



## WALKING ON WATER

By Margaret Gillespie

Imagine for a moment you could walk on water. What an incredible world that would be. How could you stay afloat? Which menu selections would become available? In the interface between wet and dry, the bonding of water molecules lets you literally ride on surface tension. This extraordinary place in nature is impossible for us to inhabit but many creatures call it home. Their amazing adaptations are up to the challenge. Let's meet three different invertebrates and explore how they approach life on top of the water.

Most of us have seen water striders walk on water. Maybe we have taken their skill for granted. These insects appear to glide like accomplished skaters, minus the ice. One of their common names is pond skater. Technically, they are true bugs with the associated piercing, sucking mouthparts. What keeps them floating across the surface of ponds and slow moving streams? Long legs certainly spread out their weight. Beyond that there is a secret in the construction of those legs. All six limbs are covered with thousands of microscopic hairs. Each hair traps air in a miniscule groove and the air repels water, helping the striders stay afloat. In fact, their whole bodies are covered by these tiny hairs, which limit danger from rain and splashed water. Have you ever noticed dimples on water under the striders' feet, creating shadows on the terrain beneath? These depressions are caused by air in the microscopic hairs pushing back water. The dimples do even more. They provide water striders with the resistance needed to propel themselves ahead. Water striders, like

all insects, have three pairs of legs. In the case of these water dwellers, the middle pair acts as oars, sporting a fringe of hairs which increases the forward power. The rear pair is longest and functions as rudder and brake. How fast can a water strider go? About three feet per second! The tiny front pair of legs is not part of the swim crew, but each is equipped with a claw. Though small, those claws pack a punch when catching prey. What's on the menu? Water striders are predators as well as scavengers. Insects and spiders top the list. When these critters accidentally fall into the water, water striders use their front legs to detect waves from their struggles. The striders dispatch their prey by a stab with their proboscis, then inject digestive

juices, and finish with drawing in the prey's juices. It's a wild world.

Our next character, the whirligig beetle, has its own dance studio on the surface of ponds and in quiet waters along rivers. Named for their swirling and circling behavior, these beetles resemble miniscule bumper cars which never collide. The confusing motion keeps predators at bay, never knowing which way their meal will turn. In a world where hungry birds can come from above or grabbing crayfish from below, whirligig beetles have a unique way of looking out for themselves. Each eye is divided into two parts, separated by the antennae. One portion watches the water surface while the other sees beneath it. Is danger lurking for the whirligig? Fast swimming, aided by comb-like bristles on the middle and hind legs, can power them out of range. Then there's the advantage of being able to dive while carrying an oxygen supply in a



Water strider



Fishing spider  
Flickr/benimoto (Benny Mazur)

*continued on page 11*

### IN THIS ISSUE...

- Page 1 ..... Walking on Water
  - Page 2 ..... Forging Trails: The Birds are Back!
  - Page 4 ..... Awaiting the Arrival of Tree Swallows
  - Page 5 ..... Kirkwood Gardens Plant Spotlight
  - Page 6-7 ..... Programs and Events
  - Page 8 ..... Squam Lake Cruises
  - Page 9 ..... Green Tip: Bringing Back Dark Skies
  - Page 11 ..... Trail's End: The Taste of Spring
- And much more!

### SQUAM LAKE CRUISES

New cruise adventures for 2018!  
 Discover the beauty of pristine Squam Lake.  
 See page 8 for schedule and details.  
 Purchase cruise tickets at [nhnature.org](http://nhnature.org).

# FORGING TRAILS: THE BIRDS ARE BACK!



Thank goodness I was right ... (about one thing anyway) ... the birds did come back to our feeders. In my column in the winter newsletter I assumed the lack of birds in early fall was because of a glut of natural food, and once winter really arrived, they would return ... and they did! My feeders were hopping from late December on with all the usual suspects. I loaded the feeders every couple of days as the 60-plus goldfinches and 40-plus juncos munched their way through everything I provided.

Many people commented on how many juncos were around this winter. Great flocks of them flushed up along the roadsides where they looked for seeds or ate calcium in the road salt. On the December 30 Sandwich Christmas Bird Count, we tallied a staggering 1,542 juncos. The mean for the 23 years of the count is 54 and last year we counted just 40, so this year's tally is truly amazing.

It's not just the songbirds benefiting from bird feeders. Predators cash in too. Sharp-shinned Hawks and Cooper's Hawks are regular visitors. I always know when one is about because the songbirds freeze in place; not daring to move a muscle as they perch on the feeders. They remain like statues until the all-clear goes out.

Nocturnal raptors visit the café too. The local Barred Owl perches in the tree above the feeders hoping the spilled seed will attract a white-footed mouse, a vole, or maybe even a flying squirrel. Sometimes I'll spot the owl leaving the tree and swooping ghost-like down the driveway as I arrive home after dark.

Recently another owl has made its presence known. In mid-January when my wife, Susan, and I were returning from a late afternoon movie I noticed a small rusty brown lump on the road (about the size of a soda can) right next to our driveway. The lump had two eyes. I swerved to avoid it as I realized what it was ... a Northern Saw-whet Owl. A quick check revealed it had flown away. I assume it had grabbed a mouse crossing the road and my headlights startled it just after it caught its dinner.

A couple of weeks later at dusk, a Saw-whet was "tooting" right next to my feeders and a second chimed in with an alarm call near the garage. I'm sure they too benefit from the rodents that forage under the feeders after dark or perhaps they snatch a roosting junco from the nearby evergreens. This winter, there is plenty to go around.



*Iain MacLeod*

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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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## 2018 Summer Splash



Look for details in the  
summer issue!

Saturday, July 21

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# MEMBER PROFILE

## THE FULLER FAMILY

Our family's history with the Science Center begins with Kristen's grandmother, Mary Elizabeth Nielsen, who was a longtime volunteer. Mary Elizabeth is a lifelong Holderness resident who grew up on Piper Road in the house her father built in 1925. She still lives there today. Kristen grew up on the same road, and as far back as she can remember, she would walk with her grandmother to visit the Science Center. Mary Elizabeth was the kindergarten teacher in Ashland for over 40 years. As an early childhood educator, she understood the role the Science Center could play in providing an interesting and informative setting for early learning.



unique relative to scholastic education we jumped at the chance to have our children remain there for kindergarten too. Each year, we continue to be impressed by the teachers, naturalists, and staff. To put it simply, what better learning opportunity could there be than to have the Science Center to yourself for six months when the trails are closed?

We support the work of the Science Center because of the benefits it brings to our local community, our love of

As parents, early education is important to us. When we found out the Science Center was offering preschool, we were quick to investigate. The combination of Montessori teaching, a nature-based program specific to the Science Center, and the opportunity for children to explore outside every day, made the choice to send our children to Blue Heron School an easy one. The experiences enjoyed by the children such as bird banding, interacting with a variety of animals, and spending time with the naturalists, are hard to find anywhere, let alone at a preschool. The early learning opportunities offered at Blue Heron School are so

nature, and the learning opportunities provided to anyone who visits. The Science Center continues to invest in new exhibits, to provide convenient access to Squam Lake through its cruises, and to expand what it means to learn in nature. We are proud to be a small part of its continued success and look forward to continuing our family's history with the Science Center.

*Kristen and Nate Fuller live in Holderness with Mary Elizabeth Nielsen who will be 98 in March. Their children are Lorelai (6), Juliet (5), Ryan (4), and Oliver (2). Lorelai attended Blue Heron for three years and is now in first grade at Holderness Central School. Juliet and Ryan are attending currently, and Oliver is looking forward to beginning his first year next fall.*

*Photo courtesy of Sara Stafford Photography*

## NEWSBRIEFS

- Thanks to our wonderful donors for their gifts exceeding our \$337,000 Annual Fund goal in 2017!
- Trail attendance grew slightly in 2017, with 61,144 visitors, compared to 60,958 in 2016. The total number of Squam Lake Cruises passengers also showed a small increase to 10,214, compared to 10,028 in 2016. Across the state, 13,450 school children and teachers attended a program at the Science Center or their school site, compared to 14,292 in 2016. Another 7,455 people across the state attended outreach programs. At year end, memberships numbered 4,616 and more members took to the trails in 2017 than ever before.
- In 2017, 208 regular volunteers donated 8,515 hours of service and 137 one-time volunteers gave 411 hours totaling 8,926 hours from 345 volunteers. The time, dedication, enthusiasm, knowledge, joy, and more that volunteers bring to the

Science Center is priceless. Thank you to all our wonderful volunteers!

- In January, Education Director Audrey Eisenhauer attended the ee360 Leadership Training and Affiliate Meeting, hosted by the North American Association for Environmental Education, in Monterey, California. Audrey's participation was funded through the ee360 project and allowed her to exchange ideas with environmental education leaders from across the country.
- Plymouth State University student Hannah Cosio is interning at Blue Heron School through May. It's the perfect place for her to merge her interests in environmental issues and education.
- School programs have been reviewed and updated to align with Next Generation Science Standards. The school program catalog was also updated. It will be mailed to teachers in early March and the new digital version

is available on our website. Next will be an update of the follow-up lessons given to teachers after their students participate in programs. The new lessons will align to the Next Generation Science Standards too, and when possible, to the Common Core State Standards (literacy and math) as well. This will help teachers continue students' learning from their field trips here back in their classrooms. It will also make Science Center programs more relevant by helping teachers meet curriculum requirements. These projects were identified as priorities in our strategic plan.

- The Science Center's website ([nhnature.org](http://nhnature.org)) is being updated for a fresh new look to include more photos, simpler navigation, and updated technology. We are working with web developers Sullivan & Wolf Design and plan to have the new site updated for the start of the season.

*continued on page 5*

# NATURALIST'S CORNER

## AWAITING THE ARRIVAL OF TREE SWALLOWS

By Dave Erler



Every year in mid-winter, I begin to long for the arrival of Tree Swallows over the Science Center's meadows. For me, they are as sure a sign spring has arrived as is the return of the well-known Cliff Swallows of San Juan Capistrano in California. The exact day Tree Swallows arrive here varies from year to year, but they usually appear sometime during the first week of April. Once they are here it is easy to identify them; males sport contrasting iridescent blue green upper sides and clean white undersides. The females are similar, but look a little duller and slightly brownish on top. As they flap and glide with their rigid pointed wings, the chirps and gurgles they sing sound to me as if they are as happy it's spring as I am.

Tree Swallows primarily consume aerial insects and face a double-edged sword. Arrive too early; there may not be enough insects to eat. Arrive too late; there's a good chance they lose out on securing a nesting spot. Competition with other birds for prime nesting places is high, so early arrival is critical. If a spring snowstorm hits after they return, they may have to retreat south or face the consequences of not being able to find enough food. But if the weather is good, they waste no time laying claim to a natural tree cavity or suitable nest box, located on the edge of a meadow or waterbody. Tree Swallows are obligatory cavity nesters, but are unable to create a hole in a tree themselves so are totally dependent on finding preexisting cavities. Prior

to European settlement, we think most Tree Swallows used abandoned cavities created by Downy Woodpeckers, near the edge of beaver ponds or other waterbodies.

Once Tree Swallows find a suitable spot, they construct a nest of grasses lined with whatever feathers they can find. The female usually lays four to six white to rosy eggs (roughly one inch by a half inch in size). She does most of the incubation, but the male plays his part, too. The young hatch in about two weeks. Then both parents work nonstop all day feeding their young with insects they have gleaned from the air. The youngsters fledge the nest in 18 to 22 days, depending on the number of young and weather conditions. If you see a nestling in the entry hole, it's important to avoid disturbing it, since young birds startled into fledging prematurely may not survive. As the young fledge, the parents feed them less often, and in a few days they are totally independent. Usually by the end of the first week of July, the nesting season is over and the Tree Swallows seemingly disappear overnight. Although you can find large "flocks" of migrating Tree Swallow along coastal areas for few more weeks, their ultimate destination ranges from the Gulf Coast to the Tropics.

For now I'll have to enjoy the winter landscape, but I will know when spring is here when I hear the chirps and gurgles of newly arrived Tree Swallows.

If you are interested in providing a nest box or doing more to help Tree Swallows, you can find plans from the Cornell Laboratory of Ornithology at [nestwatch.org](http://nestwatch.org).

## FROM THE HERON'S NEST

By Laura Mammarelli



Cynthia Robinson, Director of the Museum of the White Mountains at Plymouth State University, visited Blue Heron School in January. Cynthia and the children made a larger than life-sized Bicknell's Thrush and maps of New Hampshire and Hispaniola to show the bird's migration. Their creations were part of the Forest to Forest: Bicknell's Thrush exhibit at the museum, which ran from January 30 through February 21, 2018. Blue Heron School families attended a reception in February at the museum to see the completed exhibit.

*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](http://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](mailto:blueheron@nhnature.org).*



# KIRKWOOD GARDENS PLANT SPOTLIGHT

By Brenda Erler

## Redbud Crabapple

*Malus x. zumi 'Calocarpa'*

**Culture:** Needs full sun in moist, well-drained, loamy, acidic soil. Vigorous and disease resistant.

**Bloom:** Late spring. Red-pink buds open to fragrant white flowers.

**Height:** 12 to 20 feet

This semi-dwarf crabapple has good disease resistance, flowers profusely, and produces small, bright red persistent fruit attractive to birds. The flowers attract butterflies and hummingbirds. Fall foliage is yellow to orange.

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



## Wild Ginger

*Asarum canadense*

**Culture:** Prefers consistently moist, acidic soil in full shade, but adaptable to average, medium to wet, well-drained soil in partial to full shade.

**Bloom:** April to May

**Height:** 6 to 12 inches

This North America native grows in rich woods and wooded slopes. It spreads slowly by rhizomes to form a lovely shade ground cover. The cup-shaped, dark purplish flowers dangle out of view beneath the downy heart-shaped leaves. Its fresh or dried roots were used by early Americans as a ginger substitute.

**Kirkwood location:** located in spots under the pergola benches and on the woods' edge to the left of the pergola.



Flickr/aarongunnar (Aaron Carlson)



Plant Spotlight and Kirkwood Gardens are sponsored by Belknap Landscape Company, Inc.  
[www.belknaplandscape.com](http://www.belknaplandscape.com)



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**Save The Date**  
**Annual Meeting for Members**  
**Saturday, August 11**

### NEWSBRIEFS *continued from page 3*

- Thanks to grant funding from the Davis Conservation Foundation and the Dorr Foundation there will be a new exhibit for the Mead Discovery Place, which also will have a new location as it will be moved to the Webster Lobby from the Trailhead Gallery. The exhibit will share the stories Naturalist Eric D'Aleo is uncovering through a new Trail Camera STEM (Science, Technology, Engineering, and Math) Project looking at how wild animals use the Science Center property.
- Our new Lake Cruise Headquarters, just across from our exit driveway on Route 113, proved to be popular last year. Some final touches for the facilities will be added later this year, including educational interpretative signs. Squam Lake Cruises start in May and the daily cruise "Explore Squam" has been renamed "Discover Squam." "Nature of the Lakes" in July and August will be called "Cruise with a Naturalist" and it will start a half hour earlier at 3:30 p.m. Online registration and payment is available on our website at [nhnature.org](http://nhnature.org).
- Thank you to Meredith Village Savings Bank for sponsoring River Otter Feedings in 2018. River Otter Feedings take place at the exhibit every Monday, Wednesday, and Friday at 11:30 a.m. starting May 2.
- While bathrooms are available in the Red Barn on the far side of the exhibit trail, we heard requests from families for a facility closer to the Gordon Children's Center and Interactive Playscape. A Clivus composting toilet is under construction and will be ready in May.
- A new weekly program, called the Green Heron Afterschool program, is for Blue Heron School Alumni in grades 1 to 3. The children are enjoying time together investigating, playing, and exploring outside.
- Science Center members will receive one free admission (up to 2 adults and 2 children) to the Mount Washington Observatory's Extreme Mount Washington and Weather Discovery Center in June 2018. Science Center members will also receive one free weather station tour but must register in advance. Tours are based on availability. See [mountwashington.org](http://mountwashington.org) for information about hours and directions.
- Membership Fees Change on April 1. For a limited time, become a member or renew your membership and pay 2017 prices! Join now before some membership increases go into effect on April 1, 2018. Visit [nhnature.org/membership](http://nhnature.org/membership) to purchase or renew online.

# 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.

## MARCH

<p><b>MARCH 14</b> <b>WEDNESDAY</b> 11:00 a.m. to 12:00 p.m. For ages 2 and 3</p>	<p><b>Nature Play Time</b> Join us to explore the natural world with your little one! Using our five senses, we will investigate ice and snow in the winter and mud and water in the spring. Adults get to play too! An adult must participate with children at no additional cost. Program is outdoors; please dress in warm layers with snow pants, hats, gloves, jackets and snow boots for winter and warm layers with rain/mud boots for spring <i>Cost per session: \$5/member child; \$7/non-member child</i></p>
<p><b>MARCH 17</b> <b>SATURDAY</b> 1:00 to 3:00 p.m. For adults and families with children ages 6 and up</p>	<p><b>Winter Bird Banding</b> <b>10:00 a.m. to 12:00 p.m.   For all ages</b> Looking for a chance to see wild birds up close? Join us to find out why and how we capture, band, and release birds that gather at our winter feeding station. Children must be accompanied by an adult. Time will be spent indoors and outdoors; bring warm layers, hats, and gloves. <i>Cost: \$8/member; \$10/non-member*</i></p> <p><b>Wild Winter Walk</b> Have you ever wondered what happens to the animals at the Science Center during the winter? Most of them stay in the same place, just as they would in the wild. Join a staff naturalist for a guided walk on the live animal exhibit trail to see our animal ambassadors dressed in their winter coats and discuss how these native animals are well-adapted for winter in New Hampshire. If needed, snowshoes are available at no extra cost or bring your own. Children must be accompanied by an adult. Dress to be outdoors with snow boots, hats, gloves, and warm layers. <i>Cost: \$8/member; \$10/non-member</i></p> <p><i>*MAKE A DAY OF IT! Attend both Winter Bird Banding and the Wild Winter Walk. Bring your brown bag lunch for the time in between. Advance Package Discount: \$11/member, \$15/non-member for both programs on the same day.</i></p>
<p><b>MARCH 24</b> <b>SATURDAY</b></p>	<p><b>Winter Bird Banding</b> <b>10:00 a.m. to 12:00 p.m.   For all ages</b> <i>See description for March 17.</i></p>
<p><b>MARCH 31</b> <b>SATURDAY</b> 10:00 to 11:30 a.m. For families with children ages 6 and up</p>	<p><b>All about Birds</b> Come meet some of our feathered friends! Through activities and close up encounters with our avian ambassadors, discover the unique lives of birds. Go on a bird walk and learn to identify common species by sight and sound. Binoculars are available or bring your own. <i>Cost: \$8/member; \$10/non-member</i></p>



## APRIL

<p><b>APRIL 4</b> <b>WEDNESDAY</b> 7:00 p.m. For adults</p>	<p><b>Wild &amp; Scenic Film Festival</b> Squam Lakes Natural Science Center and Plymouth State University's Office of Environmental Sustainability are hosting the Wild &amp; Scenic Film Festival at the Flying Monkey Movie House and Performance Center in Plymouth. See adventure films, poignant works about environmental challenges, and humorous takes on important issues from one of the nation's premier environmental and adventure film festivals. This great night of films about adventure and activism will inspire your efforts to enjoy and protect the natural world! <i>Tickets are available at flyingmonkeynh.com or at the door.</i> <i>Cost: \$10/person</i></p>
<p><b>APRIL 5</b> <b>THURSDAY</b> 10:00 to 11:30 a.m. Two sessions: Ages 4 to 6 Ages 7 to 10</p>	<p><b>Homeschool Series: Earth Cycles</b> This educational series is specifically for homeschooled students. Programs focus on the cycles you can observe in the natural world. Topics include rock cycle, water cycle, life cycles, and more! One adult must participate with children at no additional cost. Each additional adult pays child cost. <i>Cost per session: \$9/member child; \$11/non-member child</i></p>
<p><b>APRIL 10-13</b> Daily, 8:30 a.m. to 4:30 p.m. For adults</p>	<p><b>Certified Interpretive Guide Training</b> Interpreters are storytellers. They are tour guides, museum docents, zoo docents, park rangers, naturalists, and more. In this four-day course offered by Squam Lakes Natural Science Center and National Association for Interpretation you will learn techniques to make connections with an audience, give meaningful and enjoyable presentations, and create thought provoking and relevant interpretive programs. Visit <a href="http://interpnet.org">interpnet.org</a> to register or contact Certified Interpretive Trainer Audrey Eisenhauer at <a href="mailto:audrey.eisenhauer@nhnature.org">audrey.eisenhauer@nhnature.org</a> for more information.</p>
<p><b>APRIL 11</b> <b>WEDNESDAY</b></p>	<p><b>Nature Play Time</b> <b>11:00 a.m. to 12:00 p.m.   For ages 2 and 3</b> <i>See description for March 14.</i></p>


# APRIL CONTINUED

<b>APRIL 14 SATURDAY</b> 10:00 to 11:30 a.m. For families with children ages 6 and up	<b>All about Mammals</b> Learn about this diverse group of animals. Get up close and personal with some live mammal ambassadors. Gain an understanding of how different species interact through some fun outdoor games. Dress for the weather with warm layers and snow/mud boots. <i>Cost: \$8/member; \$10/non-member</i>
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# MAY

<b>MAY 5 SATURDAY</b> 9:30 a.m. to 5:00 p.m.	<b>New Hampshire Day</b> <b>For all ages</b> \$5 admission for New Hampshire residents. Live animal presentations at 11:00 a.m., 1:00 p.m., and 3:00 p.m.
<b>MAY 9 WEDNESDAY</b> 9:30 to 11:00 a.m. For adults	<b>Invasive Species Removal Work Day</b> Join Master Gardener Liz Stevens to learn how to identify and remove invasive plant species. We will begin each session with a brief introduction to an invasive species and then go out onto 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. Wear long pants and sturdy shoes. Bring work gloves, water, insect repellent, and sunscreen. <i>Cost: No charge but reservations are required.</i>
<b>MAY 19 SATURDAY</b> 10:00 to 11:30 a.m. For adults and families	<b>Vernal Pool Exploration</b> Spring is an exciting time to be out and about and it's when vernal pools are coming to life. Venture to two different vernal pools on Science Center property to discover the animals reliant on these predator-free, ephemeral pools. <i>Cost: \$8/member; \$10/non-member</i>
<b>MAY 25 FRIDAY</b> 7:00 to 10:00 a.m. For adults and children ages 14 and up	<b>Spring Birding</b> Join Iain MacLeod to learn beginning birding, in partnership with the Squam Lakes Conservation Society (SLCS). During spring, a huge variety of birds fill our woods, meadows, and wetlands. Explore some of these habitats in the Lakes Region looking for birds. Build your birding skills and learn how to identify birds by sight and sound. <i>Cost: \$12/SLNSC or SLCS member; \$15/non-member</i>

# JUNE

<b>JUNE 1 FRIDAY</b>	<b>Spring Birding</b> <b>7:00 to 10:00 a.m.   For adults and children ages 14 and up</b> <i>See description for May 25.</i>
<b>JUNE 2 SATURDAY</b> 9:00 a.m. to 12:00 p.m.	<b>Kirkwood Gardens Day</b> <b>For all ages</b> Gain inspiration from Kirkwood Gardens and find beautiful plants for your own garden. Purchase fine perennials from a prestigious New England nursery and knowledgeable local gardeners. Peruse the silent auction of desirable plants and garden items and browse craft vendors. Enjoy beverages and baked goods for sale. All proceeds benefit Kirkwood Gardens, established 1995. Sponsored by: 
<b>JUNE 9 SATURDAY</b> For adults and families with children ages 12 and up	<b>Annual Breeding Bird Census</b> <b>Session 1 - 5:30 to 8:00 a.m.   Session 2 - 8:00 to 9:30 a.m.</b> 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. The census is done primarily by ear, listening for territorial songs of male birds, indicating probable nesting. This is a great opportunity to hone your bird song identification skills. The early session (5:30 a.m.) involves canvassing two forested zones, including Mt. Fayal. The later session (8:00 a.m.) covers fields, exhibit areas, and Kirkwood Gardens. Binoculars are available or bring your own. <i>Cost: No charge but reservations are required.</i>
<b>JUNE 11 MONDAY</b>	<b>Invasive Species Removal Work Days</b> <b>9:30 to 11:00 a.m.   For adults</b> <i>See description for May 9.</i>



# 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.

**Purchase cruise tickets online at [nhnature.org](http://nhnature.org)!**

## Discover Squam

May 19 to June 30 - Daily at 1:00 p.m.

July 1 to August 31 - Daily at 11:00 a.m., 1:00 p.m., 3:00 p.m.

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.

## Bald Eagle Adventure

May 15 to June 19 - Tuesdays at 3:00 p.m.

Join a naturalist for a special Bald Eagle Adventure to view these magnificent birds in their natural habitat. The cruise focuses on the recovery of Bald Eagles as a nesting species in the state, with particular discussion about the Bald Eagles that have nested on Squam since 2003.

## Loon Cruise

June 8, 15, 22 - Fridays at 3:00 p.m.

June 25 to August 31 - 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 3 to August 30 - Tuesdays, Wednesdays, Thursdays at 3:30 p.m.

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.

## Lake Explorers Family Cruise

July 24 - August 14 - 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.*

## Squam Lake Cruise Rates:

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

Discounts available for combination trail and cruise tickets. Members receive a \$4 discount per person. Not recommended for children under age 3

## Dinner and Sunset Cruise

Thursdays, July 19 and 26

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](mailto: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](http://nhnature.org) or call 603-968-7194 x 7.



## VOLUNTEER OPPORTUNITIES

### Docent Training - Adults

**June 19, 20, 21, 22 - 3:00 to 8:00 p.m.**

Docents are volunteers trained to interact with guests on the live animal exhibit trail using educational props and live animals. Docents represent the Science Center at off-site events and also travel to assist naturalists with educational outreach programs. Docents must commit to 40 hours of training in their first year and 16 hours annually thereafter.

*Cost: \$50 (financial aid available)*

### First Guides Training - Ages 14 to 17

**June 28, 29, 30 - 10:00 a.m. to 4:00 p.m.**

First Guides is a teen volunteer program based on our adult docent program. Teens learn how to be a welcoming and informative presence for visitors, often demonstrating animal artifacts alongside adult docent mentors with live animals.

*Cost: \$50 (financial aid available)*

*Training is scheduled in April for other volunteer opportunities, such as Lake Education Assistant, School Group Greeter, Volunteer Instructor, and Window Washer. There is no cost to attend any of these trainings, but you must register in advance and participate in a Volunteer Orientation session.*

For more information or to register for training, contact Volunteer Manager Carol Raymond at [carol.raymond@nhnature.org](mailto:carol.raymond@nhnature.org) or 603-968-7194 x 22.

## NATURE TOURS

### Land of Enchantment: Natural Wonders of New Mexico November 6 to 16, 2018

Join Iain MacLeod for a spectacular, small group tour of New Mexico. November is a special time to visit. The temperatures are comfortable; the light is fantastic and tens of thousands of cranes and snow geese have just arrived for the winter. In addition to wildlife and spectacular scenery, the trip includes visits to the Bandelier National Monument, the Valley of Fires lava beds, Carlsbad Caverns, Santa Fe National Forest and beautiful old town Santa Fe. Other highlights include the Bosque Del Apache National Wildlife Refuge and Bitter Lakes in the Pecos Valley. See pronghorn antelope, prairie dogs, Roadrunners, vast flocks of waterfowl, raptors galore, and incredible sunrise and sunset flights of Sandhill Cranes.

*Cost: \$3,700 (assumes double or twin occupancy room\*)*

*All-inclusive cost includes: round-trip airfare from Boston to Albuquerque, ground transportation (15-passenger van), all accommodations, all meals, admission fees, and leaders' fees. \*There is an additional \$400 charge for a single room. Maximum group size: 10.*

View full itinerary at [nhnature.org/programs/nature\\_tours.php](http://nhnature.org/programs/nature_tours.php). Contact Iain at 603-968-7194 x 23 or [iain.macleod@nhnature.org](mailto:iain.macleod@nhnature.org) for details or to book your place.

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## 2018 GUIDED DISCOVERIES | YOUTH NATURE DAY CAMPS

View program descriptions, schedule, and register online at [nhnature.org/programs/Guided\\_Discoveries.php](http://nhnature.org/programs/Guided_Discoveries.php)



## GREEN TIP: BRINGING BACK DARK SKIES

We all look forward to spring as the Earth's orbit brings longer days and shorter nights to us in the northern hemisphere. It's dark here in the winter but not as dark as it could be! Did you know that artificial lights have made our night skies much brighter over the past 100 years or more? According to the International Dark-Sky Association (IDA) scientists continue to find serious negative effects of artificial light at night on wildlife and ecosystems. It disorients migrating birds and sea turtle hatchlings; interferes with moths and other nocturnal insects, which disrupts pollination; disturbs nocturnal behaviors of amphibians and reptiles; and affects human circadian rhythms and other important biological cycles.

How can you help? Minimize the light coming from your own home at night. Use energy efficient bulbs that are only as bright as you need and when and where you need them. Shield outside lights and direct the light down, not up into the sky; pair shielded lights with motion detectors and timers to minimize the length of time lights are on. You'll also enjoy the bonus of wasting less electricity, which reduces greenhouse gas emissions. Or just turn off lights at night and go outside to marvel at the stars! IDA has much more information, including a certification program for residential dark sky friendly lighting fixtures. See <http://www.darksky.org/fsa/fsa-products/>



# OPENING A WINDOW TO THE NATURAL WORLD

## Tribute Gifts: Greg Smith Bobcat Fund

Every year the Science Center is privileged to receive many generous tribute gifts. Most of these are used for operating income, which help the Science Center fund day-to-day operations. Some are memorial donations, which we hope bring comfort to families and the donors. Some are honorary gifts in celebration of a milestone or to pay tribute to or thank someone special. We hope these gifts bring happiness to honorees and donors. We thank every donor and notify each family about every gift.

Some families have even established restricted funds in memory of loved ones. These funds truly do satisfy the meaning of a legacy since they support natural science education now and will continue to provide support in the future.

One of these funds was established by Frances Chalmers and Gail Smith. It has been 15 years since they approached us wanting to do something in memory of their beloved son, Gregory Thomas Smith. By 2006, they created a fund in Greg's memory with the goal of helping the bobcats beloved by Greg. The fund has since grown because of yearly donations from Greg's family and friends. Every year, interest from the fund is

transferred to operations to help fund the care and feeding of the bobcats. Greg loved visiting the Science Center and particularly loved the bobcats so it is appropriate his family and friends generously created this fund in his memory.

Greg's family hopes their example will serve as a catalyst to inspire other families to consider ways they can provide meaningful longstanding support. Francie and Gail noted "The work the Science Center does is so important in teaching people about nature and fostering stewardship of beautiful New Hampshire. We wanted to create a fund in Greg's memory to support the care of the bobcats and to set an example for others."



If you would like to make a memorial or honorary contribution, please visit [http://www.nhnature.org/support/tribute\\_gifts.php](http://www.nhnature.org/support/tribute_gifts.php) or contact Development and Communications Director Janet Robertson at 603-968-7194 x 12 or [janet.robertson@nhnature.org](mailto:janet.robertson@nhnature.org).

## BUSINESS SUPPORT

There are many ways for businesses to help the Science Center: become a business member, rent a meeting space, sponsor a special event, charter a lake cruise, or volunteer.

Contact Development Officer Kim Beardwood Smith at [kim.bsmit@nhnature.org](mailto:kim.bsmit@nhnature.org) or 603-968-7194 x 31 for more information.

## WISH LIST

String lawn trimmer; Garden shed; Bookcase; 5-gallon buckets; Microwave; Large umbrellas; Silverware, especially forks and spoons; Dog crates; Golf cart; Underwater Rover; Refrigerator

## DO SOMETHING WILD...SPONSOR A SPECIES!

The animals at Squam Lakes Natural Science Center serve as ambassadors for their species, here for the purpose of teaching about New Hampshire's natural world. The cost of caring for wildlife



is considerable. You can help to provide food, health care, and housing for the animals - for your favorite feathered or furry species - through Sponsor A Species. It's a unique way to learn about a particular species and help us to care for our live animals.

See sponsorship levels and make your sponsorship online at [www.nhnature.org/support/sponsor\\_species.php](http://www.nhnature.org/support/sponsor_species.php).

### These generous donors made tribute gifts, which were received between October 1 and December 31, 2017:

*In memory of Anne and Jim Alvord*  
The DeHaven Families

*In memory of Nat and Will Brown*  
Tom and Kris Brown

*In memory of Alan T. English*  
Jerry English

*In honor of Kirkwood Gardens Volunteers*  
Tracy Webster-Babcock

*In memory of Paul F. Miller, Jr.*  
Anonymous  
Laura and R. Jeff Abramson  
Virginia Amsler  
Ellen Anderson  
Pat and David Atkinson  
Pauline S. Baugh  
Mary and George Beitzel

Thomas L. Bennett  
Judy Boyd  
Susan W. and Cummins  
Catherwood, Jr.  
Martha and Paul Chamberlain  
Eugene Cheston, Jr.  
Audra and Tony Compton  
Barbara Deuber  
Diana and John Dugan  
Dana Dortone and Stephen Esser  
Jeanette and Herbert P. Evert  
Anita Fahy  
June Felley  
Carol and Robert Googins  
Karen Iglar  
Sandra B. Jones  
Paul Krautheim and family  
Felicia and James Lemonick

Mary Anne M. Scott  
Florence and Lewis Soars  
Dwight and Susan Sippelle  
Marguerette Smylie  
Merrill Tanner  
Marna Whittington  
A. Morris Williams, Jr.  
Richard S. Wood  
Sis Ziesing

*In memory of Don Parsons*  
Priscilla and Wayne Fletcher

*In memory of Ginger Parsons*  
Philip Parsons

*In honor of Natalie Parsons*  
Priscilla and Wayne Fletcher

*In memory of Robert E. Preston*  
Bow High School

*In memory of Barbara Reardon*  
Patricia and James Norris

*In memory of Kathleen Salek*  
Kate Carlson and  
Mikaleh Powers

*In memory of Greg Smith*  
Ann and Richard Chalmers  
Barbara and Ron Geigle  
Gail Smith and Frances  
Chalmers

James Talcott Fund of the New  
York Community Trust

*In honor of Carol and John  
Thompson*  
Rebecca Sinkler

*In memory of Peter M. Wood*  
George A. Carr

# TRAIL'S END

## THE TASTE OF SPRING



I am sitting by the pool in South Florida writing my spring newsletter article and enjoying a brief interlude from January's snow and cold. It has been six winters since I became a full time winter resident and this is my first experience of 72 degrees and sunshine so early in the year. It has a definite effect on my mood and outlook for the future. Emily Dickinson put it nicely when she wrote, "The sun just touched the morning; The morning, happy thing, Supposed that he had come to dwell, And life would be all Spring." I have always enjoyed winter with its outdoor energy, countless chores made more difficult by heavy clothing, and the many walks through the woods in quiet, peaceful solitude.

Would I choose to extend my time in the warm beyond the short week I have allocated to the task? Ann Bradstreet said, "If we had no winter, the spring would not be so pleasant; if we did not sometimes taste of adversity, prosperity would not be so welcome." I agree with Ms. Bradstreet. Spring is a wonderful time, but would it be as wonderful if it happened all year long? And, while it seems a long time to wait for mud season, maple syrup making,

receding snow drifts, and open windows, I keep in mind that "No winter lasts forever; no spring skips its turn." (Hal Borland) On an equally positive note, L.M. Montgomery said, "That is one good thing about this world...there are always sure to be more springs."

While a little calmer and less visible this winter, let me assure you the Science Center is a veritable beehive of activity. We are taking reservations for our summer events and activities, performing necessary maintenance on our facilities, updating our education priorities and programs, and planning for expansion of Blue Heron School. Our Board of Trustees is active as well, having recently reviewed our 2017 financial results, the 2018 annual budget, the needs for improvement of our buildings and grounds, and yes, the design of increased bathroom facilities on the trail. All of this is important stuff for the effective operation of the Science Center during the busier spring and summer months.

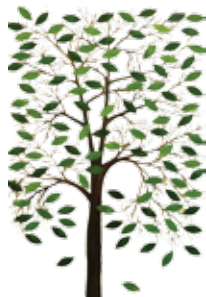
I return to New Hampshire in a few days just in time for the next predicted snowfall, energized by my trip, but also excited to embrace a few more months by the fire. Just like our Science Center staff, there will be plenty of things to keep me busy preparing for the eventual blossoms of spring. And, like the staff, I will follow the admonition of Lilly Pulitzer when she said, "Despite the forecast, live like it's spring."

*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](mailto:evanmead139@gmail.com).

### 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](http://nhnature.org).



### WALKING ON WATER *continued from page 1*

bubble on the tip of their abdomen. These beetles may also take to the air to escape, using their wings. Like water striders, whirligig beetles detect insects, spiders, and other tiny life that fall onto the water by feeling the ripples. Scavenging for dead prey rounds out their daily menu.

Finally our spotlight turns to an amazing spider that can skate, dive, and even sail. The six-spotted fishing spider's most distinctive feature is not spots but a light stripe running the complete length of the spider's sides. Females are close to 2.5 inches long, with males being little more than half that size. Although these spiders don't spin webs, they have an adaptation that works like one. Anchored to shore with their rear legs, fishing spiders spread out their front legs on the water's surface. Reading vibrations coming to them over the water, these spiders recognize potential prey – insects of course, even water striders. They can run across the surface film, powered by their middle four legs. Alternatively these spiders lift up front or hind legs and simply sail across the water. For prey like small fish or tadpoles, fishing spiders may plunge to a depth of over six inches. When underwater, the spider's tiny body hairs trap air, forming a silvery sheen enabling them to breathe. Surface tension does indeed give these creatures super powers.

As you can see, there is more depth to walking on water than you can first imagine. In fact, catching the nuances is an amazing spectator sport for an interested nature observer. I highly recommend a dose of time spent by quiet water, drinking it all in.

### WALKING ON WATER QUIZ

1. What is hidden in the hairs of water strider's legs that help these insects stay afloat?
2. How does a whirligig beetle see above and below the water's surface at the same time?
3. What do six-spotted fishing spiders use to sail across the water?
4. True or False? Six spotted fishing spiders spin webs along the shoreline.
5. Water striders prey mainly upon \_\_\_\_\_ and \_\_\_\_\_.

#### Answers:

1. Air | 2. Its eyes are divided with one part at the surface and one below | 3. Their front or hind legs | 4. False | 5. Insects, spiders




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### THE HOWLING COYOTE GIFT SHOP

The Howling Coyote Gift Shop will be ready for spring with new nature-inspired merchandise including jewelry, apparel, pottery, journals, and many other exciting gifts. Opening May 1, 9:00 a.m. to 5:00 p.m.

New jewelry from Petal Connection, Anju Jewelry, Earth Dreams, and Wild Bryde.

Prices: \$12 to \$20

*(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: *to advance understanding of ecology by exploring New Hampshire's natural world.*

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