



LIFE AS A SOLITARY BEE

By Margaret Gillespie



Gifts can be delightful, insightful, and just plain amazing! When I received a solitary bee house from friends a couple of years ago, I had no idea how it would open windows into nature for me. The bee house and its future occupants were intriguing and mysterious. In my history with bees, I think of the large “bee hive” box my brother set up on our family farm. The non-native honey bees he purchased were introduced with their queen to this new environment in the hope they would thrive, pollinate garden plants, and produce honey to spare. On the other hand, solitary bees are native wild bees adapted to their natural environment. They gather nectar and pollen from many wildflowers and trees which rely on them for pollination. They can also be great garden pollinators. These small bees mostly fly about unnoticed but comprise the vast majority of our bee populations.

Solitary bees require certain elements in their environment to survive, thrive, and reproduce. We can assist them in their endeavors by providing shelter. Female solitary bees need safe places to lay their eggs. Ideal spots include cavities in trees which woodpeckers and certain beetles are adept at producing but these locations are in high demand. Other options include ground nests where squirrels or chipmunks have previously have been busy burrowing. The bee house I received imitated holes in trees and the solitary bees quickly and quietly accepted their new digs. I could tell eggs had been laid because the tiny holes were “glued” shut with firm dried soil. Creatures other than birds thrive in homes we build for them!

Dr. Sandra Rehan, former director of the University of New Hampshire Bee Lab, details how solitary bees lay eggs and provide for their young in a 2016 *Wildlife Journal* article, “Wild Bees of New Hampshire.” A female solitary bee creates a place for each egg, starting at the far depth of a natural or human made hole in wood or in the ground. Along with the egg, goes a “pollen ball” made up of compacted pollen and nectar. Each space is walled off. She may create as little as one space or up to 20 spaces with divisions in between. Male bee eggs are usually the last to be laid and so are near the exit. They hatch first and these males are ready to mate when the females emerge. Solitary bees also use other nesting spots, including spaces under leaves and in loose earth on the forest floor.

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Mark Your Calendar:

Family Picnic, Saturday, July 22
Garden Party, Thursday, August 10
See pages 6-7 for details.

Program and event tickets available at nhnature.org.

FORGING TRAILS: MOTUS UPDATE



In the summer 2021 issue of *Tracks & Trails*, I shared details about our participation in the Motus Wildlife Tracking System that in May 2021, we installed a tracking station on a hilltop in New Hampton. That tower is one of over 1,500 tracking stations in 34 countries. The Motus system tracks tiny transmitters fitted to birds, bats, and insects. Over 38,000 transmitters have been deployed to date (and that number increases every day).

Over the two years that our station has been running we have received signals from 14 birds that have passed close enough to register. Here is an overview:

- October 7, 2021: White-throated Sparrow tagged on September 25 in New Brunswick. It passed our tower on its migration south. It has not been detected since.
- October 8, 2021: Rusty Blackbird tagged on June 4 in Maine. It was detected at several towers after ours until it arrived in South Carolina on November 14.
- October 12, 2021: Hermit Thrush tagged in New Brunswick on September 13. It was also last detected at the same tower as the Rusty Blackbird in South Carolina on November 1.
- October 17, 2021: White-throated Sparrow tagged in New Brunswick on September 18. It was last detected at a tower in Maryland on November 4.
- Our next bird was really exciting - a Black-and-white Warbler tagged in Jamaica on February 28, 2022. It stayed in Jamaica (its winter home) until May 2. It was then detected at a tower in Virginia on May 14 and the next day passed two towers in Pennsylvania. The next day it passed by our tower. That's 260 miles in a day! It was only detected for eight minutes at our tower and continued north. Later the same day it passed a tower near Norway, Maine.
- May 30, 2022: Semipalmated Sandpiper tagged on the Delaware Bay in New Jersey on May 14. Ours was the only tower it was detected at after leaving NJ.
- June 30, 2022: American Kestrel tagged at Drumlin Farm in Massachusetts on June 29. It reached Fields Point south of Bangor, Maine on July 1 and then was not heard from again until October 5 when it was detected in New Jersey. Over the next two days it was detected at 13 different towers in New Jersey and Delaware.
- July 29 and 31, 2022: Two Bank Swallows. One tagged on Prince Edward Island and one in New Brunswick. Neither were detected again after passing our tower.
- Our next bird was a Blackpoll Warbler, tagged in Central Colombia on April 12, 2022. After it left Colombia on April 16 it was not detected until it pinged a tower in Quebec on September 1 on its southbound journey (back to Colombia we assume). It passed us on September 12.
- September 26, 2022: Swainson's Thrush tagged near Gaspé in Quebec on September 6. After it passed us, it was then detected at towers in New York, Pennsylvania, West Virginia, Maryland, and finally in Florida on October 13.

The 2023 spring migration brought three new records:

- An American Robin tagged in New Brunswick in October 2022 then wintered in Pennsylvania. It was then picked up in April 2023 in New York, passed by our tower on April 13 and went back to New Brunswick by the next day.
- The next two are fascinating. Another Black-and-white Warbler, tagged in Jamaica on March 20. It somehow managed to miss the hundreds of towers throughout the eastern seaboard until May 8 when it was detected at Putney, Vermont. The next day it passed by our tower and hasn't been detected since.
- Then a Northern Waterthrush tagged at the exact same location in Jamaica on March 29 avoided detection until it passed our tower on May 11. Later that day it pinged two more towers in northern New Hampshire.

This tower and all the others scattered across the globe are giving us new insight into the migrations of birds, bats, and insects. A second Motus tower will be installed on Red Hill in Moultonborough later this year and will complete the coverage over the airspace above Squam Lake. You can find out more about Motus at motus.org/about.

Our Motus tower was made possible by the Lovett-Woodsum Foundation. Also, a big thank you to Liz and Dennis Hager.

Lain MacLeod

SQUAM LAKES NATURAL SCIENCE CENTER

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Squam Lakes Natural Science Center is a non-profit educational institution incorporated in 1966 as a charitable organization under statutes of the State of New Hampshire with its principal place of business in Holderness. Its mission is to advance understanding of ecology by exploring New Hampshire's natural world.

Tracks & Trails is a regular publication of Squam Lakes Natural Science Center distributed to members and contributors. Comments are welcomed by newsletter editor Amanda Gillen.

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OPENING A WINDOW TO THE NATURAL WORLD

By Amanda Gillen, Development and Communications Director

We are thrilled to extend a personal invitation to two extraordinary events this summer that support the invaluable work of the Science Center. Join us for a memorable experience as we come together to celebrate and contribute to our mission to advance understanding of ecology by exploring New Hampshire's natural world.

2023 Family Picnic – A Fundraiser for the Science Center Saturday, July 22, 5:00 to 8:00 p.m.

Join the Science Center for our eagerly anticipated family themed fundraising event, the 2023 Family Picnic, returning after the resounding success of last year's event. This year, we are putting the spotlight on pollinators and have planned an unforgettable evening filled with incredible animal programs, fun games, live music, mouthwatering food from local food trucks, and delectable ice cream treats.

This event is perfect for the entire family, so gather your friends, loved ones, and children for a casual evening filled with laughter, entertainment, and scrumptious delights. However, please note that tickets are limited, so be sure to keep an eye out for your invitation via email in late June or visit nhnature.org/picnic to secure your tickets. Tickets go on sale July 1. *Tickets: \$75/ ages 21+; \$20/ ages 12-20; \$10/ages 6-11; Free for 5 and under.*

Garden Party to Support the Science Center Thursday, August 10, 5:30 to 7:30 p.m.

We are taking the best parts of a formal gala and creating a new, adults only, cocktail party in Kirkwood Gardens. This exclusive event promises an evening of camaraderie amidst the breathtaking beauty of nature.

As you mingle with fellow Science Center enthusiasts, indulge in cocktails and hors d'oeuvres provided by The Common Man. Lose yourself in the soothing melodies of live music performed by the talented Bob McCarthy. Don't miss the opportunity to participate in our silent auction, featuring exceptional items that showcase the best of the Science Center. From unique experiences to extraordinary treasures, there's something for everyone to bid on, all in support of the Science Center's important work. Look for your invitation to arrive by mail in July or visit nhnature.org/gala to secure your tickets. Tickets go on sale in July. *Tickets are priced at \$100 per person.*

See full details about these events on pages 6-7. Your attendance will make a significant impact on our efforts to further education and environmental conservation. Thank you for your ongoing support and dedication to our shared cause. Together, we can make a difference.

Family Picnic, July 22 and Garden Party, August 10
See pages 6-7 for details.

ANIMAL CARE: MOUNTAIN LION TRAINING

by Lauren Moulis, Animal Care Director

Traditional veterinary procedures for large carnivores often involve anesthesia, which can pose risks and stress to the animals. Through a training program, Animal Care staff can work closely with the mountain lions, training them to voluntarily participate in their health assessments. This collaborative process builds trust and strengthens the bond between caretakers and animals, enhances the welfare of the animals, provides valuable insights into their overall health, and facilitates proactive veterinary care.

Visitors may remember public Mountain Lion Training which took place at the Mountain Lion Exhibit with our previous cats. As soon as the two new mountain lion cubs arrived at the Science Center in January, we began working with them to get them comfortable with our staff and started training. While we are still working on building trust and getting training basics, the cats have slowly begun to make the connection to what we are asking from them.

Currently, Animal Care staff are working to gain calmness and patience, to secure the link between the bridge (a stimulus, in our case a clicker that points to the precise moment in time a desired response was attained and bridges the gap between behavior and reward) and the reward (their favorite foods). As the training continues to progress, further behaviors will ideally include standing on a scale to get an accurate weight or showing their paws to check for nail and foot health and others over the years. Our goal is for them to willingly present body parts for examinations, provide blood samples, and even allow ultrasound scans, all through positive reinforcement training techniques.

The training of mountain lions for voluntary health empowers the animals to participate actively in their own healthcare, promotes their well-being, and helps us better understand their health needs.



Lauren Moulis works on training with our previous mountain lions.

NATURALIST'S CORNER: AN INSECT SUPERHERO

By Eric D'Aleo

Faster than an average human. More agile than a helicopter. Able to leap garden fences in a single swoop. It's a bird! It's a bee! It's a moth??? Yes, it's a hummingbird moth – a strange insect from fields and forest edges who come to gardens with powers and abilities far beyond those of average Lepidopterans. Hummingbird moth – who can unfurl its proboscis to suck nectar from deep throated flowers, metamorphose into another life stage, and disguised as a bee or hummingbird, pollinates flowers for gardeners everywhere.

Hummingbird moths are actual moths although they may not look like what you might expect. There are two species found in New Hampshire, the Hummingbird Clearwing moth (*Hemaris thysbe*), and Snowberry Clearwing moth (*Hemaris diffinis*). Both look similar, but the Hummingbird Clearwing is larger and has an olive colored thorax with a yellow belly, a dark burgundy abdomen, and pale yellow legs. The Snowberry Clearwing is a bumble bee mimic with a golden thorax, a black abdomen, and black legs.



Hummingbird Clearwing (*Hemaris diffinis*)
Photo by Eric D'Aleo

Both moths are found in gardens and fields, yet the Snowberry Clearwing is also found near streams, and the Hummingbird Clearwing along forest edges. The adult moths are pollinators, feeding on nectar, using a long tongue-like proboscis that rolls

out of its mouth to reach deep inside flowers. The proboscis is about twice as long as the moth's body. Both species share snowberry, lilac, thistles, and various honeysuckle as food sources. The Hummingbird Clearwing also gets nectar from beebalm, red clover, phlox, vetch, cranberry and blueberry. The Snowberry Clearwing additionally feeds on orange hawkweed and Canada violet. The larval diet of each species also overlap, with leaves from honeysuckle and snowberry being host plants. Additionally Hummingbird Clearwing caterpillars feed on hawthorn, cherry, plum, and highbush cranberry leaves, while the Snowberry Clearwing feeds on dogbane and dwarf bush honeysuckle leaves.

Both species lay a spherical, translucent, greenish egg on the underside of leaves. Correct egg placement is important for incubation time and protection of the young when they hatch. One week later, the larvae hatch by biting their way out of the shell to begin feeding on fruit and leaves. Their yellowish-green color with dark green and reddish brown lines running through their body help camouflage them from predators. A white horn on their posterior end can confuse them with hornworms, the larvae of a closely related sphinx moth. Once fully grown, caterpillars climb down and form a hard-shelled, brown pupa on the ground's surface under fallen leaves, a good reason to leave some leaf litter in your gardens.

If it is early in the season, adult moths hatch in two to four weeks. If it is in the fall, the moths will overwinter in the cocoon until late the following spring. Females often emerge a few days after the males and attract them by using chemical pheromones produced from glands at the tip of their abdomen. It's common for most moths to live only a few days after mating and egg laying is accomplished, however it is possible for some to survive several weeks. In New England adult hummingbird moths are seen from April/May through August. So, be on the lookout for this insect superhero this summer!



FROM THE HERON'S NEST

Blue Heron School enjoyed the changing weather that came with spring. We spent long days playing in the sun and many soggy days splashing in the mud. Our focus is on the changing scenery and learning more about animals who hatch from eggs. We helped clean bird boxes and scooped the pond in hopes of finding amphibian eggs. Science Center staff member Amanda Gillen brought us chicken eggs and helped us add them to the incubators, so we can learn about the life cycle of the chicken. We helped clean the Ecotone and Mt. Fayal trails to ready them for the 2023 trail season and had a first look at the new red fox on exhibit. We had parent volunteers helping in the classroom on family days, plant flowers and a vegetable garden, and also teach us about constellations at the Plymouth State University Mark Sylvestre Planetarium. We can't believe how fast the school year has gone by.



Blue Heron School is a nature-based Montessori school for children ages three to six. For information please visit nhnature.org/ programs or contact Blue Heron School Co-Directors Jordan Fitzgerald or Jordy Gianforte at 603-968-7036 or blueheron@nhnature.org.

KIRKWOOD GARDENS

By Emma Erler

GARDEN SOIL

Q: What can weeds tell me about my garden soil?

A: Like any other cultivated garden plant, weeds have preferred growing conditions, some of which are better for certain species than others. Although some weeds will grow across several different soil and light conditions, if you look at the overall species composition, you can gain a pretty good understanding of the growing environment in a lawn or garden. Knowing more about the soil will help you understand the amendments you need to add and will help you select which plants to grow.

Wet Soil: Consistently wet soils are perfect for jewelweed, dock, yellow nutsedge, horsetail, ground ivy, and speedwells. Seeing these species may indicate the need to improve drainage. Another option is to plant water-loving perennials such as iris, lobelia, turtlehead, or Joe-pye-weed.

Dry or Sandy Soil: Expect to find purslane, prostrate spurge, hawkweed, carpetweed, yarrow, and red sorrel growing in dry, sandy soils. Add organic matter to the soil to improve its water holding capacity, or choose to grow plants that thrive in dry conditions such as butterflyweed, stonecrop, daylilies, or black-eyed susan.

Low Soil Fertility: Soils low in nitrogen or other essential nutrients often host shepherd's purse, plantain, crabgrass, white clover, vetch, and red sorrel. Some perennials such as Coreopsis, Knautia and Scabiosa thrive in soil with limited fertility.

High Soil Fertility: You're likely to find henbit, yellow wood sorrel, ground ivy, and pigweed growing in very fertile garden soils that are high in organic matter. It's possible there is no need to add additional compost or manure.

Acidic Soil: Acid soil conditions favor the growth of red sorrel, crabgrass, plantain, annual bluegrass, and prostrate knotweed. Test your soil before adding lime to reach to the optimum pH for the plants you're growing.

Compacted Soil: Soils that are compacted are difficult for many plants to grow in and give weeds such as broad-leaved plantain, chickweed, chicory, bindweed, annual bluegrass, and speedwell a competitive advantage. Core aerating lawns and planting cover crops/adding organic matter to garden soils can help alleviate compaction issues.

Before you start a new garden, put in a lawn, or even weed your existing beds, take a close look at the types of weeds growing in that area. Indicator species may help you decide what to plant or give you clues towards how your soil could be improved.

PLANT SPOTLIGHT

Beauty Bush

Kolkwitzia amabilis

Culture: Grows well in average, moist, well-drained soils in full to partial sun. Prune out dead wood as necessary. Shrub may become dense and overgrown after several years so thinning stems is recommended. Blooms on old wood, so hard pruning in fall or late winter will result in loss of bloom for the season.

Bloom: Clustered, bell-shaped flowers along stems are light pink with yellow throats. Peak bloom in May.

Height: 6-10 feet

Beauty bush is an old-fashioned border shrub which is grown primarily for its beautiful spring flowers. It is a deciduous shrub and a member of the honeysuckle family, though it is not invasive like many of its relatives. Well-pruned, mature shrubs are vase-shaped with a fountain-like appearance. Beauty bush is best used as a screen, specimen, or border planting. It is most beautiful in the spring, but offers little ornamental interest the rest of the year.

Kirkwood location: middle of lower garden on the Route 3 side



Sedum Bertram Anderson

Hylotelephium 'Bertram Anderson'

Culture: Easily grown in average, dry to medium, well-drained soils in full sun. Thrives in sandy to gravelly soils with moderate to low fertility. Will tolerate some shade, but will produce weak floppy growth if grown in too much shade. Zones 3-9

Bloom: Star-shaped, crimson-pink flowers held in clusters. Bloom from late summer through fall.

Height: 5-6 inches

Sedum Bertram Anderson earned the Royal Horticultural Society Award of Merit in 1996, and remains a popular choice for edging and rock gardens. Smoky-purple succulent leaves along rosy-pink stems distinguish this plant from other sedums. As an herbaceous perennial it goes dormant over the winter only to emerge again in mid-late spring. It is a good choice for well-drained, drought-prone soils.

Kirkwood location: middle of lower garden along the edge of beds on driveway side



Plant Spotlight and Kirkwood Gardens are sponsored by Belknap Landscape Company, Inc. belknaplandscape.com

UPCOMING PROGRAMS & EVENTS

Programs have limited capacities. Tickets must be reserved and paid for in advance at nhnature.org.

JULY

<p>JULY 5 WEDNESDAY 9:00 to 9:30 a.m. For members ages 3 to 8</p>	<p>Tales and Tails: Members Only Storytime Science Center members are invited to attend this special program just for members. We will read a fun story about animals and the natural world and then meet a live animal that was part of the story. <i>Cost: No charge to attend but space is limited. Advance registration is required.</i></p>
<p>JULY 6 THURSDAY 10:00 a.m. to 4:00 p.m. For all ages</p>	<p>Special Event: Birthday Bash for the Animals You are invited to this one-of-a-kind birthday party to celebrate our animals with unique enrichment gifts. Learn how animal care staff provide a rich and stimulating environment for our animal ambassadors through daily enrichment activities. Watch the animals open their birthday presents at special Up Close to Animals presentations held at different animal exhibits throughout the day. Visit the Giving Tree to make the animals' wishes come true! Select an item featuring an enrichment toy and donate to allow the Science Center to purchase it as a gift to our animals. Docents will be on hand with touchable objects and to answer questions. <i>Cost: Included with trail admission. Last admission at 3:30 p.m.</i></p>
<p>JULY 12 WEDNESDAY 6:00 to 7:00 p.m. For adults</p>	<p>Lecture Series: Tracking Ticks in New Hampshire Through Community Science by Dr. Kaitlyn Morse, Founder and Executive Director of BeBop Labs BeBop Labs, a New Hampshire non-profit and the only organization tracking ticks in NH, has created a globally recognized tick research program and database with the help of community scientists. Dr. Kaitlyn Morse, Executive Director and Founder, will present the findings of the project, including what ticks are in NH, when we find them, what diseases they carry, and how they are linked to climate change. This project sparks hands-on science within the community, empowering all who engage to take charge of their health every day. <i>Cost: No charge to attend but space is limited. Advance registration is required.</i></p>
<p>JULY 19 WEDNESDAY</p>	<p>Tales and Tails: Members Only Storytime 9:00 to 9:30 a.m. For members ages 3 to 8 <i>Cost: No charge to attend but space is limited. Advance registration is required.</i> <i>See description for July 5.</i></p>
<p>JULY 22 SATURDAY 5:00 to 8:00 p.m. For all ages</p>	<p>Special Event: 2023 Family Picnic – A Fundraiser for the Science Center The 2022 Family Picnic was such a success that we're bringing it back again. The Family Picnic will celebrate pollinators and feature animal programs, games, live music by Audrey Drake, food trucks, ice cream, and more in a fun, casual atmosphere. All food and drinks are included in the ticket price and include food from Cheese Louise, Crescent City Kitchen, Good Eatz 603, SubZero Nitrogen Ice Cream, Joye-ful Cookiery, and more. Open bar includes local beer, wine, signature cocktail, and non-alcoholic butterfly nectar for the kids. Bring your friends and entire family to this fun event. Limited tickets are available. Look for your invitation via email in late June. Or visit nhnature.org/picnic. Tickets go on sale July 1. <i>Tickets: \$75/ ages 21+; \$20/ ages 12-20; \$10/ages 6-11; Free for 5 and under.</i></p>

AUGUST

<p>AUGUST 2 WEDNESDAY</p>	<p>Tales and Tails: Members Only Storytime 9:00 to 9:30 a.m. For members ages 3 to 8 <i>Cost: No charge to attend but space is limited. Advance registration is required.</i> <i>See description for July 5.</i></p>
<p>AUGUST 8 TUESDAY 10:00 a.m. to 4:00 p.m. For all ages</p>	<p>Special Event: Black Bear Day Join us for a day-long celebration of one of New Hampshire's largest mammals, the black bear, as we officially welcome the young bear that recently joined our team of animal ambassadors. Through presentations throughout the day, learn about what black bears eat and where they live, how we care for our bears here at the Science Center, and things you can do to keep wild bears wild! Watch our bears receive some special treats to commemorate the day! Don't miss renowned black bear biologist and rehabilitator, Ben Kilham, speaking about the Social Behavior of Black Bears at 1:00 p.m. (reservations required). <i>Cost: Included with trail admission. Last admission at 3:30 p.m.</i></p>
<p>AUGUST 8 TUESDAY 1:00 to 2:00 p.m. For teens and adults</p>	<p>Lecture Series: The Social Behavior of Black Bears by Ben Kilham, founder of The Kilham Bear Center Ben Kilham is a name synonymous with black bears in New Hampshire. Through The Kilham Bear Center, Ben has been rehabilitating and releasing injured and orphaned black bear cubs, in cooperation with New Hampshire Fish and Game, since 1993. Ben will share how understanding the social behavior of black bears is essential to his work, and how that knowledge can help us all to safely coexist with black bears. Join Ben to learn about the importance of bear conservation in New Hampshire and get inspired to act to help wild bears. <i>Cost: No charge to attend but space is limited. Advance registration is required.</i></p>

AUGUST CONT'D

AUGUST 10 THURSDAY 4:30 to 5:15 p.m. For members	Annual Meeting for Members At Kirkwood Gardens Business includes electing officers and trustees, honoring retiring trustees, recognizing employee service, and presenting the Horizon Award. Election slate and biographies of nominees will be posted after July 1 to nhnature.org/programs/annual_meeting.php . <i>Cost: No charge to attend but reservations are requested.</i>
AUGUST 10 THURSDAY 5:30 to 7:30 p.m. For adults	Special Event: Garden Party to Support the Science Center At Kirkwood Gardens Join us for a Garden Party at Kirkwood Gardens on Thursday, August 10, 2023, from 5:30 to 7:30 p.m., as we celebrate the wonders of nature while supporting the Science Center. We are taking the best parts of a formal gala and creating a new, adults only, cocktail party in Kirkwood Gardens. This exclusive event promises an evening of camaraderie amidst the breathtaking beauty of nature. Enjoy cocktails and hors d'oeuvres provided by The Common Man, while you mingle with fellow Science Center enthusiasts. Immerse yourself in the soothing melodies of live music performed by the talented Bob McCarthy. Don't miss the chance to participate in our exciting silent auction, featuring items highlighting the best of the Science Center. From unique experiences to exceptional treasures, there's something for everyone to bid on and support the Science Center's important work. <i>Look for your invitation to arrive by mail in July or visit nhnature.org/gala to secure your tickets. Tickets go on sale in July. Tickets are priced at \$100 per person.</i>
AUGUST 16 WEDNESDAY 6:00 to 7:00 p.m. For adults	Lecture Series: Nighthawks – A New Hampshire Endangered Species by Rebecca Suomala, NH Audubon Nighthawks are endangered in New Hampshire and declining throughout their range but we don't know why. The dawn and dusk "peent" call of these birds was once a familiar sound in cities and towns throughout New Hampshire, where they nested on flat, pea stone gravel roofs and fed on insects attracted to city lights. NH Audubon initiated Project Nighthawk in 2007 to investigate the potential for restoring nesting nighthawks by placing simple gravel "nest patches" on flat rooftops. Find out what we've learned about patches and nesting nighthawks, and see photos of nests and chicks. <i>Cost: No charge to attend but space is limited. Advance registration is required.</i>
AUGUST 24-26 THURSDAY 10:00 a.m. to 3:00 p.m. FRIDAY AND SATURDAY 10:00 a.m. to 4:00 p.m. For all ages	Special Event: Caterpillars in Residence with The Caterpillar Lab Join us as The Caterpillar Lab takes over our Tamworth Pavilion for a three-day exhibit featuring a huge variety of New England caterpillar species with plenty to see and touch! Educators from The Caterpillar Lab will teach you all about metamorphosis and tell incredible but true stories about the creatures' strange and surprising adaptations. Some caterpillars are camouflaged to look like twigs or snakes. Some have stinging spines or brightly colored baubles. Check out these little-known native critters munching on their food plants right in front of you. You are sure to see and learn something new! Exhibit closed for a lunch break from 12:00 to 1:00 p.m. Find out more about The Caterpillar Lab at www.thecaterpillarlab.com . <i>Cost: Included with trail admission. Last admission at 3:30 p.m.</i>

SEPTEMBER

SEPTEMBER 16 SATURDAY 10:00 a.m. to 4:00 p.m. For all ages	Special Event: Raptor Migration Celebration Fall is a season of transition and many animals are on the move to wintering grounds. Join us to see migratory raptors at Up Close to Animals presentations in the amphitheater throughout the day. Learn about where our raptor species go each winter, how long it takes them to get there, and why they bother to return. Do not miss the special Birds of Prey program at 10:30 a.m. or 12:30 p.m. by the Vermont Institute of Natural Science (VINS), featuring a flight demonstration with their raptor ambassadors. <i>Cost: Included with trail admission. Last admission at 3:30 p.m.</i>
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ON THE TRAIL

- It's A Wild Life Exhibit** - A visual project highlighting IF/THEN Ambassadors, women and gender minorities, whose careers intersect with the natural world. Daily along the live animal exhibit trail.
 - River Otter Feeding** - Mondays, Wednesdays, and Fridays at 11:30 a.m. in June, July, and August at the River Otter Exhibit
 - Turtle Talks** - Tuesdays in July and August at 11:00 a.m. on the Bluestone Terrace of the Webster Education Building
 - Up Close to Animals** - Daily in July and August at 10:00 a.m. and 12:00 p.m., and 2:00 p.m. at the Amphitheater
 - StoryWalk™** - Open daily through September 6. StoryWalk™ surrounds the Holderness Town Gazebo at Curry Place. Presented in partnership with Holderness Library and Holderness Recreation Department.
- Sponsored by: 

Visit the Calendar of Events at nhnature.org for a daily schedule, details, and program information.

VOLUNTEER!

The Science Center offers many volunteer opportunities.
For information please visit the Volunteer page at nhnature.org.

SQUAM LAKE CRUISES

Bald Eagle Adventure Cruise

June 6 to June 27: Tuesdays at 3:00 p.m.

A naturalist discusses the recovery of Bald Eagles in New Hampshire and the route focuses on viewing the Bald Eagles that nest on Squam Lake.

Discover Squam Cruise

Daily through June 30: Daily at 1:00 p.m.

July 1 to October 13: Daily at 11:00 a.m. and 1:00 p.m. | Wednesdays, Saturdays, and Sundays also at 3:00 p.m.

Enjoy Squam Lake and learn about the natural history, wildlife, culture, and people of the lake.

Loon Cruise

June 9 to 23: Fridays at 3:00 p.m.

June 26 to August 25: Mondays and Fridays at 3:00 p.m.

See Common Loons as a Science Center naturalist and Loon Preservation Committee biologist discuss loon conservation, biology, and monitoring. The cruise route changes to maximize loon observations.

Cruise with a Naturalist

July 4 to October 5: Tuesdays and Thursdays at 3:00 p.m.

See wildlife on every memorable trip with a Science Center naturalist. Cruise route changes to maximize wildlife observations.

Squam Lake Cruise Rates:

Adult \$30; Senior (65+) \$28; Youth (up to age 15) \$26 - Not recommended for children under age 3.

Cruises may be cancelled if minimum attendance (4 passengers) is not met or for severe weather.

Members receive a \$4 discount per person.

Conveniently purchase cruise tickets online at nhnature.org

Squam Lake Charters

Host your own unique gathering on Squam Lake with a private cruise customized to fit your occasion or transport wedding guests to Church Island. Our four canopied pontoon boats and experienced tour guides are ready to help with your special outing. Contact Erick Amero at 603-968-7194 x110 or erick.amero@nhnature.org for reservations.

\$275 per hour per boat

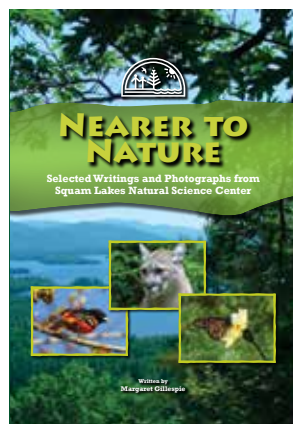
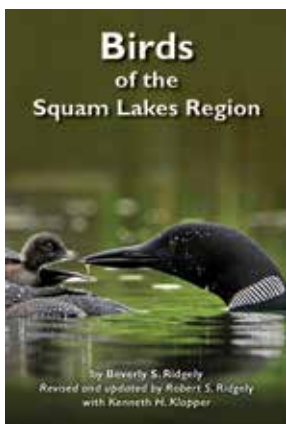
KIDS ACTIVITY

GRASS BLADE WHISTLE

If you can't whistle, don't worry, you can make some great sounds using a blade of grass.

1. Find a thin, flat blade of grass (not the main stem), the wider the better.
2. Hold one end of the blade between the tips of your thumbs.
3. Bend your thumbs slightly to create a small gap and press the bases of your thumbs together on the other end of the grass blade.
4. Straighten your thumbs to make the grass blade taut.
5. Put your lips to your thumbs and blow.

The sounds you can make vary from a sharp squeal to someone blowing their nose. Try different types of grass blades to find one that works best for you. **This activity is from 50 Nature Activities for Kids by Dave Eriker, available in The Howling Coyote Gift Shop and at nhnature.org/books.**



Books from the Science Center

Available at nhnature.org/books or in the Howling Coyote Gift Shop.

All proceeds benefit Squam Lakes Natural Science Center.

MEMBERSHIP UPDATES

BONUS MEMBER BENEFITS

				
JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER

Reciprocal admission is generally good for up to two adults and two youth per visit. Be sure to take your membership card with you when you go. Check with specific organizations for hours, directions, and any additional policies.



Remember as a Science Center member, you also receive discounted admission all year at participating ANCA organizations. Visit nhnature.org/membership for details.

Membership Cards

Your Membership cards are designed to be used for years to come. Please keep them in a safe place and remember to bring them with you when you visit the Science Center. Each year that you renew your membership we will mail a sticker with your new expiration date to place on your cards. Members can request a reprint of a lost membership card for \$5 each. For more information, please contact the Membership Office at 603-968-7194 x146 or visit www.nhnature.org/membership for details. Thank you for your continued support of the Science Center. Your membership makes a difference!

Programs Just for Members!

Tales and Tails: Members Only Storytime
 Wednesdays, July 5, July 19, August 2
 9:00 to 9:30 a.m.
 For Ages 3-8
 See pages 6-7 for details.

SPONSOR A SPECIES AT THE HOWLING COYOTE GIFT SHOP

Visit the Howling Coyote Gift Shop when you are at the Science Center for a gift-ready Sponsor A Species package. Gift-ready sponsorships are available for the mountain lion, black bear, and pollinator and include a plush toy of the sponsored species, two transferable live animal exhibit trail admission passes, animal fact sheet, Sponsor A Species certificate, sticker of sponsored species, subscription to quarterly and monthly newsletters, recognition on the Science Center's website and on the live animal exhibit trail.

Retail: \$79.95, Only available at the Howling Coyote Gift Shop.



NEWSBRIEFS

- New Hampshire Day on Saturday, May 6 was a huge success with sunny skies and nearly 1,700 visitors. Thank you to our generous sponsors, Dead River Company and New Hampshire Electric Coop Foundation. We are holding a second New Hampshire Day on Sunday, October 15. Advanced purchased tickets are required and available on the calendar of events at nhnature.org.
- The Science Center has a number of initiatives to make the live animal exhibit trail accessible to all income levels.
 - Family Access Membership - \$25 six-person membership for New Hampshire EBT cardholders.
 - Museums for All - \$3 each trail admission for up to four people for EBT cardholders.
 - Library Passes - \$12 each trail admission for up to four people. Check with your local library for availability.
 - Thank you to Dead River Company, MLK & Company, and New Hampshire Electric Coop Foundation for sponsoring the Family Access Membership and Museums for All.
- Blue Heron School Lead Teacher Corrie Underwood is leaving at the end of the school year to spend more time with her seven-month old baby and family. Corrie will

be greatly missed by the entire Blue Heron and Science Center community.

- Our 117 kW solar arrays in our parking areas went live on May 12. This adds to the existing 25 kW array on the roof of Blue Heron School. The total project should offset nearly 100% of the Science Center's electricity usage and save more than 250,000 pounds of CO2 annually.
- Our 2023 Summer Interns arrived in late May and have jumped into learning about the Science Center:
 - **Volunteer Program Intern:** Alyssa McGurer attends school at the University of Connecticut. She graduated last year with a B.S. in Ecology and Evolutionary Biology, and is continuing with a Master's degree in Biodiversity and Conservation Biology. She hopes to continue her work in conservation education, pursue field technician jobs, and eventually get a PhD.
 - **Education Program Intern:** Mackenzie Phillipott is a student at the University of Florida majoring in biology with a teaching minor. She has worked with elementary students and enjoys passing on her love for science. Mackenzie has been a tutor, swim instructor, and is active in several

continued on page 10

IN MEMORIAM: BILL WEBB

We were very saddened to hear of the passing of former Executive Director Bill Webb this spring. Bill was civic-minded and gave his time generously to many organizations throughout the state including Whole Village Family Resource Center, New Hampshire Charitable Foundation, Grafton County Economic Development Council, Society for the Protection of New Hampshire Forests, Plymouth State University, and committees within the town of Holderness. Bill was a Science Center trustee from 1986 to 1993, serving as President from 1987 to 1989. He became the Science Center's fourth Director in 1989 and served in that position through 1992.

We featured Bill in a profile in our Spring 2016 *Tracks & Trails* newsletter and are taking this opportunity to reprint his own words from that article:

I first got involved with the Science Center in the late 1980s. Bertha Fauver asked if I would be interested in joining the Board. Frankly, I didn't know much about the Science Center, but it seemed to be an important part of my community and I was flattered to be asked. I soon found out I was an anomaly. I was young, a business person with a slant toward sales and marketing, and a local year round resident. What a combination!

It was an interesting time in the Center's evolution. We were reasonably mature, approaching our 25th anniversary, yet our underlying potential was barely being tapped. We had a terrific staff (still do) and a great product, but there was tension between the Center and many "locals" and we were underselling ourselves in general. I became Board Chair a year later and shortly after that circumstances required that I step in as Interim Director. I lobbied to add a staff person for marketing, but to sell the concept internally I had to term it as public relations. At the time our gift shop was one glass case where we sold rubber bugs. The whole idea of being commercial was hard to swallow for many. We subscribed to the philosophy "build it and they will come" before the philosophy was ever articulated.

Fast forward 25 years. This diamond in the rough now sparkles. Thousands walk its trails and attend its programs each year. My two children, who experienced their first upclose encounters with New Hampshire's wildlife here, are now grown and soon they will bring our first grandchild to walk the trail. That's the magic of the Science Center. Every generation is fascinated by the experiences found here, experiences that in many ways only get better as we get older. Lots of folks nowadays think a big screen or a small hand held device substitutes for a real outdoor experience, and that's the challenge for the Science Center - finding new and innovative ways to keep future generations connected to the natural world around them. Based on the past 50 years I think we have good reason to be confident about the Center's future.



Bill Webb (center) and Brenda Erler (right) looking over the Webster Terrace.



Bertha Fauver with Bill Webb



Bill Webb (right) and previous Director Rick Ashley (left).

NEWSBRIEFS *continued from page 9*

extracurriculars at UF. She plans to pursue a career at an outdoor school or an alternative schooling environment.

- **Education Program Intern:** Chloe Morycz studies at Ohio University, majoring in wildlife conservation biology. Chloe has experience mentoring first year students at OU, as a nanny, camp counselor, humane society, and at the National Aviary. She would love to pass on her excitement and love for wildlife by educating others.

- **Nature Day Camp Intern:** Isabelle Schena attends Plymouth State University. Isabelle is excited to be working with children and teaching them about ecology concepts. She loves working outside and has participated in light pollution

studies in Acadia National Park, designed materials to enhance visitor experience on local parks, and (at PSU) works in the office of Environmental Sustainability, Campus Recreation and is the class of 2024's vice president.

- **Animal Care Intern:** Rachel Ford will be a senior at University of Vermont, receiving her Bachelor's of Science in Animal Science with a minor in Wildlife Biology. She spent the last several summers working around Winnepesaukee, most recently as a Field Intern and Wildlife Biologist with the Loon Preservation Committee. During her internship, Rachel is hoping to gain further insight to both wildlife rehabilitation and wildlife veterinary medicine.

TRAIL'S END



One of my favorite activities at the Science Center is being a volunteer docent, which allows me to take our animal ambassadors onto the live animal exhibit trail and talk with visitors about the natural world in New Hampshire and our animal collection. In this role, I have walked around with owls, kestrels, turtles, bats, snakes and more — and over the years I have met many wonderful people and learned a lot about the visitor experience. I often ask visitors if this is their first trip to the Science Center or a repeat. When a guest is on a first time visit, I usually try to learn how they heard about us. The variety of responses is impressive — everything from hearing our Executive Director Iain MacLeod on the radio, to a next door neighbor or friend recommending us. Some have seen flyers about us in local libraries or know a family whose child attends our Blue Heron School, and on and on.

These referral networks are very important and tie into one of our four new strategic priorities, which is to increase the breadth and diversity of our visitors and supporters. We cherish those who come often and also are excited when a new person or family visits. I hope that each one of

you reading this will think about people you might encourage to visit — especially if they are perhaps unlikely to know about us already. Our trails are increasingly accessible to visitors with different needs and with special requirements; we now have more mobility scooters, offer more materials in various languages, and have made a number of accommodations for people with various sensory sensitivities.

We are quite sure that our new mountain lion cubs and black bear, along with other collection improvements, will be a big draw this summer — let's all commit to making sure that a wide variety of people know about us and visit. If I am lucky, I will meet some of you on the trail!

Trail's End is written by Sarah Brown, Chair of Squam Lakes Natural Science Center's Board of Trustees. You may contact her at sarahbrown1948@gmail.com.

LIFE AS A SOLITARY BEE *continued from page 1*

Solitary bees are exceptional native pollinators, distributing pollen as they visit flowers. Should we be alert to avoid being stung? Generally, there is no need to worry about being stung by solitary bees although most do have the ability to sting. These bees have no stored honey resources to protect so do not tend to be aggressive. Enjoy the opportunity to get some closeup views of them in action.

For the upcoming solitary bee season, I vow to be much more alert and observant. Around the world, 90% of bee species are solitary bees. In New Hampshire, literally hundreds of species of these quiet but efficient workers are responsible for most of our plant pollination. Will I be able to discover what kind of solitary bees are frequenting my bee house? When will the young emerge and will I be lucky enough to watch it happen? How are the numerous flowers

I nurture helping solitary bees? What kind of bees will visit my vegetable garden? Will I see more native bees rather than the honey bees from the neighbor's bee hive? Maybe you too have questions about solitary bees. I hope, like me, you will be enticed to look for the answers wherever flowering plants, holes in trees, and amazing solitary bees and their homes come together.



Bee house located in Kirkwood Gardens courtesy of The Bee Conservancy.

SOLITARY BEE QUIZ

1. What kind of bees are the major pollinators for wild/native plants?
2. True or False? Solitary bees are more aggressive than honey bees.
3. Are New Hampshire's solitary bees generally native or introduced?
4. How do woodpeckers help solitary bees?
5. What is one thing you could do to help solitary bees?

Answers:

1. Solitary bees
2. False
3. Native
4. Woodpeckers make holes in trees where solitary bees can nest
5. Provide homes for solitary bees by leaving some dead trees standing or by putting up a solitary bee house

WISH LIST

- **For Exhibits:** Genuine black bear rug
- **For Kirkwood Gardens:** 1-gallon size or smaller plant pots; six to eight foot orchard ladder
- **For Lake Cruises:** Waterproof flashlights (4)
- **For Animal Care:** Gift cards to local hardware and grocery stores; gently used bath towels; natural material push broom heads
- **For Operations:** Forks and spoons for office kitchen; paring knives
- **For Staff:** Airline miles to attend professional development experiences



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