



MUSKRAT MUSINGS

By Margaret Gillespie

When I slowed down from what I considered a busy lifestyle and spent some time casually observing muskrats, I was at the Isles of Shoals on Appledore Island about nine miles out to sea from Portsmouth, New Hampshire. These freshwater creatures, introduced to the island in the early 1900s, have developed a completely different lifestyle from their mainland counterparts. With few freshwater plants on which to forage, they took to mowing the grassy trails. At any sign of danger, instead of diving underwater, they scurry into the prolific poison ivy bushes. In contrast, muskrats in freshwater communities are important aquatic inhabitants thanks to their adaptations.

Muskrats (*Ondatra zibethica*) appear to be saddled with a negative identity crisis when one analyzes their name. The “musk” of muskrat comes from two musk glands, situated on either side of the anus. Apparently, the musk, rather than being malodorous like skunk spray, has a sweet smell. Its main purpose is for scent marking, conveying the animal’s presence in the area. The “rat” in “muskrat” is definitely misleading. Both animals are rodents but surprisingly muskrats are more closely related to tiny voles than to rats. Muskrats are larger than rats, weighing around three pounds.

Could we get away with relegating the muskrat to the sidelines as a beaver’s “sidekick”? The two rodents certainly have similarities and often live in close proximity in wetland communities. Both are aquatic herbivores with gnawing teeth. Beaver are significantly larger, but if you catch a glimpse of their tails, there is no mistaking who is who. Beaver tails have the familiar paddle-shape. Muskrats, in contrast, have a narrow vertically flattened tail, eight to eleven inches long. The tail undulates from side to side when muskrats swim, providing some propulsion and steering action. The muskrat’s hind feet are partially webbed and edged with stiff hairs, unlike the beaver’s large, fully webbed ones. The significant difference between these two animals is the beavers’ ability to create habitat by building dams and ponds to benefit themselves, as well as other creatures, including muskrats.

Muskrats cannot build dams, but will readily move into a beaver pond and construct their own lodges. Knowing a few clues, it is a simple task to tell beaver and muskrat lodges apart. Beaver are in business for the long haul, constructing a structure of bare sticks and logs held together with mud, rising five or six feet above water. Once frozen in the winter cold, their fortress is a stronghold against predators like coyotes. A muskrat’s lodge

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DINOSAURS ALIVE!

7.1.19



FORGING TRAILS: IN CELEBRATION OF DAVE DUCK



The year 2019 marks Dave Erler's fortieth anniversary on staff. We will celebrate this monumental achievement throughout the year – including a special day on August 13, when we hope former staff, interns, and trustees will return to share their memories of working with Dave.

Dave has presented countless programs to tens of thousands of children and adults over the years, each time with contagious enthusiasm for the subject. He's now teaching kids whose parents he taught 20 years

ago (maybe even grandparents he taught 40 years ago). Dave has also taken a lead role in training and caring for our animals, especially raptors; has banded thousands of birds; has designed spectacular exhibits; and hired and managed summer interns.

Dave was the host of *NatureWorks*, developed and produced in partnership with New Hampshire Public Television. This award-winning 16-part video program explores ecology and environmental issues. In 2016, the Science Center published Dave's book, *50 Nature Activities for Kids*.

When Blue Heron School started in 2010, Dave became a regular visitor to the classroom and the preschoolers quickly bonded with Dave Duck - his "nature name" moniker. Dave's love of nature, his encyclopedic knowledge, and enthusiasm for sharing make him a natural teacher. His classes are always memorable.

Dave grew up in Minnesota and attended St. Cloud University and Texas A. & M. Before coming to New Hampshire, he worked for the National Park Service, University of Minnesota Extension Service, National Audubon Society, and the Campbell Gard Environmental Education Center in Ohio, where he met his wife Brenda. When he is not here, you'll find Dave outdoors - birding, hiking, or fishing. He started running in high school and continued for more than 50 years, racking up a total of 105,000 miles.

We are a different organization now than we were in 1979 when Dave arrived. He has been here to help guide our growth. His vision and influence are everywhere – in programs, exhibits, and along the trail. He initiated our first accreditation with the Association of Zoos and Aquariums in 2006.

As we contemplated celebrating Dave's special year, I was delighted to nominate him for the New Hampshire Environmental Educators (NHEE) educator of the year. Their nominating committee decided more was required and they awarded him the Legacy Award, a lifetime achievement award, which was presented at the NHEE conference on April 13 in Manchester.

So, as you cross paths with Dave over the coming year, thank him for his service to the Science Center. And please share your stories and memories about Dave - email us at info@nhnature.org or come to Dave Duck Day. (See more on page 8.) His influence on the Science Center is unique and his legacy is something worth celebrating.

Thanks Dave!



Dave in recent years.

Iain MacLeod, Executive Director
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603-968-7194 x 23



Dave in the early 1980s.

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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 editors Janet Robertson and Amanda Gillen.

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TRUSTEE PROFILE

WILLIAM F. LEE, JR.



In 1991, we built a New Hampshire vacation home in the woods in Meredith. We loved it so much that we moved there permanently in 2003. Within the next year or so, I saw an appeal in the Science Center newsletter about the need for tour boat captains. I applied and thus began my wonderful relationship with the Science Center. After 14 years, and over 500 tours on Squam Lake, I retired as a boat captain in October 2018.

About 10 years ago, I was asked to join one of the Board Committees and two years later, I joined the Board of Trustees. I served for several years as chair of the Development Committee. In that capacity, I gained an increased perspective of and appreciation for members' enthusiasm for and generosity toward the Science Center's mission.

It has been a wonderful journey. I've learned a lot and made many new friends. Being involved is a "feel good" endeavor. The Science Center brings so much joy and educational value to people of all ages, promoting knowledge of our natural world and environment.

The enormous amount of volunteer effort that makes possible the quality and quantity of Science Center's impact is inspiring. The Board of Trustees is truly dedicated to this effort.

Bill was born and raised in Swarthmore, Pennsylvania. He married his ninth grade girlfriend, Linda, soon after they both had graduated from Swarthmore College in 1960. They have three children, eight grandchildren, and two great grandchildren.

Bill's career was in the life insurance and financial planning business. He had the good fortune to serve on the Swarthmore College Board of Managers for 18 years.

Bill and Linda love to travel and have been to all seven continents and more than 90 countries. They now divide their time between their Meredith home in the woods and Kendal in Hanover, New Hampshire, a continuing care retirement community.

NEWSBRIEFS

- Senior Naturalist Dave Erler received a Legacy Award from New Hampshire Environmental Educators at its Growing IDEAs in Environmental Education: Inclusive, Diverse, Equitable, Accessible conference in April at Southern New Hampshire University. Education Director Audrey Eisenhauer, Naturalists Margaret Gillespie and Jeremy Phillips, and Volunteer Manager Carol Raymond also attended.



L to R: Margaret Gillespie, Jeremy Phillips, Emma Erler, Dave Erler, Audrey Eisenhauer

- The Science Center has joined Museums for All, a program of the Institute of Museum and Library Services, administered by the Association of Children's Museums. The goal is to encourage people of all backgrounds to visit museums. Museums for All allows those receiving food assistance (SNAP) benefits to visit the Science Center for \$3 per person, for up to four people. Participants must show a SNAP Electronic Benefits Transfer (EBT) card and photo ID. Museums for All fees are for admission to the live animal exhibit trail from May 1 through November 1.
- Preparing for opening day was difficult this year due to a long winter, which continued with cold and snow in April. Staff worked alongside volunteers and volunteer groups from AmeriCorps, J Jill, Hypertherm, Proctor Academy, Stonyfield Farm, and Strong Foundations Charter School. Thank you to E.M. Heath Supermarket, Hannaford - Meredith, and Hannaford - Plymouth for providing refreshments for volunteers.
- The bald eagles that have nested on Squam since 2003 abandoned their nest for the third year in a row. It's not known why this happened. Perhaps the female is too old (20 this year) or perhaps the same chemicals affecting loon nesting are now impacting the eagle's egg viability.
- In late May, we welcome the arrival of summer interns. This year there are two Education Program Interns, Derek Ruffner and Josh Flagg. Derek is a graduating senior from Kent State University in Ohio. He majored in Middle Childhood Education with a concentration in Science and Social Studies. Josh is senior at Unity College in Maine, working toward a B.S. in Captive Wildlife Care and Education.
- A new position of Volunteer Program Intern will be filled this year by Suzanne (Suzi) Rohm. She is a senior at Benedictine College, Kansas. She will graduate in December with a B.S. in Biology. In 2018, Suzi completed Docent Training.
- Jennifer Davis joins us as the first Animal Care Intern this summer. Jenny is a junior at Bucknell University in Lewisburg, Pennsylvania, majoring in Biology and Environmental Science.
- Guided Discoveries Intern Angela Cappelli is a junior at Siena College in Albany, New York, where she is majoring in Psychology with minors in Education and Environmental Studies.
- Marketing Intern Raina Sciocchetti finished her junior year majoring in Environmental Writing and Media Studies at Unity College in Maine. She is from California.
- Guided Discoveries Instructor Kyle Salmons holds a B.S. in Chemistry with a minor in Creative Writing from SUNY Oswego. He has worked at the Squam Lakes Association as Junior SLA Camp Director and a Lakes Region Conservation Corps member.
- Dead River Company and New Hampshire Electric Co-op Foundation generously supported New Hampshire Day again this year. It was held on Saturday, May 4. Dead River Company representatives shared energy efficient ideas with 2,632 visitors. New Hampshire Electric Cooperative provided free admission to its members.
- Although the Science Center sold the Holderness Inn to Samyn-D'Elia Architects in late 2018, Kirkwood Gardens remains free and open to the public. Construction of a new kiosk funded by

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NATURALIST'S CORNER

THE SOUND OF SILENCE

By Eric D'Aleo

Silence isn't the absence of anything, but the presence of everything – Gordon Hempton

What do you imagine when you think of summer vacation? Morning coffee beside Squam Lake with no one awake except you? A distant wail of a loon echoing across the water while you relax into a deck chair, feeling the tension slip away into silence?

These are the moments we long for, but rarely attain. Overscheduled with work, projects, family, email, texts, and other responsibilities, we don't create the time necessary to slow down. We long for solitude and quiet, but why?

The answer is in the evolution of our species. Historically, nature provided the dominant sounds we heard. Wild areas, rich in natural sounds, allowed people to listen to everything within hearing range. The faintest sounds were the most important. They provided critical information, and hearing them often determined life or death.

In the past, periods of solitude and silence were common. Now, our manmade environment creates constant interruptions through the sound of jets, traffic, alarms, phones, power tools, and other sources. Loud sounds prompt an immediate release of stress hormones like cortisol. Scientists have discovered links between high blood pressure and chronic noise, as well as sleep loss, heart disease, and hearing loss.

Even the daily noise of a relatively "quiet" office has many auditory interruptions. A study at the University of California, Irvine, found that workers average just 11 minutes of time between disruptions. Not the most conducive place to get work done.

The One Square Inch of Silence in the Hoh Valley of Olympic National Park in Washington State is one of the last silent soundscapes in the United States. The auditory horizon of the remote Hoh Valley may have a distance of eight miles. There, you are instantly aware of any sound disturbance. The body recognizes a large, secure listening area and relaxes. Silence lowers blood pressure, boosts the body's immune system, and decreases stress by lowering cortisol levels. Silence stimulates growth of new cells responsible for memory in the brain, reduces insomnia, and promotes creativity, healing, self-awareness, and familiarity with the natural environment.

Can we cultivate experiences of silence? Visit a wilderness area or natural park and take a moment to close your eyes and listen to the sounds around you. What do you hear? Our daily lives might benefit from regular walks in areas where silence and natural sounds are more likely. Be respectful of how the sounds you make in these areas affect the experience of others. Speak quietly, mute electronic equipment, and turn off vehicle engines and car alarms when possible. Encourage friends and family to do the same.

So how does a "lake" morning benefit you?

Photo by Eric D'Aleo

GREEN TIP: CREATE A POLLINATOR-FRIENDLY GARDEN

You may have seen the bad news: over 40% of insects are threatened with extinction worldwide¹. The causes include habitat loss through conversion to intensive agriculture, deforestation, draining of wetlands, and urban sprawl; pollution, mainly from pesticides and fertilizers; invasive species; and climate change.

What can you do to help?

Use native plants in your yard and garden to attract beneficial insects, butterflies and their caterpillars. In this area, some of the best pollinator plants include Echinacea, Milkweed, Joe-Pye-Weed, Goldenrod, Black-eyed Susans, Asters, and native Viburnums.

Don't use chemical pesticides. There are alternatives you can make at home, such as soapy spray to discourage harmful insects. Backyard composting keeps food waste out of landfills and you can use the finished product to build your soil. Find other substitutions for both pesticides and fertilizers online. They will make your yard safer for children and pets too.

Learn more about pollinators such as bees, butterflies, and caterpillars – creatures that help to ensure full harvests and a healthy ecosystem – and meet some live caterpillars too, at the Pollinator Party on Thursday, July 11.

¹Biological Conservation, April 2019

FROM THE HERON'S NEST



By Laura Mammarelli

One of the highlights of the Blue Heron School year is our Sweet Spring Celebration, when we celebrate the season with a day of learning about sugaring and maple syrup. Families are invited to enjoy waffles with maple syrup too. In preparation,



children dress up as a tree to demonstrate the layers of the tree and learn about how sap travels up inside sugar maple trees.

Blue Heron School is a nature-based Montessori school for children ages three to six. For more information please visit www.nhnature.org/programs or contact Laura Mammarelli, Blue Heron School Director, at 603-968-7194 x 40 or blueheron@nhnature.org.

KIRKWOOD GARDENS PLANT SPOTLIGHT

By Brenda Erler

Polyantha Rose

Rosa 'The Fairy'

Culture: Grow in medium moist, slightly acidic, well-drained soil in full sun to light shade. Mulch to retain moisture and keep roots cool. Prune in late winter or early spring if needed. Deadhead to encourage constant bloom.

Bloom: Late May to frost. This plant is covered with beautiful, fragrant, one-inch double pink flowers, which appear singly or in clusters.

Height: 2 to 3 feet tall and wide.

This disease-resistant rose blooms reliably all season and needs only minimal pruning to control size. It is very attractive to butterflies. Grow in small groups or in masses in cottage gardens, borders, or foundation plantings.

Kirkwood location: In bed next to the path between the upper and lower garden.



Flickr/F.D. Richards CC BY-SA 2.0

Cosmos

Cosmos bipinnatus 'Rubenza'

Culture: Grow as an annual in average, evenly moist, well-drained soil in full sun. Avoid rich soils. Plant seed directly in garden just before last spring frost date or start indoors 6 to 8 weeks before frost for earlier flowering. Deadhead to encourage constant bloom.

Bloom: Late June to frost. This variety produces copious single, ruby red blossoms that fade to shades of rose and pink.

Height: 2½ to 3 feet.

Cosmos are native to Mexico. The Latin name comes from the Greek kosmos meaning beautiful. These annuals are easy to grow, will often self-seed and are very attractive to butterflies. Good cut flowers.

Kirkwood location: Plantings on both sides of lower garden.



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

Generously Sponsored by:



OPENING
JULY 1

DINOSAURS ALIVE!



NEWSBRIEFS *continued from page 3*

the Helen C. Frick Foundation will be located at an entrance to the garden. It will show information about birds, butterflies, and the plants in Kirkwood Gardens.



- Lake Cruise Headquarters will feature new exhibits this year, including one about lake turnover (the seasonal movement of water in a lake); a solar exhibit explaining the photovoltaic panels and battery system used to power lake cruise headquarters; information about plants and shrubs to use near water; and a large-scale map of Squam Lake showing the cruise route.
- Dinosaurs Alive! will open on July 1 and run through September 30. Five spectacular, gigantic, animatronic dinosaurs that look, move, and sound like the real thing will be in natural settings along the live animal exhibit trail – one even spits! Dinosaurs Alive! is included in regular trail admission and free for members.
- In 2019, the First Guides teen volunteer program celebrates

its tenth year! Over 100 teens have completed the program, many returning yearly, and some becoming docents at age 18. Last year a Community Action Program was added. First Guides helped with local projects such as trail maintenance and invasive species removal with Squam Lakes Association, a loon census with Loon Preservation Committee, bat counts for the NH Bat Colony Count, and invasive removal at the Science Center. First Guides recorded their experiences and shared their stories through visual and written works. Because of this Community Action Program, Volunteer Manager Carol Raymond received leadership training from the North American Association for Environmental Education ee360 Fellowship to further develop the program. This year, thanks to a mini grant from ee360, EVP Marketing was hired to train First Guides on videography and camera equipment was purchased. Videography skills will enable teen volunteers to record their Community Action projects, and to present them to visitors, their families, and other volunteers. Watch for these videos on the Science Center social media.

CALENDAR OF 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.

JUNE

<p>JUNE 1 SATURDAY 9:00 a.m. to 12:00 p.m. For all ages</p>	<p>Kirkwood Gardens Day Gain inspiration from Kirkwood Gardens and find beautiful plants for your own. Purchase fine perennials from a prestigious New England nursery and knowledgeable local gardeners. Peruse the silent auction of desirable plants and garden items, browse craft vendors, and find treasures at the collectibles yard sale. Enjoy beverages and baked goods for sale. All proceeds benefit Kirkwood Gardens at Squam Lakes Natural Science Center, est. 1995. Kirkwood Gardens and parking are located on Route 3 in Holderness (north of Route 113). <i>Cost: free and open to the public.</i> Sponsored by: </p>
<p>JUNE 4 TUESDAY 7:00 p.m. For adults</p>	<p>Moose in New Hampshire How is New Hampshire's moose population doing? What is the deal with winter tick and moose? How is climate change affecting moose populations? Join New Hampshire Fish and Game Biologist and Moose Project Leader Kris Rines for answers to these questions and more as she shares her research on these largest members of the deer family. <i>Cost: No charge but reservations are requested.</i></p>
<p>JUNE 7 FRIDAY 7:00 to 10:00 a.m. For adults and children ages 14 and up</p>	<p>Spring Birding Join Squam Lakes Natural Science Center in partnership with Squam Lakes Conservation Society for these beginning bird ID programs. Under the guidance of Iain MacLeod, participants will seek out the huge variety of birds that fill our woods, meadows, and wetlands each spring. Explore a variety of habitats in the Lakes Region looking for birds as you learn identification by sight and sound. <i>Cost per program: \$12/SLNSC or SLCS member; \$15/non-member</i></p>
<p>JUNE 8 SATURDAY For adults and families with children ages 12 and up</p>	<p>Annual Breeding Bird Census Session 1 - 5:30 to 8:00 a.m. Session 2 - 8:00 to 9:30 a.m. For over three decades Senior Naturalist Dave Erler has conducted a census in early June of bird species that nest on the Science Center campus. Done primarily by ear, listening for the territorial songs of male birds, indicating probable nesting. This is a great opportunity to hone your bird song identification skills. Session 1 involves canvassing two forested zones, including Mt. Fayal. Session 2, covers fields, exhibit areas, and Kirkwood Gardens. Binoculars are available or bring your own. <i>Cost: No charge but reservations are requested.</i></p>
<p>JUNE 8 SATURDAY 9:00 to 11:30 a.m. For adults</p>	<p>Squam Climate Change Forum Bring your stories to share for this important conversation about taking action to mitigate climate change in the Squam Lake watershed. Hear from scientists and community leaders before engaging in discussion about moving forward together to create collective impact. Hosted by Squam Lakes Natural Science Center, Squam Lakes Association, and Squam Lakes Conservation Society. Space is limited. <i>Cost: No charge but reservations are required. Register at squamlakes.org/events.</i></p>
<p>JUNE 13 THURSDAY 10:00 to 11:30 a.m. For adults</p>	<p>Invasive Species Removal Work Day Learn to how to identify and remove invasive plant species. Begin with a brief introduction to an invasive species and then go 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. Refreshments provided to wrap up our work sessions. Wear long pants and sturdy shoes. Bring work gloves, water, insect repellent, and sunscreen. <i>Cost: No charge but reservations are requested.</i></p>
<p>JUNE 19, 26 WEDNESDAYS 7:30 to 8:45 a.m. For adults</p>	<p>Yoga on the Deck Rise and shine with Vinyasa Yoga on the deck at Water Matters Pavilion. Stretch and renew while surrounded by the sights and sounds of nature. Led by Donna Sullivan E-RYT 200, RYT-500, this gentle flow yoga is appropriate for all levels. Bring a yoga mat and water. <i>Cost: \$13/member; \$15/non-member</i></p>
<p>JUNE 28 FRIDAY 10:00 to 11:30 a.m. For all ages</p>	<p>StoryWalk™ Opening Celebration StoryWalk™ features <i>Tadpole Rex</i>, written and illustrated by Kurt Cyrus. In this story that connects dinosaurs to modern amphibians, the muddy footprint of a T. Rex becomes a puddle, and in that puddle a tadpole grows. Enjoy family activities and refreshments at the Opening Celebration. StoryWalk™ surrounds the Holderness Town Gazebo behind the Holderness Post Office at Curry Place. Presented in partnership with Holderness Library and Holderness Recreation Department. Open daily from June 28 through September 2. <i>Cost: No charge and no reservations requested.</i> Sponsored by: </p>

2019 VOLUNTEER TRAINING

Contact Carol Raymond, Volunteer Manager, at 603-968-7194 x 22 for details about First Guide Teen Volunteer and Adult Docent training.



<p>JULY 2 TUESDAY 7:00 p.m. For adults</p>	<p>Mapping Stone Walls - Using New Technology to Honor the Past State Geologist Rick Chormann will share the new interactive “New Hampshire Stone Wall Mapper,” which enables the public to use this web-based tool to map the state’s historic stone walls. The project’s detailed maps of stone walls will provide an inventory to support efforts by the state and local communities to monitor and preserve these iconic symbols of our shared heritage. Learn how you can be involved. <i>Cost: No charge but reservations are requested.</i></p>
<p>JULY 3, 10, 17, 24, 31 WEDNESDAYS</p>	<p>Yoga on the Deck 7:30 to 8:45 a.m. For adults <i>See description for June 19.</i></p>
<p>JULY 9, 16 TUESDAYS 9:00 to 11:30 a.m. For adults and children ages 12+</p>	<p>Meet the Dinosaurs of <i>Dinosaurs Alive!</i> Get to know the dinosaur species of <i>Dinosaurs Alive!</i> through an illustrated indoor presentation followed by a walk to see the giant animatronic dinosaurs. Wrap up by meeting a live modern day dinosaur in the classroom. <i>Cost: \$8/member; \$10/non-member</i></p>
<p>JULY 10, 24 WEDNESDAYS 11:00 a.m. to 12:00 p.m. For ages 2 and 3</p>	<p>Nature Play Time Explore the natural world with your little one! Using our five senses, we will investigate our surroundings in fields, forests, ponds and streams. Adults get to play too! An adult must participate with children at no additional cost. Program is outdoors; please dress for the weather with clothes that can get wet and muddy. <i>Cost per session: \$5/member child; \$7/non-member child</i></p>
<p>JULY 10, 31 WEDNESDAYS 4:00 to 5:30 p.m. For families with children ages 4+</p>	<p>Discover <i>Dinosaurs Alive!</i> We will head out on the trail to discover the five giant, animatronic dinosaurs of <i>Dinosaurs Alive!</i> After learning about when these animals lived and how they survived, we will play a few dinosaur games and wrap up in the classroom with a visit from a live modern day dinosaur. <i>Cost: \$8/member; \$10/non-member</i></p>
<p>JULY 11 THURSDAY 9:30 a.m. to 5:00 p.m. For all ages Sponsored by: </p>	<p>Pollinator Party Buzz over to the Pollinator Party, a celebration of the life and work of bees and butterflies, and caterpillars too! Bees and other pollinators play a major role in American agriculture by pollinating fruits, vegetables, nuts, and seeds. Pollinator Party brings together bees, caterpillars, beekeepers, flowers and more. Visit with local beekeepers and learn how to raise your own bees. See the bee houses in Kirkwood Gardens, learn about plants that attract pollinators, and find out about native bees. Make a wildflower seed bomb to start your own pollinator garden at home. Visit with The Caterpillar Lab from 10:00 a.m. to 2:00 p.m. to meet a variety of live native caterpillars on branches of their native New England food plants. <i>Cost: included with trail admission</i></p>
<p>JULY 17, 24, 31 WEDNESDAYS 6:30 to 8:30 p.m. For adults</p>	<p>BBC Autumnwatch New England Viewing Party <i>July 17 – Episode 1, July 24 – Episode 2, July 31 – Episode 3, August 7 – Episode 4</i> In October 2018, a crew from the BBC and PBS converged on Holderness for live broadcasts of Autumnwatch New England. View the four BBC episodes featuring spectacular nature footage, the well-loved BBC hosts, and wonderful pre-recorded segments with local wildlife expert Rick Van de Poll and Loon Preservation Committee biologist Tiffany Grade. Executive Director Iain MacLeod served as a special advisor for the production and will introduce the shows and provide background and color commentary. <i>Cost: No charge but reservations are requested.</i></p>
<p>JULY 19 FRIDAY 2:00 to 3:00 p.m. For all ages</p>	<p>Music in the Garden with New Hampshire Music Festival Join professional musicians from the New Hampshire Music Festival for an afternoon of classical music in Kirkwood Gardens. Bring a lawn chair and sit back, relax, and take in the sounds of the music and the sights of beautiful Kirkwood Gardens. <i>Cost: No charge but reservations are requested.</i></p>

**2019
Summer Splash - Hidden Stories**
Sunday, July 21 at The Barn on the Pemi



Gather your friends and family for this special dinner dance at the Barn on the Pemi. Dance to the music of Brandy. Bid on unique items at the silent and live auctions. Watch for your invitation in the mail or reserve your seats online at nhnature.org/programs/gala.php. Space is limited.
Advance reservations are required by July 12. Cost: \$60/person

AUGUST









AUGUST 7 WEDNESDAY	BBC AutumnWatch New England Viewing Party 6:30 to 8:30 p.m. <i>See description for July 17.</i>
AUGUST 8 THURSDAY 9:30 a.m. to 5:00 p.m. For all ages	Birthday Bash for the Critters You are invited to this one-of-a-kind birthday party to celebrate with unique enrichment gifts for our animals. 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 make a donation 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</i>
AUGUST 7, 14 WEDNESDAY	Yoga on the Deck 7:30 to 8:45 a.m. For adults <i>See description for June 19.</i>
AUGUST 7, 21 WEDNESDAY	Nature Play Time 11:00 a.m. to 12:00 p.m. For ages 2 and 3 <i>See description for July 10.</i>
AUGUST 10 SATURDAY 8:30 to 10:00 a.m. For adults	Annual Meeting for Members Enjoy a complimentary continental breakfast before the business meeting starting at 9:00 a.m. 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 <i>Cost: No charge but reservations are requested.</i>
AUGUST 13 TUESDAY 9:30 a.m. to 5:00 p.m. For all ages	Dave Duck Day Join us to celebrate Senior Naturalist Dave Erler's 40th anniversary as a Science Center staff member! For 40 years, Dave, also known by his nature name "Dave Duck," has inspired countless children to explore the natural world around them. Dave's favorite ways to experience nature are captured in his book <i>50 Nature Activities for Kids</i> . Experience a sampling of these activities throughout the day and purchase your own copy of the book signed by Dave Duck. Share your stories and memories with Dave at a reception from 5:00 to 6:30 p.m. <i>Cost: included with trail admission.</i>
AUGUST 20 TUESDAY 9:30 a.m. to 5:00 p.m. For all ages	Dinosaurs Alive! Day Learn about the amazing creatures that roamed the earth more than 65 million years ago. Create a dinosaur craft and dig for dinosaur fossils. Science Center Naturalists will present the Modern Day Dinosaur program for children. Dr. Kevin Peterson from Dartmouth College will present a program for teens and adults about how dinosaurs lived, and died. Special Up Close to Animals presentations will feature reptiles and raptors. <i>Cost: included with trail admission.</i> <i>Sponsored by:</i>  

2019 GUIDED DISCOVERIES | SUMMER YOUTH NATURE DAY CAMPS

REGISTER ONLINE!

nhnature.org/programs

ON THE TRAIL

-  **River Otter Feeding** - Every Monday, Wednesday, and Friday at 11:30 a.m. at the River Otter Exhibit (May - October)
Sponsored by: 
-  **Turtle Talks** - Every Tuesday in July and August at 10:30 a.m. on the Bluestone Terrace of the Webster Education Building
-  **Up Close to Animals**
Daily in July and August at 11:00 a.m., 12:00 p.m., 1:00 p.m., 2:00 p.m., 3:00 p.m. at the Amphitheater and on weekends through Columbus Day. Held in Webster Building Classroom 3 during inclement weather.
 -  **Fish Feeding** - every Tuesday at 1:00 p.m. at the Water Matters Pavilion (July - August)
 -  **Mountain Lion Training** - every Thursday at 12:00 p.m. at the Mountain Lion Exhibit (July - August)
-  **StoryWalk™** - Daily June 28 through September 2 at the Holderness Town Gazebo
-  **Owl's Roost Cafe** - Open daily mid-June to Labor Day 11:00 a.m. to 3:00 p.m. in the Trailhead Gallery.

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

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.

Discover Squam

May 18 to June 30 - Daily at 1:00 p.m.

July 1 to September 2 - Daily at 11:00 a.m., 1:00 p.m., 3:00 p.m.

September 3 to October 14

Tuesdays, Wednesdays, Thursdays at 11:00 a.m., 1:00 p.m.

Fridays through Mondays 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. Observe Common Loons and Bald Eagles.

Loon Cruise

June 7, 14, 21 - Fridays at 3:00 p.m.

June 24 to August 30 - Mondays and Fridays at 3:00 p.m.

We are delighted to join forces with our friends and colleagues at the Loon Preservation Committee (LPC). Offered twice a week these cruises focus on Common Loon conservation, biology, and monitoring. A Science Center naturalist joins an LPC biologist who guides the tour and discusses the work LPC does across the state and on Squam to protect these extraordinary birds. This special cruise route is designed to maximize Loon observations.

Cruise with a Naturalist

July 2 to August 29 - Tuesdays, Wednesdays, Thursdays at 3:30 p.m.

September 3 to October 10 - Tuesdays, Wednesdays, Thursdays 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.

Lake Explorers Family Cruise

July 23 - August 13 - Tuesdays at 10:00 a.m. | For ages 5+

Experience the excitement of Squam Lake as active explorers. This family-style cruise gives children an opportunity to use binoculars, search for Loons, collect microscopic life, watch live fish, participate in a scavenger hunt, and test their navigational abilities. Get on board for a cruise that could spark an interest to last a lifetime.

The Family Cruise is 2 hours in length.

Dinner and Sunset Cruise

Thursdays, July 18 and 25

Dinner at 5:00 p.m.

Cruise departs at 6:30 p.m.

Start your evening with a delicious, fixed-price dinner at Walter's Basin Restaurant, followed by a sunset cruise on Squam Lake. This guided tour showcases Squam's beauty as dusk falls. The guide discusses the natural history, wildlife, and people of Squam Lake.

Cost: \$55.00 per person; not recommended for children

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 Sharon at 603-968-7194 x10 or sharon.warga@nhnature.org for reservations.

All Squam Lake Cruises depart on Route 113 across from the Science Center parking lots. Park in designated lots and walk to Lake Education Headquarters using pathway. Squam Lake Cruises are 90 minutes in length aboard canopied pontoon boats. Binoculars are available for wildlife viewing at no additional cost.

**Space is limited on Squam Lake Cruises.
Make your reservation online at nhnature.org or call 603-968-7194 x 7.**

Purchase cruise tickets online at nhnature.org!

Squam Lake Cruise Rates:

Adult: \$27; Senior (65+): \$25; Youth (up to age 15): \$23

Members receive a \$4 discount per person. Not recommended for children under age 3

OPENING A WINDOW TO THE NATURAL WORLD



More than ever, nonprofit organizations, like Squam Lakes Natural Science Center, benefit from strong financial assistance from people like our members and donors. You can make a lasting contribution to environmental education by remembering Squam Lakes Natural Science Center in your will. A simple

charitable bequest is anything you leave from your estate to a nonprofit organization, such as the Science Center, through your will. Most people leave an estate when they die – property, money, personal belongings – even if they do not have a great deal of wealth.

To leave a charitable bequest in your will, use direct language naming Squam Lakes Natural Science Center and the assets

you wish to give. For cash gifts, this may be a specific dollar amount or a percentage of your assets. Also, a bequest may be added to an existing will through an amendment (codicil).

Here is sample bequest wording: *I give to Squam Lakes Natural Science Center the sum of \$___ or ___ percentage of my estate for its unrestricted use.*

Please consider making a contribution to Squam Lakes Natural Science Center from your estate through a bequest. Thank you.

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

These generous donors made tribute gifts, which were received between January 1 and March 31, 2019:

In memory of Betsy O'Leary Abelson
Diane Garfield and Peter Gross
Mary Gibb

In memory of William Bierlin
William E. Howe & Co.
Doug and Jennifer Swain

In memory of Mary Denison
Elizabeth and William Dewey

In memory of Anna Eaton
Beverly and Daniel Heyduk
Janet Robertson
Liz Rowe

In memory of Robert Korten
Paul and Donna Burns

Marcia Etu
Peter and Anne Foster
Tom and Diane Gilrein
Elaine Josse
Jeanne Litwin
Susan Pennington and James Randazzo

In memory of Barbara "Ginger" Parsons
Estate of Philip B. Parsons, Jr.

In memory of Greg Smith
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In memory of William Stratton
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Bill and Peggy Breer
Maria Higgins
Jane Johnston



Become a member of the Naturalist's Legacy Society. Visit nhnature.org/support



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BONUS MEMBER BENEFITS

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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. Visit the Membership section at nhnature.org for full details and website links where you may check organization hours and directions.

Remember as a Science Center member, you also receive discounted admission all year at participating AZA and ANCA organizations. Visit the Membership section of nhnature.org for details.

WISH LIST

For office - small desk or table
For events - small pop-up tent
For Animal Care - bath towels, electric golf cart, natural sisal rope, large jet sled
For Facilities - loppers and pruners for invasive species removal
For the Intern Cottage - kitchen knife sharpener, toaster oven, fans
For Blue Heron School - food processor, pots and pans for the playground

THE HOWLING COYOTE GIFT SHOP

Enjoy a sustainable picnic with green products from the Howling Coyote Gift Shop including bamboo utensils, beeswax wraps, stainless steel drinking straws, tea, local honey, and branded glasses.

Members receive a 10% discount on all non-sale items. All proceeds from sales at the Howling Coyote Gift Shop benefit the mission of Squam Lakes Natural Science Center.



TRAIL'S END

INSPIRATION AT WORK



I am a member of the Plymouth Rotary Club and one of approximately 1.2 million members of Rotary International (RI). RI is a service organization founded to “do good in the world” - from eradicating polio, to clean water and sanitation, to hanging the greens on the light poles around downtown Plymouth during the holidays. For 2019, our RI President Barry Rassin's chosen theme is “Be the Inspiration.” When you think about it, inspiration has been at the heart of our Science Center mission since its founding. Webster's Seventh defines inspiration as “The act or power of moving the intellect or emotions.” When it comes to education in the natural sciences, this is exactly what we do. Malala Yousefza said, “Let us remember: One look, one pen, one child, and one teacher can change the world.”

When I was a Senior Auditor in my accounting firm, I had my first training in supervision of younger team members. The instructor asked our class the question, “If you were to go on vacation and leave your team of 10 auditors on the job by themselves, how much work would get done?” Filled with the confidence gained from our recent promotions and understanding the importance of a good leader, our answers ranged from 50% to 70%. The instructor then asked, “OK, how much work would get done if your ten team members all went on vacation and left you to do the work?” In other words, who is more important to whom? Brian Tracy made this same point when he said, “The effective leader recognizes that they are more dependent on their people than they are on them.”

Which brings me to the point about inspiration. At the Science Center, inspiration is delivered by each and every one of our staff members each and every day. They inspire our visitors. They inspire our schoolchildren. They inspire our Board of Trustees. And, most of all they inspire me. Without their commitment and strong dedication to education and conservation in the natural world, we all would be in a much different place. I know that they derive inspiration from the work they love to deliver inspiration to all those fortunate people around them. As Board Chair, I can take no credit as a leader for their many accomplishments. I dare to admit that without me, 100%+ of the work of our mission would still get done.

As I write this, we will open soon and are excited about the dawn of a new season with all the enthusiasm (and hard work) it brings. The staff is crazy busy clearing ice, maintaining boats, tidying up the trail and exhibits, organizing school trips, and more. The next time you visit, please make a point of finding members of our staff team, thank them for their efforts, and acknowledge the inspiration they provide. And remember the words of Rob Siltanen, “People who are crazy enough to think they can change the world are the ones that do!”

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.

MUSKRATS *continued from page 1*

is a different story. Made up of wetland grasses and mud, muskrat houses are smaller and sited in comparatively shallow water. They rise up only three or four feet above the water's surface. How about interior decorating? Muskrats, like beaver, dig and chew underwater entrances and create an inside platform above the water level. The walls of a muskrat lodge, even when frozen in winter, are no match for a determined digging predator, particularly if the muskrats have weakened the walls by sampling some of the grassy ingredients of their homes.

Muskrats are prolific, generally producing three litters, each with six to eight young, from early spring into late summer in New England. Being an herbivore, they eat many pond plants, including the familiar cattails and water lilies. Surprisingly, they branch into freshwater critters too, like crayfish, frogs, and mussels. What predators are lurking for a muskrat meal? Mink, by attacking prey with a tenacious bite to the cervical spine, are able to subdue the larger muskrat. Young muskrats may fall prey to raccoons, and even to large fish or snapping turtles.

What is the best time to day to glimpse a muskrat? Dusk is ideal as they are mainly active through the evening and night hours. Daytime viewing is possible as well. Just keep your eye out over quiet water for a small brown head and furry body followed by that odd sculling tail. Welcome to a muskrat's world.

MUSKRAT QUIZ

1. T or F? Muskrats and beaver have similar tails.
2. Muskrats eat A. cattails B. crayfish C. frogs D. All of these
3. The major components of a muskrat lodge are _____ and _____.
4. T or F? Muskrats, like beaver, build dams to create ponds.
5. What is the best time of day to see a muskrat?

Answers:

1. False | 2. D | 3. Wetland grasses, mud | 4. False | 5. Dusk



CORRECTION: The answer to the Snail Quiz, Question 2 in the spring newsletter was incorrect. The question was, “Which of the five senses do snails NOT have?” The correct answer is “Hearing.”



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