



RAVEN'S ROCK

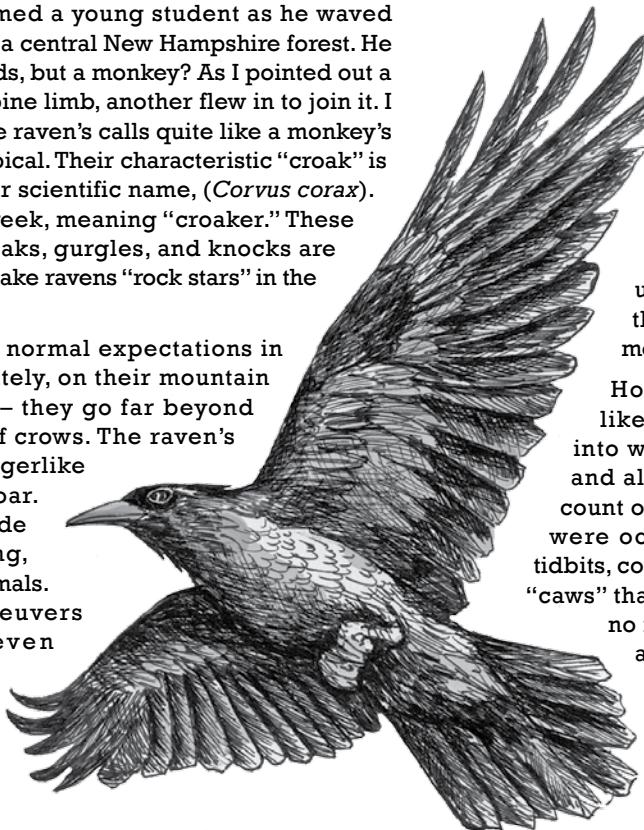
By Margaret Gillespie, Illustration by Cheryl Johnson

"I hear a monkey!" exclaimed a young student as he waved wildly toward the canopy of a central New Hampshire forest. He was right about exotic sounds, but a monkey? As I pointed out a dark shape crouched on a pine limb, another flew in to join it. I wouldn't have described the raven's calls quite like a monkey's but it certainly sounded tropical. Their characteristic "croak" is incorporated as part of their scientific name, (*Corvus corax*).

"Corax" is derived from Greek, meaning "croaker." These corvids' vast variety of croaks, gurgles, and knocks are only one of the talents that make ravens "rock stars" in the natural world.

How do ravens rise above normal expectations in their field or, more accurately, on their mountain slope? Agility stands out – they go far beyond the repetitious flapping of crows. The raven's long wings tipped with fingerlike feathers enable them to soar. As aerial acrobats, they slide into dives, twisting, turning, and rising again on air thermals. They are capable of maneuvers like somersaults and even flying upside down. You wouldn't mistake ravens for majestic eagles but against the backdrop of mountain peaks, they excel on the wing.

Connections are important too – these relationships get one ahead in the world. Wolves have what appears to be a mutually beneficial relationship with ravens. By raucous calls, ravens announce the presence of an easy dinner, maybe a deer dead from starvation or killed by a car. Ravens are not capable of breaking into the carcass on their own, but their dinner partners, the wolves, are. Once the wolves have finished feasting and the ravens have stolen a share, there are still plenty of leftovers for the ravens to continue scavenging. Because of this association, the Inuit people of the Arctic called the raven "wolf bird." In the



absence of wolves in the northeast, raven populations plummeted. Now, eastern coyotes seem to be responding to the ravens' invitation and taking on the role of opening carcasses for eventual sharing. Not surprisingly, ravens are once again a more common sight.

Ravens are opportunists. If they see situations advertising easy pickings like unguarded nestlings or an injured youngster, they move in quickly. In the end, nature is more fit as a result.

How about distinction? Ravens are more likely to turn heads than crows. On my way into work this morning, driving past hayfields and along an interstate highway, I quickly lost count of the crows I sighted. Assemblies of crows were occupied with scavenging any available tidbits, communicating with each other in repetitive "caws" that are the extent of their vocabulary. I saw no ravens. Ravens do hang out near people's activities and are adept at scavenging at landfills but they are also wilderness inhabitants and often frequent less populated areas. If you are still unsure whether the dark bird in your sights is a crow or a raven, here some other differences. Although ravens are larger in size sometimes it is hard to tell without comparing the two. Note the shape of the tail in flight - raven's tails are wedge-shaped or pointed like a diamond at the tip; crow's tails are fan-shaped. Ravens have heavier, downward curved beaks; crow's beaks are smaller and straight. Under the raven's beak, the feathers can be ruffled, resembling an unruly beard; crow's throat feathers are smoothly arranged.

Smart as a raven – would that be a compliment? According to Cornell University's Laboratory of Ornithology, ravens have *continued on page 11*

IN THIS ISSUE...

- Page 1 Raven's Rock
- Page 2 Forging Trails: My Summer Vacation
- Page 4 Volunteer Profile: Carolyn Murah
- Page 5 Naturalist's Corner
- Pages 6-8 ... Upcoming Programs and Events
- Page 9 Gala and Annual Meeting
- Page 11 Trail's End: Hello
- Page 12 Howling Coyote Holiday Sale
- And much more!

**HALLOWEEN HOOT 'N HOWL
SATURDAY, OCTOBER 15
6:00 TO 8:30 P.M.
FOR ALL AGES | RAIN OR SHINE**

Reserve your tickets early as this event regularly sells out! See page 7 for details.

FORGING TRAILS

MY SUMMER VACATION



In July I had the great privilege of being an instructor at Hog Island Audubon Camp in Maine. Hog Island celebrates its 80th year in 2016 and exemplifies a classic New England Family Camp. Rustic cottages and bunkhouses are scattered through the spruces on the north end of the island with various common spaces for eating and socializing. The large Fish House is the most modern building – built in 1934. There is a lovely beach on one side and docks on the other. It is a wonderful place to retreat and unwind.

A group of 28 campers from across the country came for our Raptor Rapture course. The joke all week was “... we don’t know if the rapture will happen ... but we hope we’re left behind on the island.” The course director was my Osprey-tagging partner Dr. Rob Bierregaard and we were joined by noted author and falconer Tim Gallagher. The week included boat trips around Muscongus Bay to survey Bald Eagle and Osprey nests; a day of “birding in America” (on the mainland); and sessions dissecting owl pellets, learning about anatomy through skeletons and study skins, raptor data analysis, and various slide lectures. A concurrent Art and Birding class (also full) meant the dining hall was busy for dinner and it was nice to share some events with the artists, who had also traveled from far and wide.

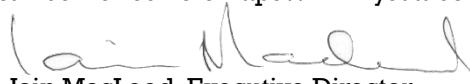
Many of the participants were there because they are part of an online community that watches and shares thoughts and concerns about Rachel and Steve – a famous pair of Ospreys that nests on Hog Island and whose every private moment is captured on HD webcam and broadcast to the world. You may have seen the Hog Island cam, which has been streaming in the Critter Cam exhibit in our Water Matters Pavilion all season.

Rachel and Steve have three chicks this year and one of the highlights of the week was when we banded the chicks. We reached the nest by ladder and the three chicks were passed down one at a time. When I carried the first chick to the designated shaded picnic table where we had set up our mobile banding lab, the clicks and flashes of 30 or more cameras made me feel like I was being accosted by the paparazzi outside a Hollywood nightclub!

Each chick was weighed, measured, and fitted with two leg bands – an engraved U.S. Fish and Wildlife Service band and a blue band with a two digit code – HB, HC, or HD. Now the online fans can keep track of each chick based on their leg bands. There was much relief that the nest was full this year, as last year a gloom descended on the class after Rachel and Steve’s two chicks were snatched by a Bald Eagle – live on camera!!

If you are looking for a little break next summer, I encourage you to join us (I’ve been asked to return next year) for the 2017 Rapture from July 9 to 14.

Addendum: Just after I finished writing this column, a Bald Eagle struck again. On the evening of August 1, an adult Bald Eagle took advantage of Rachel being away from the nest and swooped in and grabbed one of the Osprey chicks. A second chick leapt off the nest right before the eagle struck and was forced to make its first ever flight. The third chick froze and flattened itself in the nest. One parent (likely Steve) was right on the eagle’s tail trying to chase it off. It is a spectacular piece of footage. Both the remaining chicks survived and have both successfully flown and returned to the nest. The amazing film clip can be viewed here: <https://www.youtube.com/watch?v=TydGzwhIEPQ>.


Iain MacLeod, Executive Director
iain.macleod@nhnature.org
603-968-7194 x 23

SQUAM LAKES NATURAL SCIENCE CENTER
PO Box 173, 23 Science Center Road
Holderness, NH 03245
P: 603-968-7194 | F: 603-968-2229
info@nhnature.org | www.nhnature.org

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 editors Janet Robertson and Amanda Gillen.

BOARD OF TRUSTEES,
Kenneth H. Evans, Jr., Chair
Lea A. Stewart, Vice Chair
Justin Van Etten, Treasurer
David F. Martin, Secretary

Sarah Brown
Margaret Conver
Tom Cowie
Mark Goldstone
Elizabeth Hager
Harriet R. Harris
Barbara Laverack
William F. Lee, Jr.
Carl Lehner
Anne Lovett
Arthur McGinnes
Susan McKimens
Emily Preston
Thomas Samyn
Richard L. Starbuck
Justin Van Etten
Tony Wagner, Ed.D.

HONORARY TRUSTEES
George Carr
David W. Cote, D.V.M.
Bertha H. Fauver
Maurice Lafreniere
John McRae
Paul F. Miller, Jr.
Russell C. Orton
Stephen G. Woodsum

STAFF
Dennis Capodestria, Facilities Assistant
Tim Curry, Facilities Director
Eric D’Aleo, Naturalist
Bob Donnelly, Facilities Assistant
Brian Eaton, Finance Director
Clare Eckert, Facilities Assistant
Audrey Eisenhauer, Education Director
Brenda Erler, Gardens and Exhibits Assistant
Dave Erler, Senior Naturalist

Jordan Fitzgerald, Blue Heron School Lead Teacher
Jordy Gianforte, Blue Heron School Associate Teacher
Amanda Gillen, Marketing and Visitor Services Manager

Margaret Gillespie, Naturalist
Keith Hosking, Animal Care Associate
Tom Klein, Facilities Assistant
Iain MacLeod, Executive Director
Laura Mammarella, Blue Heron School Director
Lauren Moulis, Animal Care Manager
Mary Noyes, Administrative Assistant
Jeremy Phillips, Naturalist
Carol Raymond, Volunteer Coordinator

Janet Robertson, Development and Communications Director
Liz Rowe, Operations Director
Dean Smith, Facilities Supervisor
Susan Stepp, Development Assistant
Kevin VanGorden, Animal Care Associate
Aubrey Voelker, Animal Care Associate
Sharon Warga, Operations Manager

VOLUNTEER PROFILE

CAROLYN MURAH

What's your first memory of the natural world?

Hiking with my dad, seeing wildlife, and just enjoying being outside.

When did you first get involved at the Science Center?

I started as an intern in 1986. Later I worked on weekends in Admissions and the Gift Shop when it was in the Webster Education Building. I've also been hired to create painted artwork as needed for exhibits these last 30 years. And now I am volunteering.

What do you like about volunteering?

I work for Lakes Region Community Services, mostly with one young man. I enjoy helping him learn and explore his world. It's wonderful just being at the Science Center. I like being able to share it with Justin. I think being involved with this place is good because it is teaching people about the natural world and teaching them to appreciate it. Hopefully some people will want to try and save it.



What do you do when you aren't volunteering here?
I'm a self-taught artist with a degree in wildlife biology. I love to paint but I don't get much time to do it in my busy life. When I am requested to paint artwork here, I love the challenge of painting a variety of subjects. I also like being a part of the Science Center and its work educating the public about our natural world.

What do you wish other people knew about the Science Center?
It's a wonderful place with a great mission. I tell people about the Science Center all the time. It's a great place to spend the day where people can learn about our natural world, which is just outside their door. The Science Center teaches respect for the natural world too. I feel you need to know and love where you live. You can start there to save your own natural habitat and then you can expand and try to save the world. That's what I feel the Science Center is teaching the public.

Carolyn's artwork may be found throughout the Science Center. Her recent work may be seen in the "Legacy Tree" in the Trailhead Gallery and the Ice Exhibit in the Water Matters Pavilion. She lives in Rumney and has two grown children.

NEWSBRIEFS

- Blue Heron School Lead Teacher Jordan Fitzgerald started additional Montessori training for three to six year olds in July. She completed four weeks of summer classes as the first step towards earning certification through the Northeast Montessori Institute.

- Trustee Tony Wagner sponsored a showing of a documentary film about education, called *Most Likely to Succeed*, for which he acted as advisor. It was shown in partnership with the Holderness School at Hagerman Auditorium on August 13. Proceeds over than \$1,140 from ticket and book sales (Tony co-authored a book of the same name, available for purchase at the Howling Coyote Gift Shop) will start a fledgling fund for Blue Heron School scholarships.

- Volunteers are busy serving in many capacities this year. Staff members are grateful to have help from such an amazing group. One new position is fun and rewarding for volunteers and guests alike: the Water Matters Pavilion Host. The hosts help guests sculpt model land topographies and create "rain" to see how water flows based on the land formations in the Shaping Watersheds Exhibit. Hosts also monitor other exhibits and answer questions from guests. Nine new docents and nine new First Guides completed formal training in June and are now working to finish time requirements on the trail, at outreaches, doing research, and more.

- The popular Up Close to Animals Mountain Lion

- enrichment demonstrations every Thursday in July and August are often standing room only. Now, everyone can see the action, thanks to a donation from volunteers Sydney Stewart and Diane Potter. Two video screens and a pair of cameras were installed. The cameras capture the inside of the exhibit and the training area, allowing guests to see on the screen what is happening.

- Up Close to Animals presentations continue five times a day through August 31 and then are held twice a day every Saturday and Sunday from September 3 through October 9, with presentations at 12:00 and 2:00 p.m. River Otter Feeding continues through October 31 every Monday, Wednesday, and Friday at 11:30 a.m.

- Halloween Hoot 'N Howl returns this year on October 15. Sign up by calling 603-968-7194 x 11 and receive a \$1 discount per person if you reserve your spaces by October 7.

- The 2015 Annual Report, Audited Financial Statements, and 990 Tax Return are available for review on our website at <http://www.nhnature.org/support>. Request paper copies by contacting Development and Communications Director Janet Robertson at 603-968-7194 x 12 or janet.robertson@nhnature.org.

- Bank of New Hampshire (formerly Community Guaranty Savings Bank in Plymouth) is generously sponsoring Raptor Spectacular on Saturday, September 10. See page 7 for details.



KIRKWOOD GARDENS PLANT SPOTLIGHT



By Brenda Erler

False Aster***Boltonia asteroides 'Snowbank'***

Culture: Prefers average, medium-moisture, well-drained soil in full sun

Bloom: August to September

Height: 3 to 4 feet

This North American native is a great choice for naturalized areas, although it is also useful in perennial borders and native plant gardens. This variety was introduced by the New England Wildflower Society. It stays somewhat compact and seldom needs staking. The blossoms are attractive to butterflies. The showy flowers give late season interest and are good for cut arrangements.

Kirkwood location: lower garden by old apple tree and to right of pergola



Courtesy Van Berkum Nursery

English Hawthorn***Crataegus laevigata 'Toba'***

Culture: Prefers moist, well-drained soil in full sun but is very adaptable

Bloom: late spring

Height: 15 to 20 feet with a 15 to 20 foot spread

Hawthorns are great small landscape trees that can also be pruned for use as a hedge. The showy fragrant flowers are attractive to bees and butterflies.

Beautiful red fruits (sometimes call haws) form in the fall and are relished by birds. The word haw also means hedge. Hawthorns were used extensively in England in the 1800's as a thorny hedgerow plant.

Kirkwood location: lower garden on either side of the stone bridge exit



flickr/Ryan McMinds



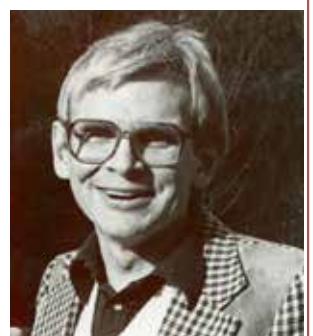
Plant Spotlight and Kirkwood Gardens are sponsored by Belknap Landscape Company, Inc.
www.belknaplandscape.com

A LOOK BACK...

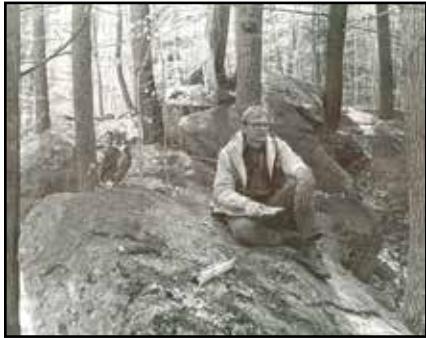
CELEBRATING 50 Years 1966-2016



As we reviewed the Science Center's history during this 50th anniversary year, we were saddened to learn former Executive Director Bob Nichols passed away in January 2015. Bob's tenure here was from 1975 to 1983; much of his legacy remains. During that time the Science Center began to make use of its 200-acre property as an outdoor classroom for school programs. A new Education Building (currently called the Webster Education Building) was moved $\frac{1}{4}$ -mile from its Route 3 location to its current site near prime outdoor teaching areas. Bob helped produce the educational television series, *Up Close and Natural*, in collaboration with New Hampshire Public Television. Bob loved to teach and was instrumental in developing serial "unit" outreach programs with a number of schools, visiting the same students multiple times during the year. Bob was the driving force behind the environmental puppet theatre with Susan Ackley and Will Cabell. He wrote the script for *Harry the Hare Loses His Friends* and helped develop the *Loon Homecoming* and *Grandfather Turtle* puppet shows presented for years at schools throughout New Hampshire. After Bob left New Hampshire, he was director of Schlitz Audubon Center in Milwaukee. Later he lived and worked in Texas, returning to Wisconsin where he died.



Bob Nichols



NATURALIST'S CORNER

THE MOST SUCCESSFUL CREATURES

By Audrey Eisenhauer

We frequently get “What is this?” questions. These communications are typically accompanied by a photo or a specimen with the hopes of getting an identification of the mystery object. These objects range from scat to snakes, fungus to flowers, and everything in between, but one type of creature dominates. That is because they belong to a group of the most abundant creatures on Earth.

Scientists have catalogued about 1.5 million species of organisms. What group of organisms do you think accounts for the majority of this bounty? Rodents? Birds? Plants? Guess again. Insects make up about two-thirds of this rich diversity. Scientists estimate the total number of species on Earth is closer to 9 million, with about 90% of them belonging to the class Insecta. There are more species of insects than any other kind of creature. If we compared weights on a scale, insects would outweigh all other creatures combined. But this most diverse group in the animal kingdom is also the most feared and hated.

Let's review what makes an insect an insect, just so we are all on the same page.

Insects have three body parts: head, thorax, and abdomen, encased in an exoskeleton. The head is where all the sensory organs are located – the eyes, ears, mouth, and antennae. The thorax is where the wings and legs attach to the body. The abdomen is where the insect breathes, digests its food, and where reproductive organs are located. Insects have six jointed legs (nope, spiders are not insects!), a pair of antennae, and compound eyes. Insects may have one or two pair of wings or none at all. From this basic body plan explodes an amazing diversity of abilities and behaviors, which makes insects some of the most fascinating creatures to get to know.

Most people have overwhelmingly negative attitudes towards insects, which is no wonder, given that as a society, we know almost nothing about their unbelievable species diversity and accompanying appearances, behaviors, and ecology.

One recent question included a photo of a suspected insect found attached to a clothesline. The insect in question turned out to be the exoskeleton of a recently molted cicada. Immature cicada nymphs live underground where they feed on sap from the roots of trees and shrubs. When the nymphs approach maturity, they dig to the surface (the exoskeleton had noticeable claw like front feet) and molt into winged adults, leaving the exoskeleton behind, and in this particular case, on the clothesline.

Another recent inquiry came with a live specimen found swimming in a pool. The insect turned out to not to be an aquatic insect (despite its apparent swimming ability), but instead a type of burying beetle. Talk about fascinating! Burying beetles are nature's undertakers, helping to dispose of decaying carcasses. A pair of burying beetles will work together to excavate the soil under the body of a small animal, such as a bird or rodent. Once the body is successfully covered, it is further prepared by stripping all skin, fur, or feathers, and gathering the flesh into a ball. The flesh is chewed and covered with salivary and anal secretions to help to preserve it from decay in a semi-mummified state. The female then excavates a chamber near the body to lay eggs. The preserved corpse later becomes food for the entire family and is fed to the developing young by both parents. Seriously, it doesn't get much cooler than that!

Each one of our “What is this?” insect inquiries gives me an opportunity to learn something new about the incredible world of insects. The questions always send us to field guides and natural history books, and of course to the internet, to figure out which of the potentially millions of insect species is the focus of that particular inquiry. You never know, you might be the next entomologist to identify an insect species not yet discovered. What are you waiting for? Get out there with your net and your bug box and see what you can discover!



Cicada exoskeleton after molting.
Wikimedia/RogDel



FROM THE HERON'S NEST

By Laura Mammarelli

Children at Blue Heron School celebrated spring by shedding winter layers; looking for signs of spring outside; and incubating chicken, duck, and turkey eggs in the classroom. For 21 days – 28 for the ducks and turkeys – the children turned the eggs three times a day. They were rewarded with the opportunity to watch the chicks hatch and to hold them after a few days.



Blue Heron School, a nature-based Montessori school for children ages three to six, operates Monday through Friday, 8:30 a.m. to 1:00 p.m., or 8:30 a.m. to 3:30 p.m., September to June. For more information please visit www.nhnature.org/programs/blue_heron_school.php or contact Laura Mammarelli, Blue Heron School Director, at 603-968-7194 x 40 or blueheron@nhnature.org.

UPCOMING PROGRAMS

Advance registration is required by noon the day before the program. If minimum enrollment is not met, programs may be cancelled. Walk-ins may be accommodated if space is available.

NEARER TO NATURE FALL FOLIAGE CRUISE

Friday, September 23
10:00 a.m. to 12:00 p.m.
For Adults

It's all about a new Science Center book called *Nearer to Nature*, authored by Naturalist Margaret Gillespie. The book walks you through the seasons, delving into nature's mysteries. Join Margaret for a special fall foliage cruise on Squam Lake to explore her favorite places and hear stories about the local fauna and flora of Squam Lake.

Cost: \$21/member; \$25/non-member

NATURAL ADVENTURES SERIES

Nature Play Time

Wednesdays: September 14, October 12
10:00 to 11:00 a.m.

Ages 3 and under

Join us for some unstructured play in nature with your little one! We will set the stage for fun so you and your tot can laugh and explore the natural world together. We will play in a shallow stream with buckets and scoops or in the forest walking on log balance beams. Program will be held outdoors; please dress for the weather. Adults get to play too!

Cost per session: \$5/member child; \$7/non-member child

50 NATURE ACTIVITIES FOR KIDS

PROGRAM SERIES

For families with children ages 5+

Dig into our new book, *50 Nature Activities for Kids* by Senior

Naturalist Dave Erler, published in celebration of Squam Lakes Natural Science Center's 50th anniversary. Each program features activities from the book to get you exploring nature outdoors and give you a project to take nature home. Books are available for sale in the Howling Coyote Gift Shop for \$14.95.

Investigating Autumn I

Saturday, September 24 • 10:00 to 11:30 a.m.

Featured activities: Balsam Fir Blister Boats, Burdock Games, and Old Sock Seed Search (*Bring an old sock.*)

Investigating Autumn II

Sunday, October 9 • 10:00 to 11:30 a.m.

Featured activities: How Tall is that Tree?, Pinecone Peanut Butter Bird Feeder, and Preserving Fall Foliage

Investigating Autumn III

Saturday, November 5 • 10:00 to 11:30 a.m.

Featured activities: Milk Jug Bird Feeder, Checking Animal Burrows, and Temperature Mapping (*Bring a plastic milk jug and metal coat hanger.*)

Activities take place both indoors and outdoors. Children must be accompanied by an adult.

Cost per program: \$7/member child; \$9/non-member child

New Hampshire Young Birders Club
www.nhyoungbirders.org

HOMESCHOOL SERIES

Get HAPI!

Ages 7 to 10

10:00 to 11:30 a.m.

Thursdays: November 3: Adaptations; December 1: Nocturnal Animals and their Adaptations; January 5: Interrelationships; February 2: Populations; March 2: Habitats; April 6: Ecosystems

The primary interpretive focus of the Science Center's programs and exhibits is community ecology, which has four major concepts: Habitats, Adaptations, Populations, and Interrelationships (HAPI)

All About Series

Ages 4 to 6

10:00 to 11:30 a.m.

Thursdays: November 3: Porcupines; December 1: Hawks; January 5: Skunks; February 2: Groundhogs; March 2: Owls; April 6: Turtles

Join us with your homeschooled child to learn all about New Hampshire wildlife. Each session considers a different group of living things through activities, hands-on experiences, and a meeting with a live animal.

Cost \$9/member child; \$11/non-member child

An adult must participate with children at no additional cost. Each additional adult pays child fee. Reserve all six programs by November 3 for a \$1 discount: \$8/member child; \$10/non-member child per program. Program offerings are aligned with the New Hampshire Science Framework.

UPCOMING PROGRAMS & EVENTS

Advance registration is required by noon the day before the program. If minimum enrollment is not met, programs may be cancelled. Walk-ins may be accommodated if space is available.

RAPTOR SPECTACULAR SATURDAY, SEPTEMBER 10

Featuring Vermont Institute of Natural Science

Raptor Encounter by Vermont Institute of Natural Science 11:00 a.m.

We welcome the return of Chris Collier, Director of Onsite Interpretation for the Vermont Institute of Natural Science. Chris previously filled a number of roles on staff at the Science Center – as an intern, an assistant naturalist, and Ragged Island manager. Join Chris for this exciting Raptor Encounter where he will display a variety of live falcons, hawks, and owls. This first-hand program shows just what defines a bird as a raptor and explains their adaptations for life as predators on the wing. A flight demonstration, touchable artifacts, and hands-on materials round out this special experience. Space is limited. Advance reservations and payment are recommended.

Cost: \$10/member; \$12/non-member or \$23/non-member program/trail pass combo

Up Close to Animals will also feature raptors. These engaging naturalist presentations are free with trail admission and held outdoors at the amphitheater. Visitors will meet live birds up close.

1:00 p.m. – Up Close to Animals – Broad-winged Hawk
2:00 p.m. – Up Close to Animals – Peregrine Falcon
3:00 p.m. – Up Close to Animals – Saw-whet Owl

Volunteer docents will rove the live animal exhibit trail with live raptors throughout the day.

Sponsored by:



**Bank of
New Hampshire**

New Hampshire's local bank

Halloween Hoot 'N Howl

Saturday, October 15, 6:00 to 8:30 p.m.

For all ages | Rain or shine

Enjoy an eerily entertaining 40-minute guided tour around the Science Center grounds. Trail walks feature live skits with a seasonal theme and depart every 10 minutes from 6:00 to 7:30 p.m.

Come in costume and dress suitably for outdoor weather.

After your journey, warm up with Halloween games and tasty treats!

*Cost: \$8/member;
\$11/non-member*

\$1 off each reservation if paid by Friday, October 7



On the Trail

River Otter Feeding

Through October 31

Mondays, Wednesdays, and Fridays at 11:30 a.m.
See our two playful river otters have an early lunch. Our expert volunteers will tell you all about otter biology and ecology, while also serving up a tasty treat or two.

Up Close to Animals

**Saturdays and Sundays at 12:00 and 2:00 p.m.
Through October 10**

Meet live animals up close and learn from an experienced naturalist. These engaging talks feature a variety of animals, including birds, mammals, and reptiles.

Programs above are included with trail admission

Certified Interpretive Guide Training

September 20 to 23

8:30 a.m. to 4:30 p.m.

Interpreters are storytellers. They are tour guides, museum docents, zoo docents, park rangers, naturalists, and more. In this four-day course offered by Squam Lakes Natural Science Center and National Association for Interpretation you will learn techniques to make connections with an audience, give meaningful and enjoyable presentations, and create thought provoking and relevant interpretive programs. Participants have the opportunity to become a Certified Interpretive Guide through the National Association for Interpretation. Visit interpnet.com to register or contact Certified Interpretive Trainer Audrey Eisenhauer at audrey.eisenhauer@nhnature.org for more information.

Invasive Species Removal Work Days

Friday, September 16

Thursday, October 6

9:30 to 11:30 a.m.

Adults

Join Master Gardener Liz Stevens to learn how to identify and remove invasive plant species. We will begin each session with a brief introduction to an invasive species and then go out onto the Science Center grounds to learn and practice techniques for removing that species from an area. Learn skills you can apply to removing invasive species from your own property. Snacks and lemonade will be provided to wrap up our work sessions.

No charge to attend but advance registration is required.

Squam Lakes Artisans Gallery
Locally crafted New Hampshire gifts
located in the Holderness Inn
Open Friday - Monday 10:00 a.m. to 5:00 p.m.

SQUAM LAKE CRUISES

New Hampshire is famous for its picturesque lakes and mountains and Squam Lake is a gem among many. See its amazingly clear water, rocky shores, celebrated islands, historic homes, scenic mountain views, and remarkable wildlife. If you are looking for a memorable experience, choose from one of these fabulous 90-minute guided tours on beautiful Squam Lake.

Explore Squam

September 1 to October 10

**Tuesday, Wednesday, Thursday at 11:00 a.m., 1:00 p.m.
Friday through Monday at 11:00 a.m., 1:00 p.m., 3:00 p.m.**

This unforgettable guided tour has something to delight everyone. Learn about the natural history of the lake, the wildlife that makes Squam so special, and the people who have enjoyed these lakes for over 5,000 years. See the beautiful lake where *On Golden Pond* was filmed over 30 years ago. Watch for and observe Common Loons and Bald Eagles.

Nature of the Lakes

September 1 to October 6

Tuesday, Wednesday, Thursday at 3:00 p.m.

Uncover the rich natural history of Squam Lake with an experienced naturalist educator. Observe Loons and Bald Eagles and their nesting sites, along with other wildlife. Learn how animals survive and adapt to their aquatic world. Gain an appreciation and deeper understanding of Squam Lake from mountain ranges to island stories to quiet spots during this memorable lake experience.

Cost: \$21/adult member; \$25/adult non-member

\$19/senior member; \$23/senior non-member (age 65+)

\$17/youth member; \$21/youth non-member (to age 15)

Discounts available for combination trail and cruise tickets

Not recommended for children under age 3

Squam Lake Charters

Treat your visiting family or friends to a truly memorable experience in the Lakes Region. Host your own cocktail party or other unique gathering on Squam Lake. Transport wedding guests to Church Island. Any of these are possible by chartering a private cruise customized to fit your plans. Five canopied pontoon boats and experienced tour guides are ready to help with your special outing. Operations Manager Sharon Warga will personally arrange your charter for any occasion or celebration.

Contact Operations Manager Sharon Warga at 603-968-7194 x 10 or sharon.warga@nhnature.org for reservations.

All Squam Lake Cruises depart from the dock on Route 3 at the bridge, next to Walter's Basin Restaurant in downtown Holderness.

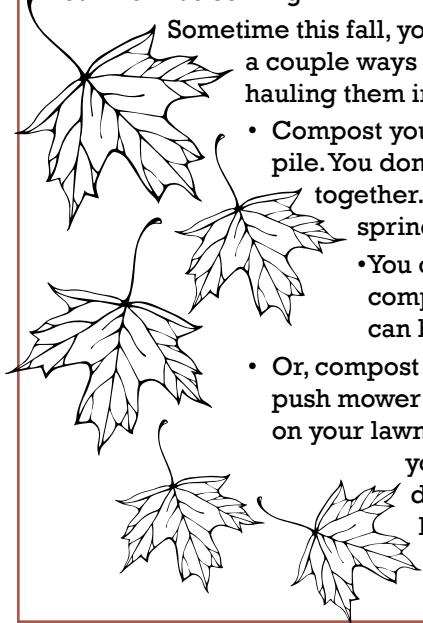
Squam Lake Cruises are 90 minutes in length and aboard canopied pontoon boats. Binoculars are available for wildlife viewing at no additional cost.

Space is limited on Squam Lake Cruises.

Call 603-968-7194 x 7 for information and reservations.

GREEN TIP: FALLING LEAVES

You know it's coming.



Sometime this fall, your yard will be covered with leaves. Here are a couple ways to handle large quantities of leaves without hauling them in bags for disposal at the landfill.

- Compost your leaves. Collect and store them in a tight pile. You don't need to have a box to hold the pile together. Turn the leaves when the pile dries out. For spring, you'll have fresh topsoil!
- You can also keep a pile of leaves next to your compost bin so when you add kitchen scraps you can balance it out with a few handfuls of leaves.
- Or, compost your leaves with this easy method. Use a push mower or other manual lawn mower to shred leaves on your lawn. No need to rake them as long as the tips of your grass peak through. As the leaves decompose, the nutrients will be soaked up by your lawn's soil.

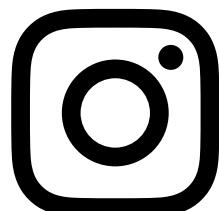
SCIENCE CENTER NATURE TOURS

Shetland and Orkney Islands

June 9 to 22, 2017

Limited Space

View the full itinerary for the Shetland and Orkney Island trip at nhnature.org/programs/nature_tours.php.



SQUAM LAKES NATURAL SCIENCE CENTER'S CELEBRATES 50 YEARS! GOLDEN ANNIVERSARY GALA ON JULY 23



The evening started with appetizers and drinks at the Water Matters Pavilion. Mother Nature added her own excitement with downpours, hail, thunder, and lightning but the weather soon calmed down. Moving under the tent, our 400 guests enjoyed an evening of dinner and dancing to music by "Annie and the Orphans." Net proceeds are estimated to exceed \$50,000, which will support educational programs.



Many people made "Golden Tributes." The honorary and memorial tributes are listed on the website at <http://www.nhnature.org/50/index.php>.

This year we received vital community support from many businesses and individuals. Major Underwriters included Audrey and Tim Fisher; the Grossman Family Charitable Foundation; Pam and Larry Tarica; and Steve Woodsum and Anne Lovett.

Table Sponsors included The Alpine Clinic; Graham Group; Martha and Chris Grant; Helen Mathieson; Louise and Sandy McGinnes; Meredith Village Savings Bank; RiverEdge Marina/Squam River Landing/Sippican Partners; Squam Boat Livery; Jean and Murray Swindell; Family of Frank Webster; Betsy and Bruce Whitmore; and Constance and Sankey Williams.

Business Donations were made by Bridgewater Power Company; the Edmund and Betsy Cabot Charitable Foundation; Circle Dental; Cormack Construction

Management; East Coast Foundation; Mill Falls at the Lake; Moriarty Management; Pinetree Power – Bethlehem; and Matthew Lessard - Wells Fargo Advisors.

Other businesses purchased Program Ads: Dunkin Donuts – Plymouth; Grappone Automotive Group; Innisfree Bookshop; Lovering Volvo; Malone, Dirubbo & Company, PC; John J. McCormack, Attorney at Law; Patty Stewart & Associates; and Christopher P. Williams Architects, PLLC,

Several families gave Individual Donations: Anonymous (2); Priscilla Alvord; Annie and Cameron Brandt; Dorothy Chekas; Nancy and Lawrence Coolidge; Rob and Cathy Denious; Deanna and Tony DiNovi; Karen and Al Firmin; Leslie and Austin Furst; Beverly and Dan Heyduk; Scott and Linda Littlejohn; H. James and Esther Marshall; Sam and Gail Murdough; Natalie Parsons; Doris and William Phippen, MD; Joseph and Victoria Prior; Brian Sutherland and Caitlin O'Donnell; Ruth E. Taylor; Peter and Laurie Thomsen; Bryant and Carolyn Tolles; Bob and Joey Tuveson; and Joan H. Vicinus.

In kind Raffle Donations were contributed by Paul Ambrose; WS Badger Company; Biederman's Deli & Chase Street Market; Chippers; Conway Scenic Railroad; Corner House Inn; Dunkin Donuts – Plymouth; The Fells; Funspot; George's Diner; Great Glen Trails; Guiseppe's Pizzeria Ristorante; Hart's Turkey Farm Restaurant; Homestead Restaurant/Fratello's; Innisfree Bookshop; Keepsake Quilting; Loon Mountain Resort; Megaprint; Mount Washington Auto Road; New Hampshire Music Festival; Palace Theatre; Patrick's Pub; Pirate's Cove Adventure Golf; Shanware Pottery; Six Burner Bistro; Ski Fanatics; StoryLand; and Winnipesaukee Chocolates.

Other in kind donations were made by Cackleberries; The Common Man; David Conver; Ehlers Management Group; Alan and Jerry English; Harpoon Brewery; Golden Pond Country Store/E.M. Heath; Lakes Region Tent & Event; Lindt Chocolates; Lisa Lovett; Alex Ray; Squam Brewing; Squam Marina/Holderness Harbor; and Tuckerman Brewing Company.

Special thanks to the event committee members who worked for more than a year to plan the event: Nancy Beck, Andy Eaton, Barb Laverack, Pat Sava, Lea A. Stewart, and Pam Stearns. And as always, we could not do so much without the time and dedication of volunteers and staff.

2016 ANNUAL MEETING

The 2016 Annual Meeting for members was held on Saturday, August 6. Members enjoyed a continental breakfast followed by the business meeting. Chair Dave Martin asked the quorum of members present to vote to approve the 2015 Annual Meeting minutes, which were accepted unanimously. Treasurer Ken Evans presented the 2015 Finance Report; attendees received copies of the 2015 Annual Report, which is also available at www.nhnature.org/support.

Governance Committee Chair Andy Eaton led board elections. Trustees Peggy Conver, Dave Martin, Susan McKimens, Emily Preston, and Dick Starbuck were all re-elected to serve three-year terms. Four new people were elected for three-year terms: Sarah Brown, Tom Cowie, Barb Laverack, and Anne Lovett – their biographies were handed out and may be viewed at www.nhnature.org/etc. Officers Ken Evans, Chair; Lea A. Stewart, Vice Chair; Justin Van Etten, Treasurer; and Dave Martin, Secretary were elected to one-year terms. Four trustees retired and were thanked for their dedicated service: Nancy Beck, Laurie Beeson, Andy Eaton, and Patricia Sava.

Chair Dave Martin recognized Executive Director Iain MacLeod for 10 years of service. Iain then recognized six other employees for their service: Margaret Gillespie (30 years); Dennis Capodestria (10 years); Ron Huntoon (10 years); Liz Rowe (10 years); Amanda Gillen (5 years); and Jeremy Phillips (5 years).

Iain MacLeod presented the 2016 Horizon Award to Facilities Director Tim Curry to honor his leadership and determination.



Tim Curry with the Horizon Award



Officers elected: Justin Van Etten, Treasurer; Lea A. Stewart, Vice Chair; Ken Evans, Chair; David Martin, Secretary



New trustees: Tom Cowie, Barb Laverack, Anne Lovett, Sarah Brown

OPENING A WINDOW TO THE NATURAL WORLD

Why is the IRA Charitable Rollover Good for Donors?

In December 2015, Congress made the Individual Retirement Account (IRA) Charitable Rollover permanent. This means that certain donors may make gifts of up to \$100,000 each year from their IRA to qualified public charities, such as Squam Lakes Natural Science Center.

Why is this good for donors?

A charitable IRA Charitable Rollover makes it easier for donors to use IRA assets during their lifetimes to make charitable gifts.

Charitable gifts count against a donor's required minimum distribution amount and are not subject to federal tax. Regular withdrawals for income are subject to income tax, even if immediately donated to charity; donors will receive a tax deduction for their gifts, but other tax rules might keep the deduction from fully offsetting taxable income. As a

result, many donors previously did not use their IRA assets for lifetime gifts. The charitable IRA rollover eliminates this problem. Many Science Center donors have used this popular option to support the Science Center.

To qualify as a gift or "qualified charitable distribution," a donation must be:

- Made by a donor age 70 1/2 or older
- Transferred from an IRA directly to a permissible public charity
- Completed during the applicable tax year
- Not in excess of \$100,000 per tax year

If you qualify, why not consider this option for your Annual Fund gift this year? Please consult your attorney or financial advisor for help considering tax consequences for your personal situation.

Opening a Window to the Natural World is written by Janet Robertson, Development and Communications Director.
You may contact Janet at 603-968-7194 x 12 or janet.robertson@nhnature.org

WISH LIST

For Blue Heron School:

crock pot
shade screen

For Education program:

100 bricks

For Howling Coyote Gift Shop:

2 rugged child-sized chairs
working umbrellas

For animal care:

mini fridge
mini freezer

For Kirkwood Gardens Day sale:

anything from used tools to garden art

These generous donors made tribute gifts,
which were received between
April 1 and June 30, 2016:

In memory of Clara Fowler
Sally Boldman

In memory of Louise Hennessy
J.E. Biron and Carole Szetela

In memory of Jonathan Bret Lovejoy
Denise and Benjamin Lovejoy

In memory of Richard Sanderson
Anne Fosse

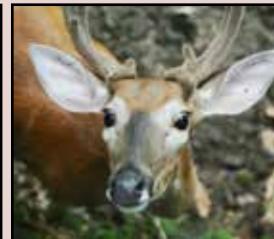
In honor of Carol Thompson
Rebecca Sinkler

In memory of Elizabeth Wood
Ellen Barth

SPONSOR A SPECIES

The animals at Squam Lakes Natural Science Center serve as ambassadors for their species, here for the purpose of teaching about New Hampshire's natural world. The cost of caring for wildlife is considerable. You can help to provide food, health care, and housing for the animals - for your favorite feathered or furry species - through Sponsor A Species. It's a unique way to learn about a particular species and help us to care for its live animals.

Complete your sponsorship online at nhnature.org/support.



MEMBERSHIPS

Memberships make a great gift! Purchase or renew your membership or purchase a gift membership online.

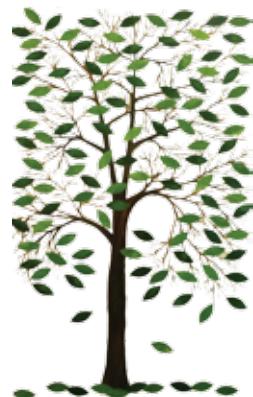
Visit www.nhnature.org/memberships.



Naturalist's Legacy Society

Your planned estate gift will help Squam Lakes Natural Science Center to continue to achieve its mission to teach about the natural world for generations to come.

Learn more at http://www.nhnature.org/support/planned_giving.php



TRAIL'S END

HELLO



By now, I am sure you have heard about the wonderful summer we are having at Squam Lakes Natural Science Center. We celebrated our 50th Anniversary in style with over 400 attendees at the gala in July. And, we have finished the Water Matters Pavilion and exhibits to complete our capital campaign building program. Our members and visitors have rewarded us with new records for trail admissions, boat tours, memberships, and education programs. We identified 45 new legacy donors in just over a year. We published two books. We are a little tired, but gratified that the work of so many has led to these fantastic results. My thanks go out to all involved.

You should know about the changes to our leadership team. This year we lose the committed involvement of four trustees. Nancy Beck served from 1988 to 1992 on the Board, came on as staff, and went back on the Board in 2007. She was Board Chair from 1990 to 1992, Vice Chair from 2008 to present, Secretary from 1989 to 1990 and served on our HR, Gala, Governance, and Development Committees. Nancy also served twice as Interim Executive Director.

Laurie Beeson joined the Board in 2006. He was Chair from 2010 to 2013, Development Chair from 2007 to 2009, Nature Matters Capital Campaign Co-Chair, Strategic Planning Co-Chair, and served on the Development and Governance Committees.

Andy Eaton joined the Board in 2007. She has been a Gala Committee member for all the years since then. She has served on the Human Resources, Development and Governance Committees, the last one as chair.

Finally, Pat Sava joined the Board in 2014 and has served on the Gala, Governance, and Development Committees.

We cannot express enough gratitude for the faithful dedication, wisdom, and strength these Board members have given. They will be missed but we suspect we will see them roaming the trails in the future.

The torch now passes to four new trustees. Please join me in welcoming Sarah Brown, Tom Cowie, Barbara Laverack, and Anne Lovett. After you review their bios (available on our website at www.nhnature.org/programs/annual_meeting.php), I am sure you will agree they are wonderful additions and know your board will continue to be well-prepared to face our future.

As for your officers, Lea Stewart moved from Secretary to Vice Chair. After several years on the Finance Committee, Justin Van Etten is your new Treasurer. Dave Martin will slide from Board Chair to the Secretary position. Finally, I accepted the position of Board Chair. I can only hope to come close to the accomplishments of our last few years.

Change is a constant in our world today. But I am confident in our ability to manage through change because one thing has not and I don't think ever will change. That is the commitment, dedication, and enthusiasm of our great staff and volunteers. These are the people that carry out the mission of our Science Center every single day.

Trail's End is written by Ken Evans, Chair of Squam Lakes Natural Science Center's Board of Trustees.
You may contact Ken at evanmead139@gmail.com.

RAVEN'S ROCK *continued from page 1*

a vocabulary of 30 different calls reflecting sound and context. Raven vocalizations can be so raucous that we can hear them a mile away. Calls may be threats, warnings, teasing, cheering, and screaming, to name a few. That selection sounds like the vocabulary of spectators at a sports game but the ravens probably accomplish much more! Fueling their calls, behaviors, and high level of intelligence, is a large brain, ranking among the biggest of any birds. Scientists who set up complex problems for ravens to solve find they crack the puzzles with amazing speed. Added to their cleverness is a persistent nature that overcomes obstacles and gets them ahead in the natural world.

Encountering ravens is an occasion to look up, see what is new, or perhaps perk your ears for the wild sounds that come out of raven beaks. Smile, it's a raven!

RAVEN QUIZ

1. Which bird, crow or raven, has the most extensive vocabulary?
2. True or False? Ravens soar but crows cannot.
3. In the northeast, ravens benefit when _____ feed on deer carrion.
4. Would you be more likely to see crows or ravens in the White Mountains?
5. True or False? Ravens are one of nature's most intelligent birds.

Answers:

1. Raven 2. True 3. Eastern coyotes 4. Ravens 5. True

BLUE HERON SCHOOL

New Hampshire's first nature-based Montessori early learning center. Blue Heron School operates September to June, Monday through Friday, 8:30 a.m. to 1:00 p.m. or 8:30 a.m. to 3:30 p.m.



Contact us about enrollment opportunities for the 2017-2018 school year at blueheron@nhnature.org or 603-968-7194 x 40.

THE HOWLING COYOTE GIFT SHOP

MEMBERS ONLY SALE

Why not do some holiday shopping while supporting the Science Center?

Plan ahead and take advantage of these special members only sales.

October 21, 22, 23

October 28, 29, 30

Members receive a 20% discount at the Howling Coyote Gift Shop.

(Regular discount is 10%. Discount on non-sale items.)

All proceeds from sales at the Howling Coyote Gift Shop benefit the mission of Squam Lakes Natural Science Center.

Printed on 70# Rolland Opaque50 Natural
30% recycled content

AQUARIUMS OF ZOOS ASSOCIATION
ACCREDITED BY THE

Non-Profit Org.
U.S. Postage PAID
Permit No. 1
Holderness, NH 03245

Return Service Requested
Holderness, NH 03245
PO Box 173, 23 Science Center Road
SQUAM LAKES NATURAL SCIENCE CENTER
