



TAMARACKS: THE BEST OF TWO WORLDS

By Margaret Gillespie

If you have not met a tamarack tree before, get on your exploring cap and prepare for a ride. One of the best places to look for tamaracks is along the border of bogs – they are naturally adapted to these wet, acidic environments.

This tree doesn't follow many conventional arboreal rules and it exists in some of the harshest conditions, ranging north beyond where other trees can grow. Tamarack, *Larix laricina*, may also be called hackmatack or larch. If "tamarack" sounds like a Native American name, you are right. It means "wood used for snowshoes" in Abenaki.

Tamaracks are deciduous conifers, which instantly seems a misnomer. Simply put, as conifers, they have cones and needles but their needles fall in the late autumn. While at work, however, these needles function efficiently to make nutrients for the trees. They are arranged sparsely in clumps on the limbs so sunlight penetrates fully and keeps the glucose factories in the needles churning. When their summer work is accomplished, it is to the trees' advantage to bail out of the sugar production business. Needles turn a golden hue and soon fall earthward, leaving the rounded bare stubs or nodes that bore them jutting up along the branches. If one is familiar with this radical behavior – the only other conifer that sheds its needles is the bald cypress that lives far to the south – this is a chance to revel in the last gasp of fall colors. It is also an opportunity to appreciate what it takes to be the tree that reaches further north than any other, butting up against the tundra of northern Canada and Alaska. On occasion, folks take the browning needles not as a spectacle but as an indicator of a dying tree and pull out the chain saw. Nothing could be further from the truth.

So what is the advantage, as a tree, of abandoning one's needles? Tamarack needles are naturally lightweight, free of the waxy coating found on other conifers, which keeps moisture from escaping over the winter months. Touch a soft, flexible, tamarack needle cluster and compare it to a somewhat stiff white pine bundle – quite a contrast. Just like lighter vehicles use less fuel, lighter needles use fewer resources. Waste not, want not. Tamaracks retrieve a good percentage of nitrogen from their needles before the big drop. Needles certainly shed snow better than deciduous leaves but snow and wind still topple a fair share of pines and other conifers. Tamaracks in winter retain their snow shedding shape while cutting wind resistance without needles.

What do tamarack trees and spring peepers have in common? Despite being such diverse organisms, they share one amazing winter adaptation. Water freezing and expanding within cells is a destructive force that limits how far north many

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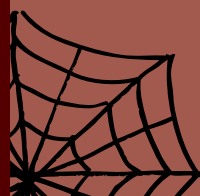
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HALLOWEEN HOOT 'N HOWL SATURDAY, OCTOBER 27

6:00 to 8:30 p.m. | Rain or Shine

Registration required

See page 7 for details.



FORGING TRAILS: A NEW BRITISH INVASION



When I travel to Scotland in June each year, I always catch a few episodes (with my mom) of our favorite BBC TV show called *Springwatch*. My mom can attest I always lament that we don't have something similar in the U.S.

Springwatch has been running for more than a decade. The concept of the show is simple. They pick a spectacular natural area in the UK (often a large nature reserve) and highlight the wildlife that lives there using dozens of live cameras set up throughout the area. For three weeks, they follow the

stories of those critters as they go about their daily lives. The location dictates what particular species are followed, but usually cameras are set up at several bird nests or badger sets or fox dens. Over the course of the three weeks, those animals become celebrities throughout the UK. Each evening a live one-hour primetime show is broadcast on BBC2, and the cameras are streamed 24/7 on social media and on their website.

Because the show is so popular, a few years back they added *Autumnwatch* and *Winterwatch* – one-week-long revisits to the site of the spring extravaganza. Over the years, they have recorded extraordinary behaviors and spectacular events. They have cultivated a devoted following and raised awareness about wildlife and conservation to a whole new level.

The BBC has long been a pioneer in natural history filmmaking (think *Planet Earth* . . . and basically everything that David Attenborough has ever done). I remember their very first live nature broadcast from the 1970s. I was about 12 years old. The excitement of seeing live footage of the Bewick's Swans at dawn at the Wildfowl Trust Headquarters in Slimbridge in Gloucestershire, England made a huge impression on me. The BBC as an institution is special to me, as my late father made his career at the BBC as a TV and radio broadcaster.

So, you can imagine my excitement last summer when I got an email from a BBC researcher asking me if I would be interested in Squam being considered for the location of a special *Autumnwatch New England* (in conjunction with PBS) in the fall of 2018. Of course, I said yes, and over the next few weeks plans were made for BBC producers and engineers to scout the location. We were one of several sites considered across New England, but they – of course – chose us!! This will be the first time any of the "Watch" series have gone outside the UK.

Over the last nine months, various BBC crews – including a drone camera operator – have visited to film in different seasons. I have acted as liaison and provided their researchers with story ideas and logistical assistance. Remote camera locations have been chosen and plans are well underway for the great British invasion in October. Much of the activity will be here at the Science Center and our animals and staff will have roles in each of the shows. Our Holderness neighbor, Camp Deerwood, will host the actual "studio set" for the live broadcasts as well as providing editing studios and engineering space. Their wonderful kitchen will also be used to cater for the hundred plus staff and crew.

The shows will air live in the UK at 8:00 p.m. (3:00 p.m. our time) on October 15, 16, 17 and 18, 2018. PBS will broadcast three live shows (at 8:00 p.m. our time) on October 17, 18, and 19, 2018. Mark your calendars and don't be surprised to hear lots of British accents around here this fall.

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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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VOLUNTEER PROFILE

TESSA TREMBLAY



I wasn't exactly born with a love of nature, if my mom's stories of me crying every time she tried to put my bare feet on dirt are anything to go by. Thankfully, I more than outgrew that phase, due to both my parents encouraging our family to spend time outdoors. I remember the zoos and aquariums we visited more than any other places. To say they were my favorite places is an understatement. Even now when my parents

ask where I want to visit, a zoo or nature reserve is my first choice. Getting to learn about animals is simply the coolest thing to me. As a kid, I spent hours reading books and watching nature documentaries, and then ran outside to see if I could find the same thing to be true in my own backyard. So naturally, zoos are the ultimate animal learning utopia for me. And Squam Lakes Natural Science Center is really a step above most zoos in incorporating learning and education in its exhibits.

In 2016, my mom read about the First Guides program in this very newsletter. I was so excited to finally be able to pursue a position where I could put my love and knowledge of animals to use, and at a place that puts such high regard on learning.

Within the first two weeks of volunteering, I had completely fallen in love not only with the Science Center, but also with being a First Guide. It combined all of my favorite things and best skills. It has long been my dream to be a zookeeper, but over the years, people convinced me it wasn't a "practical" career. After being a First Guide for about a month, my dream was rekindled. And thanks to both the program and other volunteers and staff, I gained the courage to pursue it again!

I am now a docent and I also help with some special projects and animal care. One of the greatest things about volunteering here is being able to meet people from all over and all walks of life. I enjoy finding the common love of nature among us and being able to teach something others can in turn teach someone else. The love of nature can really bring so many different people together. I love being part of the Science Center's mission "to advance understanding of ecology by exploring New Hampshire's natural world." The visitors, staff, and volunteers are all important to advancing that mission. I really believe one of the Science Center's greatest features is the open learning environment it provides to all. I have learned and gained so much by volunteering here. I hope I'll be able to continue to share my love with others for many years to come. See you on the trail!

Tessa Tremblay is a 2018 homeschool graduate from Tuftonboro. She hopes to attend the Animal Behavior Institute for Zookeeping next year. She has also volunteered at the Lakes Region Humane Society. Tessa enjoys reading, music, and spending time with her cat, dog, finches, and chickens.

NEWSBRIEFS

- Please welcome Caleb LaRocca, new Animal Care Associate. Caleb grew up on a small farm in southwestern New Hampshire. In 2016, he graduated from Keene State



- College with a degree in Biology. He spent the next year working at two animal sanctuaries: Turpentine Creek Wildlife Refuge in Eureka Springs, Arkansas, and Black Pine Animal Sanctuary in Albion, Indiana, where he worked with exotic and native animals, including big cats, small cats, bears, reptiles, canines, parrots, primates, and others. Caleb looks forward to getting to know the animals and people here.

- Blue Heron School Associate Teacher Corrie Kinder attended the Northeast Montessori Institute teacher-training program for two weeks this summer to become certified for the three to six year olds group.

- Volunteer Manager Carol Raymond received a Fellowship for the North American Association for Environmental Education ee360 Leadership Institute.

In July, she attended a six-day workshop in Warrenton, Virginia, along with 31 other Fellows from across the country and from Nepal, India, China, and New Zealand. Carol's project focused on a new community action project for First Guides teen volunteers.

- It's been a busy season for volunteers. Eleven docents and ten First Guides completed training to join many other volunteers who help in numerous ways.

- A number of new interpretive signs were recently added at the Lake Cruise Headquarters. One panel discusses how the landscaping and water management were designed to prevent runoff into the lake. A large lake chart shows the cruise tour route. Private donations made in memory of former Trustee Alan T. English will fund scientific displays under construction: one about lake turnover and the other about solar energy.

- Our new website has the same link (nhnature.org), but an entirely new look, with better navigation, more photos, and easier registration for membership and programs. Brian Sullivan of Sullivan + Wolf Design in Plymouth created the new site. Marketing Manager Amanda Gillen

implemented the code page by page.

- With 14 new students enrolled in Blue Heron School (for a total of 32) for the 2018-19 school year, the upstairs of the Trailhead Gallery will be set up as a second classroom in late August, in addition to the current classroom in the basement. The Trailhead Gallery will be closed to the public until next June.

- Pollinator Party on July 11 was a great success with nearly 800 people attending. The Caterpillar Lab showed fascinating live caterpillars. Visitors made wildflower seed bombs to attract pollinators at home, learned about beekeeping from Pemi Baker Beekeepers, and about native bees from volunteers in Kirkwood Gardens. Belknap Landscape Company generously sponsored this event.

- Christmas in July for the Critters was on July 25. Visitors could watch enrichment activities for Mink, Coyote, Bear, Otter, and Fish, and learned how Animal Care staff care for our animals both physically and mentally. Thank you to sponsors: Bryant's Pipe Connections, Med Check Urgent Care, Plymouth Animal Hospital, Primo Water, and Smith Orchard.

NATURALIST'S CORNER

SUMMER EVENINGS COUNTING BATS

By Audrey Eisenhauer



You too, have likely noticed fewer bats swooping and darting around the summer night sky in recent years. This noticeable decline is due to a fungus that grows on bats during hibernation. The fungus dehydrates the bats and ultimately causes them to rouse from their slowed metabolic state and leave their hibernacula to seek food and water. Of course, in the middle of winter these aren't things bats can find. Between the cold temperatures and the precious energy they expend, the bats perish.

This condition is known as White-Nose Syndrome (WNS) and it has caused losses as great as 95% in some bat species. All five of New Hampshire's hibernating bat species have suffered significant losses from WNS; hardest hit has been the little brown bat. With a single bat able to eat approximately 1,000 insects each night, the loss of these important predators from the ecosystem is certainly a concern.

Teams of scientists are working together to learn as much as they can about WNS and to determine how to combat the effects of this introduced fungus. WNS has been seen throughout the eastern US and Canada and in the last two years has shown up in Washington and Texas. There is hope that surviving bats may have a natural resistance to the fungus. But with a birth rate of one to two pups per year, any potential recovery of the population will be slow.

You can help biologists understand what is happening to our summer bat populations here in New Hampshire by conducting a Summer Bat Colony Count for the New Hampshire Bat Survey Project. This citizen science project helps biologists gather baseline data on summer bat colony populations and evaluate the impact of WNS on our summer bat colonies.

During the summer months, the bats we encounter living in buildings and bat houses are typically little brown (*Myotis lucifugus*) or big brown (*Eptesicus fuscus*) bat females, gathered in a maternity roost to give birth and raise their young. The Summer Bat Colony Count has engaged volunteers across the state counting bats in these maternity colonies as they emerge from their roosts in the evening.

At the Science Center this summer, we counted bats emerging from five bat houses, thanks to help from First Guides teen volunteers. New this year, First Guides may participate in a Community Environmental Action Project. Several First Guides selected the Summer Bat Colony Count as their project.

Our results were quite encouraging, as we counted just over 200 bats residing in our large bat house (near the Life Underground Exhibit) and a total of approximately 65 bats residing in the bat houses located on the south side of the Webster Building. To provide some context, pre-WNS counts of our bat houses were over 400 bats, but in recent years, these numbers were less than 50. You can imagine our excitement to exceed 200 as we counted each bat swooping down out of the bat house for its nightly feeding foray. We will continue our participation in the New Hampshire Survey Project next summer. We hope to again be pleasantly surprised with positive results.

For more details about White Nose Syndrome and New Hampshire Bats, visit www.wildlife.state.nh.us/Wildlife/Nongame/bats.html. To learn more about the First Guides teen volunteer program or to participate in future bat counts contact Volunteer Manager Carol Raymond at carol.raymond@nhnature.org.

FROM THE HERON'S NEST

By Laura Mammarelli



Warm, sunny weather was welcomed by the Blue Heron School children when winter suddenly turned to spring. There were endless things to do outside in the Pine Grove: swinging on a vine, searching for invertebrates (slugs always a favorite), climbing on logs, and hiding in the leaves, among others. Every change of season brings new experiences and more fun.

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.



KIRKWOOD GARDENS PLANT SPOTLIGHT

By Brenda Erler

Witherod Viburnum

Viburnum cassinoides

Culture: Easily grown in average, moist, well-drained soil in full sun to part shade. Plant in groups for best cross-pollination and fruit production.

Bloom: June to early July

Height: 6 to 8 feet tall and wide

This northeastern native shrub is commonly called witherod because of its flexible stems, but is also known as wild raisin because of the striking fruit which changes from green to pink, then red to blue, and finally black by September. The fragrant flowers are attractive to butterflies and the fruit is great for birds. Use it in a shrub border, foundation planting, or in wetland areas.

Kirkwood location: Lower garden along split rail fence, driveway side



Hardy Cranesbill

Geranium wallichianum 'Rozanne'

Culture: Easily grown in average, medium moist, well-drained soil in full sun. Plants may be sheared back in late summer if blooms dwindle or foliage starts to look ragged, promoting new growth and flowers.

Bloom: June to October

Height: 18 to 20 inches

This lovely wild geranium is native to the Himalayas. Large violet blue flowers are produced all summer over the deeply divided, marbled leaves. The foliage will weave a tapestry among neighboring plants, forming a beautiful informal groundcover. Attractive to butterflies.

Kirkwood location: Lower garden on front of border, Route 3 side.



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

GREEN TIP: TAKE IT OR LEAF IT?

By Michelle Neal, Marketing Intern

This autumn, as the trees transform from glowing green to vibrant reds, oranges, and yellows, consider alternatives to tackling fallen leaves. Traditionally you might rake or blow them into the woods, or if you live in a more urban setting, leaf removal trucks and machinery might take care of the leaves for you. But allowing leaves to decompose in the woods and in landfills is not the most environmentally friendly choice, nor is it the most resourceful strategy for your lawn. City leaf removal processes emit large quantities of carbon dioxide into the atmosphere and sweeping your leaves into the woods is a waste of valuable nutrients.

Instead, consider using a mulching lawnmower that grinds leaves into small pieces. This way, the leaves will decompose within weeks and all of their nutrients will nourish your lawn for the following spring. Or better yet, collect your leaves in a compost bin and use the nutrient-rich materials for your garden or lawn. It's a win-win-win situation: greener lawns, fewer weeds, and less carbon dioxide emissions! Happy leaf-peeping!



2019 NATURE TOURS

Scottish North Highlands

A new itinerary exploring the northern Highlands of Scotland. Visit nhnature.org/programs.

Trip is full. Contact Iain MacLeod to join a waiting list.

SEPTEMBER NEW MEMBER DRIVE

Help us spread the word about Science Center memberships! During September, every new membership purchased will last for 13 months. Share your love of learning about the natural world and tell your friends and family. Thanks!

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.

SEPTEMBER

<p>SEPTEMBER 8 SATURDAY 9:30 a.m. to 5:00 p.m. For all ages</p>	<p>Raptor Spectacular Join us for a daylong special event about the wonderful birds known as raptors! <i>A Kettle of One presentation by Eric Masterson, 11:00 a.m. to 12:00 p.m.</i> Eric is a native of Ireland and expert ornithologist. He will speak about his journey, by bicycle, tracking Broad-winged Hawks on their southward migration from New Hampshire to the Panama Canal. His story of research, resilience, and reflection is sure to captivate. <i>This program is best for ages 15 to adult.</i></p> <p><i>Up Close to Animals</i> - These short presentations will feature live raptor ambassadors in engaging presentations with a naturalist. Visitors will see these live birds up close. 11:00 a.m. – Peregrine Falcon 12:00 p.m. – Broad-winged Hawk 1:00 p.m. – Turkey Vulture 2:00 p.m. – Red-tailed Hawk 3:00 p.m. – Sharp-shinned Hawk</p> <p>Every year, Wings of Dawn Rehabilitation Center in Henniker receives injured or orphaned raptors in need of special care and rehabilitation. If a raptor is ready for release on September 8, visitors will be able to witness this exciting event.</p> <p>Volunteer docents will rove the live animal exhibit trail with live raptors throughout the day. <i>Cost: All Raptor Spectacular activities are included with trail admission</i></p>
<p>SEPTEMBER 11 TUESDAY 6:00 to 8:00 p.m. For adults</p>	<p>Science Pub at Walter's Basin Join us in the lounge at Walter's Basin for engaging evenings discussing the impacts of climate change. We will take a local focus to this global problem in this series featuring different perspectives and scientists. Climate change is affecting our natural world and the animals (including us humans) that inhabit our planet in many ways. Scientists will share the story of their perspective followed by the type of lively discussion Science Pubs are known to stimulate. Come with your appetite and questions to become part of an important community conversation. Visit nhnature.org for speaker schedule. Sponsored by Squam Lakes Natural Science Center, Squam Lakes Association, and Squam Lakes Conservation Society. <i>Cost: No charge to attend. Order and pay for food and drinks individually. Seating is lounge style. For dining with traditional seating, arrive early to eat in the dining room prior to 6:30 p.m. when the presentation starts in the lounge.</i></p>
<p>SEPTEMBER 12 WEDNESDAY 11:00 a.m. to 12:00 p.m. For ages 2 and 3</p>	<p>Nature Play Time Join us to explore the natural world with your little one! Using our five senses, we will investigate our surroundings in fields, forests, ponds, and streams. Please dress for the weather with clothes that can get wet and muddy! Adults get to play too. An adult must participate with children at no additional cost. <i>Cost: \$5/member child; \$7/non-member child</i></p>
<p>SEPTEMBER 13 THURSDAY 9:30 to 11:00 a.m. For adults</p>	<p>Invasive Species Removal Work Day 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 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 will be provided to wrap up our work sessions. <i>Cost: No charge but reservations are required.</i></p>
<p>SEPTEMBER 15 SATURDAY 9:00 to 11:30 a.m. For ages 15 to adult</p>	<p>Nearer to Nature Walk: Cotton Mountain and the Battle of the Invasives Invasive plant species threaten the ecology of a region, frequently outcompeting native species but not providing equivalent sources of food and shelter. Senior Naturalist Dave Erler will help you learn to identify these intruders while exploring the Cotton Mountain Trail. Learn how to remove some of these unwanted species with Lakes Region Conservation Corps member Maggie Upham. Maggie will also share information about how to manage invasive plants in your own yard. <i>Cost: No charge but reservations are required.</i></p>
<p>SEPTEMBER 25 TUESDAY</p>	<p>Science Pub at Walter's Basin 6:00 to 8:00 p.m. For adults <i>See description for September 11.</i></p>
<p>SEPTEMBER 26 WEDNESDAY</p>	<p>Invasive Species Removal Work Day 9:30 to 11:00 a.m. For adults <i>See description for September 13.</i></p>

OCTOBER




<p>OCTOBER 6 SATURDAY 9:00 to 11:30 a.m. For ages 15 to adult</p>	<p>Nearer to Nature Walk: Plant Communities of Chamberlain-Reynolds Access Squam Lake by land, meandering through upland forest, crossing a swamp boardwalk, and exploring shoreline trails at this New England Forestry Foundation preserve managed by Squam Lakes Association. Naturalist Jeremy Phillips will introduce you to the variety of plant communities found here and the animals that inhabit them. Lakes Region Conservation Corps member Erica Lehner will share Leave No Trace practices that lessen human impact when hiking and camping in these sensitive habitats. <i>Cost: No charge but reservations are required.</i></p>
<p>OCTOBER 10 WEDNESDAY</p>	<p>Nature Play Time 11:00 a.m. to 12:00 p.m. For ages 2 and 3 <i>See description for September 12.</i></p>
<p>OCTOBER 16 TUESDAY</p>	<p>Science Pub at Walter's Basin 6:00 to 8:00 p.m. For adults <i>See description for September 11.</i></p>
<p>OCTOBER 21 SUNDAY 9:30 a.m. to 1:00 p.m. For ages 15 to adult</p>	<p>Mushroom ID Walk and Tour Join New Hampshire Mushroom Company Education Director Stephanie Doyle for a morning walk in search of wild mushrooms and an afternoon tour to learn about mushroom cultivation. We will spend the morning exploring the Science Center property to identify and discuss the mushrooms we find. Following our walk, those interested will carpool to Tamworth for a behind-the-scenes tour of the New Hampshire Mushroom Company to see how they grow over 20 varieties of mushrooms. <i>Cost: \$15/member; \$18/non-member for walk. No charge for 12:00 p.m. tour.</i></p>
<p>OCTOBER 27 SATURDAY 6:00 to 8:30 p.m. For adults RAIN OR SHINE</p>	<p>Halloween Hoot 'N Howl Enjoy an eerily entertaining 40-minute guide tour around the grounds in the evening. 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! **Book early: This event regularly sells out!** <i>Cost: \$9/member; \$11/non-member</i></p>
<p>OCTOBER 30 TUESDAY</p>	<p>Science Pub at Walter's Basin 6:00 to 8:00 p.m. For adults <i>See description for September 11.</i></p>



NOVEMBER

<p>NOVEMBER 13 TUESDAY</p>	<p>Science Pub at Walter's Basin 6:00 to 8:00 p.m. For adults <i>See description for September 11.</i></p>
<p>NOVEMBER 27 TUESDAY</p>	<p>Science Pub at Walter's Basin 6:00 to 8:00 p.m. For adults <i>See description for September 11.</i></p>

ON THE TRAIL

-  **River Otter Feeding:** Every Monday, Wednesday, and Friday at 11:30 a.m. at the River Otter Exhibit (through October 31)
Sponsored by: 
-  **Up Close to Animals:** Saturdays and Sundays at 12:00 and 2:00 p.m. through October 7; Monday, September 3 and Monday, October 8 at 12:00 and 2:00 p.m.
Meet live animals up close and learn from an experienced naturalist. These engaging talks feature a variety of animals, including birds, mammals, and reptiles. Up Close to Animals presentations are held at the Amphitheater (weather permitting) or in Webster Building Classroom 3 during inclement weather.

These programs are included with regular trail admission.

GIVE THE GIFT OF NATURE GIFT MEMBERSHIPS

Membership at Squam Lakes Natural Science Center is the perfect gift for birthdays, holidays, or other special occasions.

Give the gift of nature that lasts all year.

www.nhnature.org/membership/gift_membership.php



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HOMESCHOOL SERIES

Be A Scientist! (Ages 7 to 10)

10:00 to 11:30 a.m.: November 5: Biology; December 3: Dendrology; January 7: Ecology; February 4: Ornithology; March 3: Mammalogy; April 7: Entomology

There are many different types of scientists – from Dendrologists to Ornithologists and don't forget Entomologists too. Become a scientist as you develop and test predictions, and participate in and conduct experiments. Learn how to use keys and books to identify living and nonliving ecosystem components that make New Hampshire unique. Investigate a different scientific field of study each month.

Using Our Five Senses (Ages 4 to 6)

10:00 to 11:30 a.m. : November 5: Touch; December 3: Smell; January 7: Sound; February 4: Sight; March 3: Taste; April 7: Celebrate All Five Senses!

How do we understand and interpret the world? With our senses of course! Learn all about your senses and put them to work as you explore what types of information we get from each one. Learn how animals use their senses. The focus is on a different sense each month and the last day is a celebration of them all.

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 5 for a \$1 discount: \$8/member child; \$10/non-member child per program.

BONUS MEMBER BENEFITS



SEPTEMBER: Science

Center members may visit the McAuliffe-Shepard Discovery Center (starhop.com) in Concord at no charge. (Planetarium programs priced separately.)



OCTOBER: Science Center members may visit the Children's Museum of New Hampshire in Dover (childrensmuseum.org) at no charge.

Be sure to take your membership card with you when you go. Check websites for information about 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.

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Moving? Send us your new address.

SQUAM LAKE CRUISES

Purchase cruise tickets online at nhnature.org!

Discover Squam

September 1 to October 8 - 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. Watch for and observe Common Loons and Bald Eagles.

Cruise with a Naturalist

September 4 to October 4 - 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.

Squam Lake Cruise Rates: Adult \$27; Senior (65+) \$25; Youth (up to age 15) \$23; Members receive a \$4 discount per person. Discounts available for combination trail and cruise tickets. Not recommended for children under age 3

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.

Squam Lake Charters

Treat your visiting family or friends to a truly memorable experience in the Lakes Region 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.

SQUAM LAKES NATURAL SCIENCE CENTER CELEBRATES BLUE HERON SCHOOL 2018 SUMMER SPLASH

In the midst of a summer full of high temperatures and sudden thunderstorms, Summer Splash on July 21 was splash-free and blessed with perfect summer weather. Almost 300 attendees enjoyed the evening and a delicious Common Man dinner followed by dancing to the oldies by Annie and the Orphans. Net proceeds are estimated to exceed \$35,000, which will support our education programs. A dedicated volunteer team of Nancy Beck, Cathy Crane, Andy Eaton, Barb Laverack, Joan Martin, Lea A. Stewart, and Pam Stearns met once a month and planned every detail. Volunteer Auctioneer Alex Ray hosted the live auction with flair. Executive Director Iain MacLeod announced that a new building to house a larger Blue Heron School is planned; a slide show featuring the school's students played throughout the evening.

We are grateful to the many businesses and individuals that provided generous support. Underwriters included: Common Man Restaurant; Barbara Nan Grossman; Anne Lovett and Steve Woodsum; Meredith Village Savings Bank; and Pam and Larry Tarica.

Sponsors included: Edmund and Betsy Cabot Charitable Foundation; Mill Falls at the Lake; Tashia and John Morgridge; Squam Boat Livery; Squam Lake Plumbing & Heating; and Wells Fargo Advisors and Matthew Lessard.

Table Sponsors included: Sarah and Win Brown; Arthur and Melanie Gajarsa; Donald and Ingrid Graham; Liz and Dennis Hager; Lovering Volvo Cars of Meredith; Daniel and Patricia Smith; Squam Lakes Financial Advisors; Lea A. Stewart; and Betsy and Bruce Whitmore.

Program ads were purchased by: Dunkin Donuts of Plymouth; Giuseppe's Pizzeria & Ristorante; Malone, Dirubbo & Company; Mid-State Health Center; New England Commercial Solar Services; Peppercorn Natural Foods; Samyn-D'Elia Architects; Six Burner Bistro; Squam Supply Co.; and Christopher P. Williams Architects.

Donations were given by: Anonymous (1); Edmund and Betsy Cabot Charitable Foundation; Bea and Woolsey Conover; Nancy Myers Coolidge; Cormack Construction Management; Skip Corson; Cathy and Rob Denious; Beth and Merrill Fay; Hannaford of Plymouth; Bill and Linda Lee; Carolyn and Thad Long; Nuna MacDonald; David and Joan Martin; Penny Rodday; Sara Jayne Steen and Joseph Bourque; Carol and Rob Stewart; and David and Stacy Trott.

Live Auction donations were contributed by: Anonymous (1); Ehlers Management Group; Barb and Sam Laverack; Bill and Linda Lee; Alex Ray; and the Science Center Board of Trustees.

Silent Auction donations were made by: 603 Brewery; Aviva Wellness and Darlene Nadeau; Carol and Marc Bard; Barnstormers Theatre; Nancy and Paul Beck; Ken and Jenny Evans; Experience Squam and Cindy O'Leary; Liz and Dennis Hager; Stephen Hodecker; Loon Pond Outfitters and Hope Eagleson; Laura Mammarelli; Mindful Making & Design and Marylena Sevigney; Maundy Mitchell Photography; Moosilauke Ravine Lodge; River's Bend Woodworking Studio and Liz Hallen; and Snowsports School of Waterville Valley Ski Resort.

In kind donations were given by: Biederman's Deli; The Common Man; David Detscher; Tom Harty; Stephen Hodecker; Holderness Harbor; Lakes Region Tent & Event; Minuteman Press; Alex Ray; Ian Raymond; Juliana Twomey; and Woodstock Inn and Brewery.

As always, we could not do so much without the time and dedication of our volunteers and staff.



Guest Auctioneer Alex Ray



Custom made Blue Herons greet visitors.

IN MEMORIAM: NATALIE PARSONS

Former Volunteer Coordinator Natalie Parsons passed away in July, four days shy of her 96th birthday. Natalie's life was dedicated to education. She was a schoolteacher in Massachusetts for 30 years. When she and her husband, Donald, retired to their New Hampshire home on Winona Lake, they spent the next 30 years volunteering. As the first official Volunteer Coordinator, Natalie organized the program three decades ago. She instituted regular volunteer meetings, the annual appreciation dinner, and the volunteer newsletter. She inspired and encouraged many others to volunteer. Several who started under Natalie's guidance are still actively engaged. She now joins Don and daughter Susan, leaving behind daughters Nancy and Donna. She will be greatly missed by all who knew her.



OPENING A WINDOW TO THE NATURAL WORLD

There are many ways to give!



Here are some of the many ways you can donate to help the Science Center inspire others to explore, discover, experience, appreciate, and understand the natural world.

- Send a check to the support the Annual Fund. Mail it to P.O. Box 173, Holderness, NH 03245.
- Give online on our website at: https://www.nhnature.org/support/annual_fund.php
- Join our wonderful volunteer team. Contact Volunteer Manager Carol Raymond at 603-968-7194 x 22.
- Donate appreciated stock and you may eliminate your capital gains tax. See our website for information on how to make a gift of stock: https://www.nhnature.org/support/stock_gift.php
- Name the Science Center as a beneficiary of your retirement plan assets. These assets remain taxable when distributed

to a loved one but are tax free when given to a nonprofit.

- If you are 70 ½ or older, a gift from your IRA may help you fulfill your minimum distribution requirement and gifts up to \$100,000 are not considered to be a taxable distribution.
- Make a contribution from your Donor Advised Fund to the Annual Fund.
- If you have included the Science Center in your will or estate plans or are interested in doing so, please let us know.

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.

2018 ANNUAL MEETING FOR MEMBERS

Members enjoyed a continental breakfast followed by the business meeting on Saturday, August 11. Chair Ken Evans asked the quorum of members present to vote to approve the 2017 Annual Meeting minutes, which were accepted unanimously.

Ken Evans thanked outgoing Trustees Mark Goldstone, Liz Hager, and Tom Samyn for their dedicated service.

Treasurer Justin Van Etten presented the 2017 Finance Report. Attendees received copies of the 2017 Annual Report.

Governance Committee Chair Sarah Brown led board elections. Trustees Justin Van Etten and Tony Wagner were re-elected to serve three-year terms. Martha Grant and Susan Lynch were elected as new trustees for three-year terms. Their biographies are below. Carol Thompson was elected as Honorary Trustee. Officers Ken Evans, Chair; Lea A. Stewart, Vice Chair; Justin Van Etten, Treasurer; and Mary Earick, Secretary were elected to one-year terms.

Executive Director Iain MacLeod recognized Facilities Director Tim Curry and Animal Care Manager Lauren Moulis for 10 years of service.

The 2017 Annual Report, Audited Financial Statements, and 990 Tax Return are available for review at 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.

Martha Grant grew up on the Phillips Exeter Academy campus. She graduated from Phillips Exeter and then Middlebury College, where she majored in Environmental Studies. She continued in her family's teaching tradition as a math, science, computer instructor, and coach at Buckingham, Browne, and Nichols School and Milton Academy. Martha later coached at Phillips Academy and Brooks School in Andover, Massachusetts before retiring in 2013. Martha and her husband, Chris, purchased a home in Sandwich in 1998, where they now live year round. Martha is a monitor for the Squam Lakes Conservation Society, does trail maintenance for the Squam Lakes Association, and became a docent at the Science Center in 2016. The Science Center is still a favorite destination for her grown children.



New trustees Susan Lynch (left) and Martha Grant.

Susan Lynch and her husband, Rich, have been year round residents in Sudbury, Massachusetts since 1994 although Susan has spent summers in New Hampshire all her life. She majored in International Economics at Georgetown University in Washington, D.C. and then completed an MBA at Boston University. She worked as an investment professional, first at Fidelity Investments, and then at Bain Capital. She retired as a Managing Director from Bain Capital Credit in 2016.

Susan and her husband, Rich, bought a secondary home on Little Squam in 1994, where they spend as much time as possible. Their three grown children attended several Science Center programs, years of the Squam Lakes Association summer camps, and have been active in both the Squam Lakes Association Conservation Corps and Eastern Adaptive Sports, where Rich is on the Board. Susan volunteers on the Science Center's Investment Subcommittee and is a mentor at The Circle Program.

These generous donors made tribute gifts, which were received between April 1 and June 30, 2018:

In memory of Nancy Breon
Cathy and Robert Creveling
Nancy and Jay Mayes
Colleen and Robert Moyer

In honor of Karin Karagozian
Dylan, Cassie, Connor, and Emily Raymond

In memory of Patricia Keiver
Robert Keiver and Pamela Rodgers

In memory of Tom McElrone
Barbara and Donald Hofer

In memory of Andrea Robinson
Katherine Piper

In memory of Elizabeth Wood
Ellen Barth

TRAIL'S END

EDUCATION



As I write this message, I excitedly await the arrival of my extended family for three weeks in July and early August. Among them are two five-year-old and two three-year-old grandchildren. They are typical children; busy, bossy, loud, sensitive, devious, and oh so able to control their loving and doting parents (and to a lesser extent, grandparents). But what impresses me the most when I observe them and communicate with them is their full time ability to absorb huge quantities of information, retain it, and deliver it back at the appropriate time. This happens sometimes to the embarrassment of their parents when the teacher calls to censor language repeated during school hours. Martha Fischer said that, "All the world is a laboratory to the inquiring mind." And in language I can relate to, Dr. Hiam Grennot said, "Children are like wet cement. Whatever falls on them makes an impression."

Our mission at the Science Center has always been about educating the minds and engaging the hearts of people about the natural world. We inform members and visitors of all ages about the environment and the interactions we all have with nature. But there is a special place in our mission for touching children. Maria Montessori said, "Free the child's potential, and you will transform him into the world." We practice this advice every single day through animal exhibits, live animal talks, school programs, Guided Discoveries activities, lake education classes, and more recently, through our Blue Heron School for children ages three through six. The school has been a huge success with much acclaim from students and parents alike. Bill Gates Sr. noted, "The first five years have so much to do with how the next 80 turn out."

So, it should come as no surprise that we are following our successful "Nature Matters" campaign, now concluded, with a new fundraising campaign called "Education Matters." "Education Matters" is about enhancing and increasing the quality of education we provide. We will expand and improve upon the success of Blue Heron School with space for more students in a specifically designed building. We will raise funds for student scholarships for all our education programs, so families of all backgrounds can experience the learning. Lake education opportunities have recently been upgraded with a new facility on the channel between the Squam Lakes. We took out a line of credit to make that happen in a timely fashion, and we need to pay it off. Finally, we will enhance education on the live animal trail by expanding and refreshing our Bird and Raptor Exhibits. All of this is consistent with the Strategic Plan adopted by the Board of Trustees in 2016.

We are excited to share our plans with our members and donors. You may wonder why we would embark on a new capital campaign so soon after Nature Matters concluded. My answer is simple. Nature Matters was a huge success made possible by you, our generous donors. While we have accomplished a lot, there is still so much more we can do. The need for science education is absolutely critical to our success as people, in our communities, and around the world. But, perhaps Walt Disney nailed the reason best when he said, "Around here, we don't look backwards for very long... We keep moving forward, opening up new doors and doing new things because we're curious... and curiosity keeps leading us down new paths." When you get the call or letter to participate, please make the decision to walk forward down that path with us!

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.

TAMARACK QUIZ

1. Tamaracks are: A. coniferous B. deciduous C. both A and B
2. The best location to look for tamarack trees is:
A. alpine B. bog C. field/forest edge
3. True or False? The name "tamarack" comes from a Native American word meaning "wood for snowshoes."
4. Tamarack trees are noted for dropping their _____ in the fall.
5. What color are young tamarack cones?

Answers:

1. C | 2. B | 3. True | 4. Needles | 5. Rosy red

TAMARACKS *continued from page 1*

organisms can survive. Both this tree and amphibian have an adaptation for cold climates where water in their cells can move into intercellular spaces. When the water freezes, there is no damage to the cells themselves. In this case, tamaracks can push their northern limit much further than spring peepers.

A long winter looms ahead for tamarack trees. What can we anticipate in the spring? These bare branches will again burst with new life. Watch for the emerging bright greenery but also for an unusual treat. Tamaracks are conifers after all, so cones will be forming. Just like the tree itself, these cones are non-conformers! The tiny cones are less than an inch tall, sit bolt upright on the branches, and are an astonishing rosy red color. This tree truly creates a surprise for each season.



Photo courtesy flickr/usfwsmidwest

Naturalist's Legacy Society

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

Visit the Support Us section at nhnature.org.






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tools, carts, garden art, pots; Wagons for moving
plants at Kirkwood Garden; Loppers and pruners for
invasive species removal

THE HOWLING COYOTE GIFT SHOP

**MAKE TRACKS TO THE
MEMBERS ONLY**

SALE

Why not do some holiday shopping while supporting
the Science Center? Plan ahead and take advantage of
our special members only sales.

October 7 through November 1
Members receive a 20% discount at
the Howling Coyote Gift Shop.

(Regular discount is 10%. Discount on non-sale items.)
Open daily 9:30 a.m. to 5:00 p.m.

All proceeds from sales at the Howling Coyote Gift Shop benefit
the mission of Squam Lakes Natural Science Center: *to advance
understanding of ecology by exploring New Hampshire's natural world.*

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