaying American Woodcock. Although it wasn't snowing, it was only 38 degrees at sunrise, but that didn't stop an American Bittern and four Virginia Rails from calling.

We had no rarities, but a Greater Yellowlegs was another nice highlight. Although the sun was out, the cold and windy conditions were challenging, combined with the late spring migration this year. In the end, we were excited to tally 92 species just in the town of Concord.

Rebecca Suomala photographed this White-crowned Sparrow feeding on scattered seed during snow showers on the first day of the Birdathon, 5-9-20.

See a video of the Birdathon day here: **https://youtu.be/4VqiRzbXnD4**. Video and Rose-breasted Grosbeak photo by Rebecca Suomala.

* excerpted from posts to the NHBirds email list.

PHENOLOGY REFLECTIONS: FOCUS ON CANADA MAYFLOWER

Article by Diane De Luca

Photo: Canada Mayflower full flower. Photo by Diane De Luca.

Canada Mayflower (*Maianthemum canadense*), also known as Wild Lily-of-the-valley, grows in large patches in cool shady deciduous or coniferous woodlands. Patches of this species may be one clone, connected via roots. Old clones can reach 30-60 years of age. Its leaves are some of the earliest to appear in the spring, abundant across the forest floor and tightly coiled when they first emerge. Tiny white flowers are clustered at the top of the stem. The fruit are speckled green berries that eventually turn red and are attractive to birds and small mammals.

Although long term data is needed to better understand the causes and impacts of climate change on our ecosystem, it is clear from shorter term collection of data that each species responds to change in a unique way. Since 2012, I have recorded the dates of first emergence of multiple perennial wildflowers. First emergence is when the new growth is visible above the ground as detailed in the photos. The dates have been remarkably consistent for most of the wildflowers, including Canada Mayflower, ranging from April 15 to April 23, except in 2018 and 2020. I have attributed the consistency to ground temperature.

Emergence of Canada Mayflower in 2018 was notable for a late date of May 7 when a very cold spring with late snows delayed many spring happenings. This year revealed another interesting pattern. Very warm temperatures in late March coupled with a mild winter allowed many plants to get an early start. First emergence was observed on March 27, fully 19 days earlier than any other recorded observation. Just as notable, however, was that bloom dates ended up being similar to past years. After the warm temperatures in late March, April and May had below normal temperatures with significant snows in both months. The first emergents survived, but stalled in any further growth until the conditions improved.

I encourage you to make a long term commitment to documenting the stories in your own backyards. These stories will contribute to better understanding the impacts of change.

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

Photos by Diane De Luca.

CANADA MAYFLOWER FIRST EMERGENT

CANADA MAYFLOWER BLANKETS THE GROUND

CANADA MAYFLOWER RESILIENCE IN MAY SNOW

CANADA MAYFLOWER FLOWERS OPENING

CANADA MAYFLOWER MULTIPLE SPECKLED FRUITS

CANADA MAYFLOWER RED FALL FRUITS

POLLINATOR GARDEN INSECT SURVEY

Article by David Forsyth
All photos by David Forsyth

NH Audubon established a pollinator garden at the McLane Center in the fall of 2018 which, with the help of many volunteers, has flourished. Plans are proceeding to start a substantially larger pollinator meadow at McLane in 2021. In order to establish a base line with which to understand how the insect population changes when the new pollinator meadow has been developed, I volunteered to conduct a photographic survey of insects present in the current garden.

The survey procedure was to visit the garden about every other week during midday, taking photos of any and all insects whether or not they are pollinators. After processing the photos, I analyzed them with a mobile phone app to establish a tentative identification. Some insects have a very distinctive color pattern, form, and/or behavior that allows them to be identified at the species level, whereas others can only be narrowed down to the genus or family level. The insects are not being captured and mounted for microscopic identification, so some identifications will no doubt remain tentative. The photos will serve as an archive of observations, so what is currently a citizen science project could be used by an entomologist for further study.

From July through September, I photographed approximately 120 insect species. The survey focused on insects larger than five millimeters in length due both to the difficulty of detecting the smaller ones and of photographing them adequately. Bees are no doubt the most important pollinators and they are strongly represented in the garden, with 22 species counted. The most obvious bees were the honey bee, bumble bees (six species) and the eastern carpenter bee, but many smaller bees such as sweat bees and furrow bees were also present. In addition to the bees, 12 species of butterflies, 10 species of moths, and 21 species of wasps were noted. During flower visitation, these insects feed on nectar and carry out pollination. Among the 20 fly species observed, it is interesting to note that the seven distinct flower and hover flies observed from the Syrphidae family resemble and behave much like tiny bees. Additional insects observed included beetles, dragonflies, ants, grasshoppers, and a variety of other bugs, many of which carry out important pollination services.

While wanting to be objective about my observations, as a human observer I found some strikingly beautiful and some amazingly bizarre. For example, compare the photos below of the warmly colored European (or western) Honey Bee with its packet of pollen and pollen-flecked head and body with the Leaf-footed Bug. I'm not an entomologist, but I am willing to learn and enjoy doing it. To turn this fun activity into science requires a systematic approach and record-keeping.

Some insects were much more easily identified than others. For example, the larger bees and wasps often have very distinctive forms and/or color patterns but smaller insects even in the bee family were much more difficult. Also, for some types of insects there are many species that may not have been studied thoroughly or catalogued in easily accessible literature. For example, what we call a daddy longlegs or harvestman is not one species but one of 6,500 known species of an estimated 10,000 species worldwide (and it is not an insect or spider but in its own order, Opiliones). As for bees, there are about 4,000 known species north of Mexico in North America. Thus, the smaller bees or daddy longlegs or other less well-defined insects are identified down to just the genus or in some cases family level.

There were distinct changes in what was present over time. Some of the larger wasps such as the dark and European paper wasps (see photo below) were present throughout my surveys but other species came and went during that time. I will continue this project into 2021 and by starting earlier in the season I hope to document species I may have missed because COVID-19 delayed last year's start.

INSECTS OF NH AUDUBON'S MCLANE CENTER POLLINATOR GARDEN

All photos by David Forsyth

BEES. Bees from the Apidae family (honey bee, bumble bees, carpenter bees, and cuckoo bee) and Halictidae family (furrow and sweat bees) were the main types observed. There were a few from the Megachilidae (leaf cutter, resin and Osmia bees) and Andrenidae (miner bees) families. In all, 22 species were counted, although not all were actually identified down to the species level. Six species of bumble bee (Bombus) were tentatively identified; these are important and very active pollinators as they carry a pollen/nectar mix in a mass on their hind legs, as does the honey bee. Photos below show three bumble bee species: Common Eastern Bumble Bee, Tricolored Bumble Bee, and Perplexing Bumble Bee. The other two, the Half-black and Two-spotted Bumble Bees, are more difficult to distinguish between based on photos alone.

Another important pollinator genus of bee is Osmia from the Megachilidae family, which carry pollen on stiff hairs on the bottom side of the abdomen. See the photos below of a green-colored example, as well as a green, metallic sweat bee from the Halictidae family.

WASPS. Twenty-one species of wasp were noted in the study period. The most noticeable (large size), abundant, and appearing throughout the season were thread-waisted wasps (Sphecidae family), paper wasps (Vespidae Polistes), and digger wasps (Sphecidae Sphex). Although most wasps are meat-eaters, many also visit flowers for nectar, but are not important pollinators because their smooth bodies do not have the hairs that collect pollen the way bees do. Nonetheless, substantial numbers of digger wasps especially were often swarming around flowers; photos of the large (20-35 mm) Great Golden Digger Wasp and Great Black Digger Wasp are shown below.

MOTHS AND BUTTERFLIES. Moths and butterflies also visit flowers for their nectar, using long tongues to feed. Based on my visits, the small, rather plain (15-20 mm) Dun Skipper and Northern Broken-dash (also a skipper) were the most abundant butterflies in the McLane Center garden, appearing between mid-July and mid-August. The larger and more familiar butterflies were seen only occasionally: the Eastern Tiger Swallowtail was seen on only one visit in mid-July, a Monarch was seen in late August as well as a Monarch caterpillar, and the Spicebush Swallowtail was detected only as a caterpillar in late July and early August although it had been seen as a butterfly earlier than July. (Due to the restrictions imposed by the Covid-19 pandemic, my visits didn't begin until July.) See the photos of two of the smaller butterflies, the Dun Skipper and Silver-spotted Skipper sampling nectar with their long tongues. In all, I observed 12 butterfly species.

Ten different moths were found during the July-September period, half of them as caterpillars or chrysalis. The large Promethea Silkmoth, aka spicebush moth (Caliosamia promethea) was found on the garden's spicebush plant as a chrysalis. Two species of clearwing moth hovered bee-like and moved quickly from flower to flower as they fed on nectar at the end of July and beginning of August. The Hummingbird Clearwing (25-30 mm) and Snowberry Clearwing (22-30 mm) are beautifully colored moths with large transparent areas in their wings (see photos below).

FLIES. About 20 species of flies were detected in the garden, but the dark flies that are most similar-looking to the familiar cluster flies or house flies are difficult to identify with a high level of confidence based on photographs alone. However, the Syrphidae family of flower flies and hover flies are often colorful and distinctly patterned. They resemble small (typically about 10 mm or less) bees in both appearance and behavior as they move from flower to flower. These insects often have colorful common names as well, such as those shown in photos: Eastern Calligrapher, Transverse-banded Flower Fly and Long Hover Fly.

BEETLES AND OTHER INSECTS. At least 28 other insects and spiders were seen in the garden, but many of these were not seen visiting the flowers. Nine beetles were identified and a number of them do visit the flowers, including the small (<5 mm) Tumbling Flower Beetle and Shining Flower Beetle that were found on flowers. Others include grasshopper, ant, midge, thrip, caddisfly, bug, spider, and daddy longlegs species. Two examples of this broad grouping are shown in photos below: Ringed Assassin Bug and Banded Longhorn Beetle.

ENVIRONMENTAL POLICY ACTIVITIES 2020

Article by Carol Foss

Photo: New Hampshire State House by Rebecca Suomala.

NH Audubon's Environmental Policy Committee got off to a strong start with the Legislature prior to the March shut-downs associated with the COVID-19 pandemic. Committee members provided testimony on six bills, none of which became law, as detailed in Table 1 (see Table 1 at bottom of page). In addition, we signed in for 22 bills without submitting testimony, listed in Table 2 (see Table 2 at bottom of page). Full text and docket details for these bills are available through the New Hampshire General Court website **http://www.gencourt.state.nh.us/**. The pandemic severely limited the work of the Legislature in this session. A number of bills were passed by the chamber of origin but tabled after crossover as the legislature focused primarily on issues related to the COVID-19 pandemic.

At the Federal level, we provided comments on the draft Environmental Impact Statement for regulations governing the take of migratory birds and on a proposed rule regarding listing of threatened and endangered species and designating critical habitat. Environmental Policy Committee member Nisa Marks tackled the extensive proposed changes to regulations implementing the National Environmental Policy Act, many of which were inconsistent with the stated goals of the rule revision. Her 45 (!) pages of specific comments represent many hours of work! We signed on to letters supporting adoption of Ecological Reference Points for managing Atlantic menhaden (an important prey species for marine birds and mammals), supporting the Migratory Bird Protection Act, supporting funding for recovery of the North Atlantic right whale, opposing the Endangered Species Act Amendments of 2020 and urging withdrawal of two proposed rules related to habitat designation under the Act, each of which would have weakened protections for federally listed threatened and endangered species. We also continued to attend meetings and review documents pertaining to the relicensing of the Errol Dam, which regulates water levels in Lake Umbagog and lower reaches of the Magalloway River.

We have been working to support passage of the Recovering America's Wildlife Act since its first introduction in 2016. This legislation would make federal funding available for state conservation and restoration programs for fish and wildlife species of greatest conservation concern. The House Natural Resources Committee passed an amended version of H.R.3742, the Recovering America's Wildlife Act of 2019, out of committee in December 2019. This year, the House adopted the bill as a floor amendment to the Moving Forward Act (the House infrastructure package), which passed the House on July 1. This legislation was received in the Senate on July 20, and awaits action there. 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 gratefully acknowledge financial support of NH Audubon's policy work from Paul Nickerson, Larry Sunderland, and Margaret Watkins.

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 2020 session. All tabled bills died at the end of the session.

Bill number	Intent	NH Audubon position	Outcome
HB 1190	bans the sale and use of the pesticide chlorpyrifos	Support	Inexpedient to Legislate
HB 1364	removes the requirement for class III (biomass) payments to the renewable energy fund for compliance with renewable portfolio standards	Oppose	Inexpedient to Legislate
HB 1532	establishes a committee to review and propose initiatives to implement the recommendations of the 2020 forest resources plan	Comment	Laid On Table
HB 1635	requires climate change instruction in all public school grades pre-K through grade 12	Support	Interim Study
SB 491	clarifies the definitions of shoreland frontage, structure, and pervious surface and changes pertinent minimum shoreland protection standards	Support	Laid On Table
SB 583	adds climate and environmental science to the criteria for an adequate education	Support	Died on Table

Table 2. NH Audubon registered a position on these bills but did not provide testimony. "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 2020 session. All tabled bills died at the end of the session.

Bill number	Intent	NHA position	Outcome
HB 1124	further defines prime wetland for local protection in fill and dredge permits.	Support	Laid on Table
HB 1126	prohibits the state from clear cutting trees from certain parts of state-owned land	Oppose	Inexpedient to Legislate
HB 1196	prohibits the use of certain pesticides and establishes an alternative pest management working group	Support	Inexpedient to Legislate
HB 1210	establishes a property tax exemption for residential property equipped with an energy storage system	Support	Inexpedient to Legislate
HB 1215	prohibits the enforcement of condominium and homeowners association provisions which require greater than a simple majority vote to consent to the installation and use of a solar photovoltaic energy system	Support	Interim Study
HB 1228	directs the governor to proclaim April 22 as Climate Change Awareness Day	Support	Laid on Table
HB 1317	modifies the distribution of auction proceeds under the regional greenhouse gas initiative program and allocates the funds among residential, commercial, and industrial energy efficiency and renewable energy projects	Support	Inexpedient to Legislate
HB 1342	establishes a program for the installation of high-performance air source heat pumps in certain construction funded in whole or in part by public funds	Support	Inexpedient to Legislate
HB 1380	prohibits the operation of personal water craft within 300 feet of any marsh land or flat of the Rye estuary and the New Castle back channel	Support	Laid on Table

HB 1406	provides that a municipality that adopts a property tax exemption for solar energy systems or wind-powered energy systems may adopt exemption limits for off grid, net metered, group net metered, and direct retail arrangements	Oppose	Laid on Table
HB 1418	authorizes funds from the department of agriculture, markets, and food agricultural nutrient management program to be used for increasing farm energy efficiency	Support	Interim Study
HB 1430	establishes a commission to study ways to achieve a clean energy electric grid by 2030	Support	Laid on Table
HB 1480	removes the authority for a portion of system benefits charges collected for energy efficiency to be expended on low-income energy efficiency programs with the approval of the fiscal committee of the general court	Oppose	Inexpedient to Legislate
HB 1496	Requires the EESE board to provide recommendations to the public utilities commission on the energy efficiency and renewable energy funds; requires rebates from the use of auction proceeds to all commercial and industrial retail energy ratepayers; requires that any funds remaining in the energy efficiency fund at a year's end be retained for use in subsequent years, and forbids use of the fund for any but it's intended purpose; and repeals the contingent repeal of the regional greenhouse gas initiative program.	Support	Laid on Table
HB 1497	renames the air pollution advisory committee and adds to its duties	Support	Inexpedient to Legislate
HB 1535	prohibits deed restrictions or covenants of homeowners' associations from prohibiting or restricting the installation and use of a solar photovoltaic energy system	Support	Laid on Table
HB 1562	amends current provisions relative to soil conservation to include soil health and climate and environmental change mitigation and adaptation	Support	Laid on Table
HB 1620	establishes a fine for parking a motor vehicle other than a plug-in-hybrid vehicle or battery electric vehicle in a parking space that has a public electric vehicle charging station	Support	Died, Session ended
SB 428	includes notice to the rivers coordinator of terrain alterations by utility providers	Oppose	Died on the Table
SB 462	increases the measures that may be taken to reduce energy costs and meet state energy goals; clarifies the eligibility of power purchase agreements to be eligible mechanisms for reducing energy costs and meeting state energy goals, and modifies the way funds remaining in energy utility budgets are distributed	Support	Died on the Table
SB 588	prohibits wanton waste of an animal and requires the executive director of the fish and game department to adopt rules governing fur-bearing animal taking contests	Support	Died on the Table
SB 728	establishes a coastal program to be administered by the department of environmental services	Support	Died on the Table