



SALAMANDER CONGRESS

By Margaret Gillespie, Illustration by Cheryl Johnson

I am a confirmed “frog dodger” and proud of it. On the first warm, rainy evenings of spring, I catch myself talking to frogs, even though they are on the roadside and I’m cruising toward them in my car. I might exclaim, “DON’T jump now!” Fortunately, I’m acquainted with many local frog hotspots so I drive slowly. The swerve I take when the frog does leap hasn’t delivered me airborne into a ditch...yet. I also keep a sharp eye out for salamanders “jay walking” in a gentle warm rain, propelling themselves deliberately across roads. They are more challenging to spot with their low profile and waddling gait.

What’s the rush and where’s the destination? It’s breeding season for amphibians! Wetlands, particularly vernal pools, are the action headquarters for this spring event. Vernal pools, fed by melting snow, are fleeting bodies of water, drying up at some point during the summer. Thus no fish predators survive to eat eggs or larvae in these sanctuaries. Let’s focus on a conspicuous spring traveler to these vernal pools, seldom seen during the rest of the year. That’s the spotted salamander, *Ambystoma maculatum*.

Spotted salamanders are large in the world of salamanders, ranging from about four to eight inches. Two rows of spectacular yellow spots meander from head to tail, contrasting sharply with their bluish-black backs. Warning coloration? Yes, spotted salamanders exude milky toxin from their backs and tails as protection. These creatures belong to a group of salamanders called mole salamanders, aptly named for their subterranean existence. Most of their existence is in underground tunnels made by shrews and other small mammals. Here they forage for worms, going onto the forest

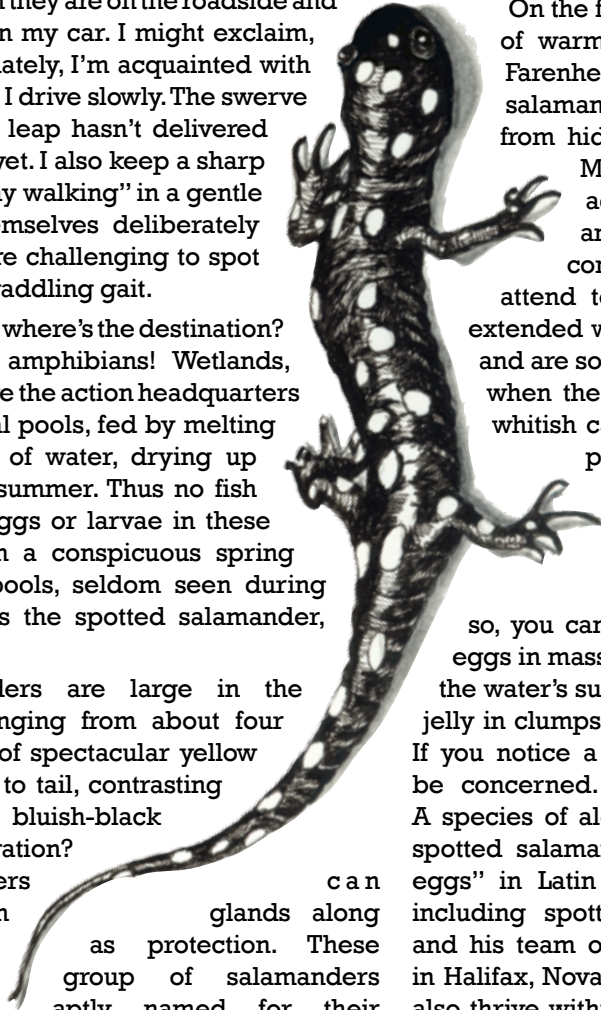
floor for such fare as insects and slugs. Once a year they embark on the big trip to “congress.”

On the first evening with just the right combination of warm spring temperature (about 40 degrees Fahrenheit), humidity, and light rain, spotted salamanders from every nook and cranny emerge from hiding and set off for their breeding pools.

Males, distinguished by swollen glands adjacent to their cloacae (vents), arrive first and soon gather in groups, aptly named congresses. There is definitely business to attend to. As the females appear on the scene, extended with eggs, they seek one of the congresses and are soon circling with a male. Mating is proposed when the male deposits a spermatophore (a small whitish capsule containing sperm) on a leaf on the pool’s bottom. Mating is consummated when the female places her cloaca over the spermatophore, relocating the sperm to her body.

Shortly after the mating frenzy, in a day or so, you can search for clusters of eggs. Females lay eggs in masses of 50 to 100 or more on twigs just under the water’s surface. The tiny embryos are surrounded by jelly in clumps the size of tennis balls or even grapefruit. If you notice a greenish tinge to the egg masses, don’t be concerned. Something extraordinary is happening! A species of algae, *Oophila amblystomatis*, lives in many spotted salamander egg clumps. *Oophila* means “loves eggs” in Latin and *amblystomatis* refers to the genus including spotted salamanders. Biologist Ryan Kerney and his team of scientists from the Dalhousie University in Halifax, Nova Scotia, discovered that these green algae also thrive within the embryos’ cells. You are observing a symbiotic relationship in which both the salamander eggs and algae benefit. It is essentially a waste exchange. The

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Welcome Back!

Trails open for the season
Thursday, May 1 • 9:30 a.m. to 4:30 p.m.
Last admission 3:30 p.m.

FORGING TRAILS

MORE GREENING AT THE SCIENCE CENTER



January 29, 2014, was an exciting day here at the Science Center. As the staff in the Welcome Center worked at their desks, we were warmed for the first time by heat from our new wood energy plant. The next day three other buildings came on line.

For the last several years we have explored various options to make the leap from oil and propane to sustainable, non-fossil, fuel heat. We looked at pellets and chips but settled on a cord wood plant to provide heat and hot water to four major buildings on campus.

When you next visit, you will find the brand new building called Wood Energy along the trail between the Welcome Center and Trailhead Gallery. Exhibits there explain how the plant works and describe the advantages of using sustainably harvested, locally sourced wood. Do you know how many BTUs can be created by burning a cord of wood? Do you know how many pieces of toast can be made with the energy stored in a one-pound block of red maple? All will be revealed when you visit the exhibits.

Inside the building are two side-by-side GARN boilers that will provide heat for the Welcome Center, Trailhead Gallery (and Blue Heron School), Webster Building, and Tamworth Pavilion . . . and a new Water Matters Pavilion, which will open in 2016. [See Trail's End on page 11 for more on this.] Hundreds of yards of buried, super-insulated pipes now connect all the buildings to the new wood plant. GARN is an American company based in Wisconsin. Their super-efficient boilers are designed to get the maximum energy from every log, with low emissions.

We are delighted that our supply of cordwood is coming from very local sources. Through a five-year contract with our neighbor Burleigh Land Limited Partnership to supply logs, the carbon footprint on the transportation of our wood could not be much smaller. In addition to the Burleigh wood, local tree service companies are dropping off logs for us to cut and split. That process has kept volunteer Dennis Hager (and lately Bob Tuveson) busy in our log yard. Dennis and Bob are log-splitting machines!

Facilities Director Tim Curry is the mastermind behind this exciting infrastructure change. His vision and planning positioned the Science Center for a smooth transition to this new system.

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

A NATURALIST'S LEGACY SOCIETY

If you have already named Squam Lakes Natural Science Center in your will or trust, please let us know so that we can thank you and welcome you into the Naturalist's Legacy Society. Your gift helps us continue our work into the future. Want to learn more? Visit www.nhnature.org/support/planned_giving.php

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

Squam Lakes Natural Science Center is a non-profit educational institution incorporated in 1966 as a charitable organization under statutes of the State of New Hampshire with its principal place of business in Holderness. Our 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 all members. Comments are welcomed by newsletter editor Janet Robertson at 603-968-7194 x 12 or janet.robertson@nhnature.org.

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MEMBER PROFILE

CHERYL JOHNSON

If this name is familiar, it's because Cheryl Johnson has been donating her art for the cover of Tracks & Trails for many years.



Tell us about your background.

I was born in Ohio and grew up in New Hampshire. I have been an artist since I can't remember. After high school, while raising my family, I worked as a sign painter and graphic artist. I owned and operated a printing company in Campton for nearly 25 years.

Tell us about your hobbies and interests.

I have been an ardent birdwatcher and nature lover all my life. When I was about 10 years old, I received a microscope as a Christmas present and it opened my eyes to the world of nature. I have a huge collection of field guides and my interests, in addition to birds, include insects, spiders, wild flowers, reptiles, amphibians, trees, mammals, and grasses. I am also an avid digital photographer, with a particular interest in macro photography. My current passion is photographing individual snow crystals.

As an artist, what inspires you?

I am inspired by the colors and textures of the natural world. I am intrigued by the challenge of rendering fur, feathers, scales, bark, and other natural details.

How did you become involved with the Science Center and what keeps you coming back to help?

In the early 1980s, the Science Center began bringing their

printing to my company in Campton. Over the years, I got to know the various Executive Directors and others on the staff. I always had a deep respect for the goals and mission of the Science Center and did all I could to promote it. I began doing pen and ink illustrations for *Tracks & Trails* quite a number of years ago. I still enjoy the challenge of matching my artwork to Margaret Gillespie's wonderful, informative articles.

Do you have a favorite animal or exhibit at the Science Center?

I enjoy watching the otters play in their fantastic enclosure, but I especially love the birds of prey. It's sad that the large birds that live at the Science Center cannot be released to the wild due to physical limitations, but their presence provides a valuable opportunity for the public to appreciate these magnificent creatures.

Why do you think it's important for children to have a strong connection to nature?

When young children learn to appreciate nature, they grow to be adults who love the natural world. Early exposure to the mysteries and wonders of the natural world leads to a life of learning, exploration, and tremendous personal satisfaction.

Do you have a favorite childhood memory that involves nature?

When I was small, I remember pestering my mother until she said in exasperation, "Go find an ant and follow it!" I took her literally. I found an ant and spent the afternoon following it everywhere it went. And I have been following ants, spiders, birds, and everything else ever since!

Cheryl Johnson is a signature member of the Vermont Watercolor Society and a member of the New Hampshire Art Association. She belongs to the New England Watercolor Society, the American Watercolor Society, and the National Watercolor Society. Her art is exhibited in several New Hampshire galleries and is featured on her website – CherylJohnsonArt.com and Facebook page, Cheryl Johnson Art.

NEWSBRIEFS

- A new Coyote Exhibit opens this spring featuring a five-year-old adult male coyote. Donations from the Hilltop Foundation and Noah Foundation funded this construction.
- After almost 15 years on staff, Education Program Director Amy Yeakel resigned to become the Extended Learning Opportunities Program Specialist at Newfound Regional High School. In addition to supervising education, animal care, and volunteer programs, Amy helped to create the Blue Heron School and many exhibits. She also

led the Risk Management team. We will miss her and wish her the best in her new career.

- Volunteer Coordinator Carol Raymond recently joined the Central New Hampshire Granite United Way's review board "Reduce Poverty 20% by 2020."
- Blue Heron School Director Laura Mammarelli, a founding member of the New Hampshire Montessori Association (NHMA), was recently elected as its President. NHMA is a non-profit organization formed in 2007 to create a forum for the continuing education of Montessori

teachers and to promote the Montessori philosophy in New Hampshire.

- Some membership prices will increase by \$10 as of April 1, 2014: Four-Person will increase from \$60 to \$70; Six-Person will increase from \$80 to \$90; Eight-Person will increase from \$100 to \$110; and Wetlands will increase from \$125 to \$135. Admission prices will increase by \$2 making the Adult fee \$17, the Senior fee \$14, and the Youth fee \$12. Cruise fees are also going up by \$2 for non-members.

Continued on page 4



KIRKWOOD GARDENS PLANT SPOTLIGHT



By Brenda Erler

Double Bloodroot

Sanguinaria canadensis 'Multiplex'

Culture: Grow in moist, rich soil in partial to full shade. Tolerates poor, dry soils. Slowly spreads by rhizomes.

Bloom: March-April

Height: 6-8"

Double Bloodroot is a horticultural variety of the native wildflower. It gets its name from the bright orange-red sap in its stems and rhizomes. The sap was used for dye by Native Americans. It is caustic and poisonous if eaten, but has been used medicinally as an antiseptic. Allow to naturalize. Goes dormant in late summer.

Kirkwood location: shade bed beside garden pergola



Virginia Bluebells

Mertensia virginica

Culture: Easily grown in average, moist, well-drained soils in partial to full shade

Bloom: April-May. Pink buds open to pendulous blue flowers.

Height: 1-2 feet

This beautiful native wildflower is a great addition to wild gardens and naturalized areas. It goes completely dormant in summer, so overplant with other shade-loving perennials that will expand as the season progresses.

Kirkwood Location: left side of the pergola close to the bloodroot as well as on the bank along the driveway under the sumacs.



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

NEWSBRIEFS *continued from page 3*

- A quick review of 2013 attendance showed trail visits equal to 50,413 in 2013, 6,213 more than 2012. Lake Cruise attendance remained strong, with 9,844 participants, up from 9,294 in 2012. School children and teachers from throughout the state numbering 15,295 attended a program at the Science Center or at their school site, compared to 15,466 in 2012. Educators taught an additional 6,173 people around the state in non-school outreach programs. Volunteers donated 8,752 hours in 2013.

- In February, MarketPlace Associates of Cambridge,

Massachusetts, reviewed Howling Coyote Gift Shop operations and merchandise to identify opportunities for increased sales and service.

- A new grant from the Jane B. Cook 1983 Charitable Trust will provide continuing support for the Osprey Tracking project. This spring we'll follow Donovan (an adult male Osprey) as he returns to his nest in Tilton from his winter home next to the Orinoco River in Venezuela where he has lived since October. Two other tagged Ospreys (brothers Artoo and Bergen) are both in Brazil and will remain there

throughout this year. If they survive, they will return to New Hampshire in 2015 to try to establish a territory. Three more satellite transmitters will be deployed this year. Project leader Iain MacLeod will present a paper on the summer foraging behavior of three New Hampshire Ospreys at an Osprey Symposium at the joint meeting of the Wilson Ornithologist Society and the Association of Field Ornithologists in Newport, Rhode Island in June.

- Repairs to the cupola on the Red Barn were made this winter, with finishing touches of paint and trim planned for April.

NATURALIST'S CORNER

BLACK BEARS OF SPRING

By Jeremy Phillips

During one of the recent mild winters, I walked a trail covered sparsely with snow in early February when I came upon tracks from an animal that lumbered onto the trail. I stopped to observe and memorize them. I could tell this series of tracks were created just the night before. They were the tracks of a black bear. Why did the bear wake from its winter slumber? Where did it go? Where did it come from? It is uncommon, although not unheard of, for bears to move around during mild periods in winter. Generally they do not become very active until late March.

Black bears (*Ursus americanus*) give birth in January and February with the cubs weighing as little as ten ounces at birth. Black bears have delayed implantation, which means that the embryo remains in a state of suspension for up to five months. Female black bears average around 250 pounds and males weigh up to 450 pounds but have been known to reach greater weights in some eastern areas where food is abundant.

Spring is often a good time to find evidence of bears as tracks are easily imprinted on the moist ground around ponds or puddles. Later in spring, the fresh, dark rub and black hairs seen on a tree or creosote-laden telephone pole remind us of the majestic creature as well as tell other bears whose territory this is. Food becomes abundant during spring and the bear's energy starts to increase. Seventy-five percent of a black bear's diet is vegetation such as berries, fruits, and nuts. The rest includes insects, small mammals, and carrion.

It is amazing fun to look for the signs of animals; you never know where they may lead or what they may tell you. The day I found the bear tracks in the snow they led me across a barely frozen pond, through the muddy shore thawing in the sun. It took me up a hill in the forest where I could easily follow the tracks in the snow. Then the bear went out onto an icy beaver pond. I saw two large holes where the large mammal must have fallen through. A wet and muddy smearing on the ice was evidence that the bear climbed out. Its footsteps circled a beaver lodge where the top had been peeled off by the powerful animal. More questions arose. Did the bear sleep here? Was it still there? I looked inside the giant hole to see an empty space. Relieved and disappointed, I took one last look around and noticed tracks leading away from the lodge. Somewhere, that bear is still leaving tracks.

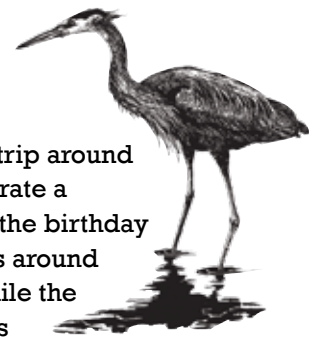


FROM THE HERON'S NEST

By Laura Mammarelli



Every birthday marks another trip around the sun. When it's time to celebrate a birthday at Blue Heron School, the birthday child carries a globe and walks around the 'sun' once for each year, while the teacher narrates the story of his or her life. Our favorite part is seeing a photo of the birthday child as a baby. Then we share a special snack and story, and the birthday child has a picture taken with his or her classmates.



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.

NATURAL ADVENTURES

Pre-registration is required for all events unless otherwise noted. Please call 603-968-7194.

Earth Day Forest Exploration

Tuesday, April 22
7:00 to 8:30 p.m.

Adults and children ages 10 and up
Enjoy an evening guided walk along a forest trail. Feel the earth beneath your feet, hear the sounds of night, and experience it the way nocturnal animals do.

Cost: \$7/member; \$9/non-member

Hiding in Plain Sight

Thursday, April 24
10:00 to 11:30 a.m.

Adults and children ages 7 to 12
How does camouflage work? Find out through games and activities that challenge you to look at things from a different perspective. You'll be surprised at what you can find if you know how to look. Meet a live animal that depends on camouflage for survival. Adult must accompany child.

Cost: \$7/member; \$9/non-member

Canine Capers

Saturday, April 26
10:00 to 11:30 a.m.

Adults and children ages 6 to 12
Why do coyotes howl and where do they live? What's the difference between a red fox and a gray fox? Is there a secret to hunting like a fox? You'll delve into the mysteries of local wild canines through outdoor activities, a story, and a craft, as well as a visit with a live coyote. Adult must accompany child.

Cost: \$7/member; \$9/non-member

Mud Mania

Tuesday, April 29
10:00 to 11:30 a.m.

Children ages 3 to 6

Bring your little tykes for some April Mud Season fun! You'll make mud and play in it while exploring what might live there. Learn how one particular animal makes use of mud. One adult must accompany child at no additional cost. Other adults pay child fee.

Cost: \$7/member; \$9/non-member

Arbor Day Celebration

Wednesday, April 30
10:30 a.m. to 12:00 p.m.

Adults and children ages 5 and up
"Arbor" stems from the Latin word for tree. Arbor Day was first celebrated on April 10, 1872, in Nebraska, and continues to be celebrated around the world as an annual event. Learn how to identify trees, explore the many uses of trees, and find out how to plant and care for them. Take home a sapling tree to plant on your own.

Cost: \$7/member; \$9/non-member

Planting with Preschoolers

Thursday, May 1
10:00 to 11:30 a.m.

Children ages 3 to 5

Spend time outside with your preschooler for a morning of exploration, play, song, and discovery about seeds and how they grow into plants. Plant native wildflower seeds here and take some home in a container. Adult must accompany child.

Cost: \$7/member; \$9/non-member

Sustainable Choices Workshop

Saturday, May 10
9:30 to 11:30 a.m.

Adults

Renewable energy business specialists ReVision Energy and Ultra Geothermal will share ideas and options for sustainable solar and geothermal energy. Enjoy light refreshments during the seminar and visit the new Wood Energy Exhibit too.

No charge

Frogs and Toads

Saturday, May 17
10:00 a.m. to 12:00 p.m.

Families

It's spring – the birds are back and frogs are hopping. Go on an adventure to learn about the seven species of frogs found here. Learn the difference between frogs, toads, and tree frogs. Meet some species up close while you search the pond and wet meadow for others.

Cost: \$8/member; \$10/non-member

Upper Pond Exploration

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

Adults and children ages 5 to 12

The surface of the pond looks tranquil. But underwater is another story. Collect and learn about critters camouflaged and hiding, predators and prey, large and small. All equipment is provided but your sharp eyes are needed. You'll conclude with a visit from an aquatic animal. Adult must accompany child.

Cost: \$7/member; \$9/non-member

Natural Adventure Series

Minds in Motion

Wednesdays: June 4, July 2, August 6, September 3 • 9:30 to 10:30 a.m.

Adults and children ages 3 and under

The mind and body of a young child are constantly on the move. Foster your child's "natural curiosity" and explore motion from an animal's perspective – jump like a frog, swim like a fish, crawl like a caterpillar, and fly like a bird. These adventures will build a foundation for a lifetime of enjoyment and appreciation of the natural world. Adult must accompany children at no additional cost.

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

Yoga Wild

Wednesdays: June 18, July 16, August 20 • 9:30 to 11:00 a.m.

Children ages 4 to 7

Explore animal movement through fun yoga poses. Children will learn spatial concepts, stimulate their senses and develop motor skills as they use their imaginations to mimic animals. Each session will include a visit with a live animal.

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

Spring Birding

Fridays: May 16, 23, 30, June 6, 13 • 7:00 to 10:00 a.m.

Adults and children ages 14+

In partnership with the Squam Lakes Conservation Society, the Science Center is offering weekly bird ID programs. Join Iain MacLeod or Rick Van de Poll on this series of beginning birding programs. Learn to identify the huge variety of birds that fill our woods, meadows, and wetlands each spring. Explore a variety of habitats in the Lakes Region. Learn identification by sight and sound and build upon your bird ID skills each week. Iain will lead trips on May 16, 23, 30 and June 6; Rick Van de Poll will lead the trip on June 13.

Cost per program: \$12/SLNSC or SLCS member; \$15/non-member.

UPCOMING EVENTS

Clean Up Day

Saturday, April 19

9:30 a.m. to 1:00 p.m.

Wear your old clothes and bring your work gloves to help at our annual Clean Up Day. Choose from a variety of tasks to ready trails and grounds, including Kirkwood Gardens, for opening day on May 1. Some projects are messy or dirty, such as painting and raking. Most work is outdoors, so dress for the weather. Extra leaf rakes are helpful too. Volunteers and staff share a complimentary picnic lunch at noon. Groups and families are welcome. Contact Volunteer Coordinator Carol Raymond to register at 603-968-7194 x 22 or carol.raymond@nhnature.org.

New Hampshire Day

Saturday, May 3

Trails open at 9:30 a.m.

A discounted admission fee of \$3 for New Hampshire residents is generously sponsored by Dead River Company and NHEC Foundation. Shop for bargains at the Howling Coyote Gift Shop sale. Live Animal presentations at 11:00 a.m., 1:00 p.m., and 3:00 p.m. Get energy saving ideas and giveaways from Dead River Company.



StoryWalk™

July 3 through July 31

Daily 9:30 a.m. to 4:30 p.m.

Bring your family to enjoy a new StoryWalk™ featuring *Little Beaver and the Echo*, presented in collaboration with the Holderness Library and Holderness Recreation Department. StoryWalk™ opens with family activities and refreshments on July 3 from 10:00 to 11:30 a.m. Find StoryWalk™ behind the NH Fish and Game parking lot. Please park in town or at the Science Center, not in the lot reserved for boat trailers.

No charge and no reservations are required.

"...we enjoyed it thoroughly—even without the company of children (we're 53 and 60!) Thanks for the lovely StoryWalk!"

-StoryWalk™ visitors

New Date!

Kirkwood Gardens Day

Saturday, May 31

9:00 a.m. to 1:00 p.m.

Gain inspiration from Kirkwood Gardens and find beautiful plants for your own garden

- Fine perennials from a prestigious New England nursery
- Silent auction of desirable plants and garden items
- Plants from knowledgeable local gardeners
- Creative planters and handmade items
- Expert opinions and advice
- Hot and cold drinks, and baked goods for sale
- Exceptional craft vendors

To benefit Kirkwood Gardens, est. 1995.

Sponsored by:



Belknap Landscape Company, Inc.
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Coyote Day

Saturday, June 28

If you are fascinated by your own sightings of coyotes or hear them in your neighborhood, come and meet the Science Center's resident coyotes up close. See one at the new Coyote Exhibit on the live animal trail where volunteer docents will spark your interest. Meet another younger coyote during "Up Close to Animals" talks. Find out what is myth and fact about coyotes. Join in games, crafts and a scavenger hunt.

Cost: included with trail admission

River Otter Feeding

May through October - Monday,

Wednesday, and Friday at 11:30 a.m.

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

Cost: included with trail admission

Docent Guided Tours

July and August - Thursdays at 10:30 a.m.

Get an in-depth look at the animal exhibit trail on a Docent Guided Tour. Learn more about the animals, exhibits, and landscape of the Science Center.

Cost: \$2 per person with trail admission

Up Close to Animals

Daily during July and August

Meet live animals up close and learn

about them from an experienced naturalist educator. These engaging talks at the amphitheater feature a variety of different animals, including birds, mammals, and reptiles. Programs are offered daily in July and August and on weekends through Columbus Day. Attend one or all five.

Cost: included with trail admission

Turtle Talks

July and August - Tuesday at 10:30 a.m.

Volunteer-led talks are hands-on using a live turtle to teach about turtles. This fun session involves interactive discussions and questions.

Cost: included with trail admission



Summer 2014 Guided Discoveries

Week-long adventures in learning for ages 3 to 14

Wiggle, Hop, Fly... Smell, Taste, Touch

Registration for Guided Discoveries is open and summer will be here before you know it. Eighteen different week-long adventures in learning are waiting for your children ages 3 to 14. And if you are a member, you can save from \$20 to \$30 per program. See details at www.nhnature.org/programs/guided_discoveries.php



SQUAM LAKE CRUISES

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

Explore Squam

May 17 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 13

Tuesday, Wednesday, Thursday at 11:00 a.m., 1:00 p.m.

Friday through Monday at 11:00 a.m., 1:00 p.m., 3:00 p.m.

This unforgettable guided tour has something to delight everyone. Learn about the natural history of the lake, the wildlife that makes Squam so special, and the people who have enjoyed these lakes for over 5,000 years. View locations where the movie *On Golden Pond* was filmed over 30 years ago. Watch Common Loons and Bald Eagles, regularly seen, but best viewed while nesting from May through August.

Nature of the Lakes

July 1 to August 28

Tuesday, Wednesday, Thursday at 4:00 p.m.

September 2 to October 9

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

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

Lake Explorers – A Family Cruise

July 8 to August 12

Tuesdays at 10:00 a.m.

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.

Cost: \$15/member; \$17/non-member

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 Tom Klein will personally arrange your charter for any occasion.

Contact Tom Klein at 603-968-7194 x 10
or tom.klein@nhnature.org

Bald Eagle Adventure

May 20 to June 24 • Tuesday at 3:00 p.m.

Join Executive Director Iain MacLeod (May 20, May 27, June 3) or Senior Naturalist Dave Erler (June 10, 17, 24) 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 pair of Bald Eagles that has nested on a Squam island since 2003 and fledged 18 chicks.

Loon Cruise

June 9 to August 29 • Every Monday and Friday 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.

Explore Squam • Nature of the Lakes Bald Eagle Adventure • Loon Cruise

Cost: \$21/adult member; \$25/adult non-member
\$19/senior member; \$23/senior non-member (age 65+)
\$17/youth member; \$21/youth non-member (to age 15)
Not recommended for children under age 3

Ask about our combo passes.

Dinner and Sunset Cruise

July 10 to August 7 • Thursdays

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: \$50.00 per person;
not recommended for children

All Squam Lake Cruises depart from the dock on Route 3 at the bridge, next to Walter's Basin Restaurant in downtown Holderness. Squam Lake Cruises are 90 minutes in length and aboard canopied pontoon boats. Binoculars are available for wildlife viewing at no additional cost.

Space is limited on Squam Lake Cruises.
Call 603-968-7194 for information and reservations.
www.nhnature.org/programs/lake_cruises.php

**NEW HAMPSHIRE YOUNG BIRDERS CLUB
SPRING EVENTS**

The Flight of the Woodcock
Tuesday, April 8; 7:00 to 8:30 p.m.

Building Bluebird Houses
Saturday, April 19; 9:00 a.m. to 1:00 p.m.

International Migratory Bird Day
Saturday, May 10; 7:00 a.m. to 2:00 p.m.

The Annual Birdathon: Join the Harriers' Team!
Saturday, May 17; all day

South America in Your Backyard: The Osprey Returns
Saturday, May 24; 10:00 a.m. to 1:00 p.m.

Birding by Canoe
Saturday, May 31; 8:00 a.m. to 12:00 p.m.

Programs are free with New Hampshire Young Birders Club membership (\$25/year). Contact Coordinator Henry Walters at 603-525-3572 or see nhyoungbirders.org for more information.

**VOLUNTEER TRAINING
SHARE THE DISCOVERY**

Docent Training
Age 18 and up
June 16, 17, 18, 19 - 4:00 to 8:00 p.m.
June 21 - 9:00 a.m. to 1:00 p.m.
Cost: \$50 (financial aid available)

First Guides - Teen Volunteer Training
Ages 14 to 17
June 23, 25 - 9:30 a.m. to 4:30 p.m.
June 27 - 9:30 a.m. to 1:30 p.m.
Cost: \$50 (financial aid available)

For more information or to register, contact Volunteer Coordinator Carol Raymond at 603-968-7194 x 22 or carol.raymond@nhnature.org.

SCIENCE CENTER NATURE TOURS

Land of Enchantment: Natural Wonders of New Mexico
November 3 -13, 2014

Shetland and Orkney Islands of Scotland
June 13 - 26, 2014

Hebrides and Highlands
July 2014

Full trip itineraries can be found at www.nhnature.org/programs/nature_tours.php

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. All the animals need specialized diets, daily care, and creature comforts. You can help to provide food, health care, and housing for the animals - for your favorite feathered or furry species - through Sponsor A Species. There are a variety of animals and sponsorship levels to choose from. Learn more and select your sponsorship at www.nhnature.org/support.



"Your organization is one that I shall continue to support. I became absolutely fascinated by seeing the mountain lion up close and personal. Those eyes were gorgeous and so hypnotic. So, this year I decided to sponsor the mountain lions!! It's not just about seeing the animals but being educated about them which adds to the enjoyment."

-Visitor, Wilmot, NH

SPOTTED SALAMANDER QUIZ

1. True or False? The spotted salamander is a kind of lizard that lays eggs in water.
2. A spotted salamander congress takes place in what season?
3. Because of their underground habits, spotted salamanders belong to a group called _____ salamanders.
4. Are the algae that grow within clumps of spotted salamander eggs beneficial or detrimental to the developing embryos?
5. True or False? Spotted salamanders produce a toxin that they can use to protect themselves.

Answers

1. False. Spotted salamanders are amphibians not lizards. 2. Spring 3. Mole 4. Beneficial 5. True

Squam Lakes Artisans Gallery
Locally crafted New Hampshire gifts
Open daily 10:00 a.m. to 5:00 p.m. starting May 21

OPENING A WINDOW TO THE NATURAL WORLD

Thank You for Your Support!



More than 400 wonderful members, families, businesses, and foundations contributed over \$293,000 to the Annual Fund in 2013. Thank you! Most gifts came in November and December, but many of you send gifts to the Annual Fund throughout the year – you give tribute gifts to

honor or remember a loved one, you give a little bit extra with your membership renewal, you donate to Kirkwood Gardens, you participate in our Sponsor A Species program, or you give at a different time of year. Whatever the case, we are grateful for each and every one of your donations, which provide essential funding for day-to-day operations and programs.

If you did not have a chance to make a gift in 2013, please consider making one now. You can even make a recurring gift by setting up a monthly or quarterly donation. A recurring gift allows you to spread payments throughout the year. It is convenient for you and provides dependable support for the Science Center. Your donation is billed to your credit card or bank account. Once a year, we'll send you a record of your giving history for tax purposes and give you an opportunity to update your pledge information.

You can use the enclosed envelope to authorize a recurring gift for your annual donation or send a check now. You can also donate online at our website, <http://www.nhnature.org/support>.

Help us start the year by making a gift to the 2014 Annual Fund at whatever amount you can!

Questions about how you can support the Science Center?
Contact Janet Robertson, Development and Communications
Director at 603-968-7194 x 12 or janet.robertson@nhnature.org

Flat screen computer monitors
iPads or similar tablet computers

Dehumidifiers
Milk crates

Green fleece blankets for cruises
Ten tablecloths for 8-foot tables
or fabric to make them

We are grateful for these memorial and honorary gifts received from October 1 through December 31, 2013:

In memory of Anne and James Alvord
DeHaven Family

In honor of Rae Andrews and Cindy Foster's marriage
Laura Mammarelli and Jim Meryman
Peter and Kristin Nordblom
Judy and Larry Webster

In memory of Ellen Fabian Barry
Georgene and Rick Fabian

In honor of George Carr
Charles Foundation

In memory of Dr. and Mrs. L. Betts Copenhaver
Marcia and Richard Barrere

In memory of Mary Smith Denison
Elizabeth and William Dewey

In memory of Richard Howard
Clare Howard

In honor of John McRae
Linda and Bill Lee

In memory of Ruth Millar
Anonymous

In honor of Tashia and John Morgridge
Mary Kluesner

In memory of Hester O'Neil-Hoell
Kittery Outlet Association
Retail Association of Maine

In memory of Don Parsons
Priscilla and Wayne Fletcher
Charlie Drago and Donna Parsons
Nancy Parsons and Jim McDermott
Susan Parsons and Natalie Parsons

In honor of Carol Raymond
Stephen Gamlin

In memory of Martin Richard
Erin and Sean O'Brien

In memory of Barbara Ridgely
Cynthia House

In memory of Nickerson and Anne Rogers
Susan Rogers

In memory of David Russell
Catherine Salerno

In honor of Amelia Schackai's birthday
Salia Chapman

In memory of Greg Smith
Barbara and Ronald Geigle
James Talcott Fund of the New York Community Trust

In memory of Marjorie Tuttle
Betsy and Larry Athan

In memory of Elizabeth Ford Wood
Ellen Barth

TRAIL'S END

EXPANSION



As I write this column in the depths of winter, we are thinking about spring and a very exciting time at the Science Center. The Board of Trustees is delighted to announce that we have embarked on a capital campaign called Nature Matters, which will enable significant expansion of our current trail exhibits and enhance our long-term financial stability. A bit of background is in order.

The seeds for the campaign were sown in 2010 during a formal review of the implementation of our strategic plan, *Forging New Trails*. As a result, the board approved a plan in the spring of 2011 to raise significant funds for the Science Center. That was almost three years ago! So what has happened in the interim?

As you can imagine there were many ideas about what avenues we should pursue. The staff researched numerous suggestions and presented their conclusions to the board. We engaged consultants to help us understand the best approach for fundraising. The consultants conducted interviews with many stakeholders to help us define the campaign goals. It turns out that a capital campaign is a complex and time consuming effort.

After much thought and debate the staff and board unanimously and whole heartedly endorsed developing a major exhibit complex related to water. A new building known as the Water Matters Pavilion will house 18 different exhibits. The Pavilion will be constructed this year and populated with exhibits during 2015. Opening is planned for 2016, which coincides with the 50th anniversary of the Science Center.

Securing long-term financial viability is another campaign goal. We plan to increase our reserves by almost \$1.5 million. Not only will the campaign increase our restricted funds that will be used as an endowment for staff compensation by \$1 million, we are also increasing reserves related to maintaining our growing assortment of buildings and exhibits.

Additionally, this campaign has funded our new Wood Energy plant that is described on page two. Other exciting plans include a children's playscape and climbing structure (planned opening in 2015) adjacent to the existing Gordon Children's Center and a building that will provide a new home for the large collection of raptors that we use in programs as well as replace old winter quarters for some of our exhibit birds.

The Nature Matters goal is \$4 million. For the past two years we have conducted a successful silent phase of the capital campaign. We are overjoyed to report that we have secured commitments for over \$3.5 million as of this writing. We have received cash in excess of our building commitments so we will not borrow any money to complete these projects.

We are commencing the public phase of this campaign this spring. Soon you will receive information in the mail about the campaign and learn how you can participate. You will hear much more about this exciting time at the Science Center in the months ahead. We hope you will join us in participating in the campaign!

Trail's End is written by David Martin, Chair of Squam Lakes Natural Science Center's Board of Trustees.
You may contact David at dave.martin@nhnature.org.



SALAMANDER CONGRESS *continued from page 1*

algae produce oxygen through photosynthesis, which is needed by the embryos. The embryos release carbon dioxide and excrete nitrates, both required by the algae.

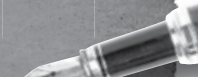
Salamander embryos graduate to the larval stage in one to two months or so. As larvae, they resemble tadpoles but with telltale branching gills. They feast on zooplankton and even mosquito larvae. By late summer, the larvae transform, emerging from pools as tiny juveniles, measuring roughly two inches long. Their destination: a nearby forest where they wiggle under logs and rocks or disappear into tiny underground mammal tunnels. After

two to five years they'll mature and return year after year to the breeding pools where they originated.

As spring approaches, I wonder if a bumper sticker exists announcing "I brake for salamanders!" I'll brake anyway. Soon I'll get my "salamander kit" ready – rain gear as well as a flashlight filtered with red transparent plastic for amphibian comfort. When I contemplate spring happenings in the natural world, what could be more unusually significant on a drizzly April evening than watching salamanders head to congress? How about you?

Respect. Integrity.
Teamwork. Excellence.
Stewardship.

Values for success.



"Squam Lakes Natural Science Center is special for my daughter and me because it is a place we can go and reconnect each year to nature and the reason we choose to live here in NH. Each time we go, we learn more and appreciate the wonders of nature and how what we do as a community affects the habitats of the animals we share it with. Thank you for providing a safe place for these animals who have been injured and providing a positive way to teach our children the value of respecting nature."

- Science Center visitor

THE HOWLING COYOTE GIFT SHOP

Product Spotlight: Camp Mug

These heavy duty ceramic mugs are perfect for warming up with a hot coffee or hot chocolate on a cold winter day. Science Center logo etched on one side. Available in green and ocean blue.

Retail: \$14.50

Member Price: \$13.05



The Howling Coyote Gift Shop is open daily May 1 through November 1 or by appointment. Members always receive a 10% discount on non-sale items.

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