SQUAM LAKES NATURAL SCIENCE CENTER
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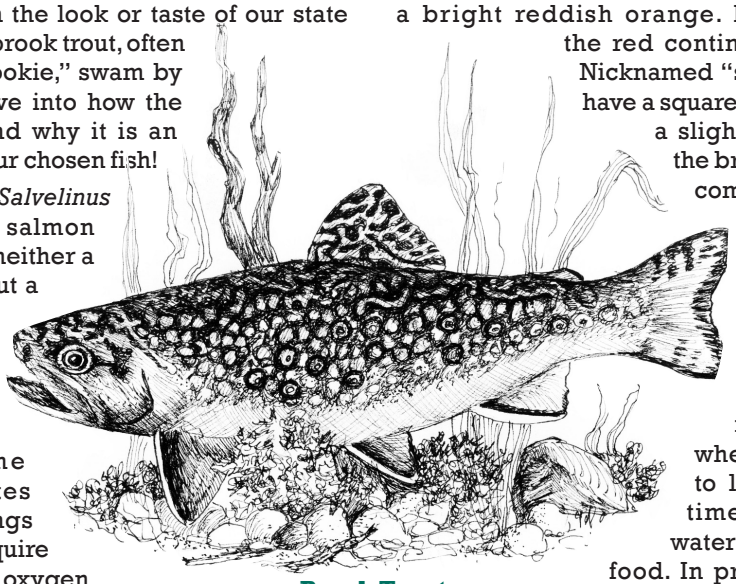
TRACKS & TRAILS

THE CHOSEN FISH

By Margaret Gillespie, Illustration by Cheryl Johnson

What makes a fish swim to the top of the list, be scales and fins above other fish, and finally be designated New Hampshire's state fish? The brook trout received this high honor in 1994, when the wheels of the legislature were set in motion by a Nashua fourth-grade class. If you like to fish, you may be familiar with the look or taste of our state fish. Or perhaps the brook trout, often referred to as a "brookie," swam by unnoticed. Let's delve into how the brook trout lives and why it is an excellent choice as our chosen fish!

The brook trout, *Salvelinus fontinalis,* is in the salmon family. However it is neither a salmon nor a trout but a closely related kind of fish called a char. Its genus name was originally a name for char. The species name *"fontinalis"* indicates that it lives in springs and these fish do require cool water with high oxygen levels. Wherever they are found, and this includes lakes and head-water streams as well as the brooks of their name, these fish are biological indicators of high quality water.



Brook Trout

Distinctive – this is one fish that is camouflaged but colorful, with features that are easy to remember. Although the back has worm-like light markings called vermiculations which help it blend with the lights and shadows of the stream bottom, the fish's sides brighten up with red spots, often haloed by blue. Then we see the fish's colorful lower fins, which are key to its identification. The edges of the fins are white, followed by a black bar, with the remainder a bright reddish orange. In spawning males, the red continues along the belly. Nicknamed "square tail," brookies have a squared-off tail with perhaps a slight fork. In the case of the brook trout, good things come in small packages. According to *Freshwater Fishes of New Hampshire* by John Scarola, these fish may grow to only 5.5 inches after three years in mountain brooks, whereas they may grow to 11 inches in the same time period in warmer water with more abundant food. In productive lakes, they can thrive, reaching 15 to 20 inches and a weight of four pounds in four years. A stream-dwelling New Hampshire brook trout lives to only about three years, and six years is generally considered to be their typical maximum age. Brook trout, unlike rainbow and brown trout, are native to New Hampshire.

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Forging Trails

BIRDS FALLING FROM THE SKIES . . . BE AFRAID, BE VERY AFRAID!

The more I watch television cable news the more I despair at modern-day "journalism." The twenty-four hour, seven-day-a-week barrage of poorly-researched, fear-mongering, pundit-filled sensationalism we are inundated with would make my BBC-trained, journalist father turn in his grave. I'm used to political sparring and partisan nonsense, but a recent story that got a staggering amount of traction involved bird die-offs in Arkansas and Louisiana . . . and . . . wait, this just in . . . Sweden!!

On the face of it, it was encouraging to see a wildlife, science-related story float to the surface of the murky news pond, but the opportunity to actually focus on a real conservation issue was missed. Instead, various news outlets decided to spin the story with "end of the world" and "apocalyptic" overtones! The low point was when one cable station, rather than interviewing a scientist, chose to interview actor Kirk Cameron about the end of days theory. Clearly the fact that he had acted in the *Left Behind* movies made

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FORGING TRAILS *continued from page 1*

him an expert on bird mortality. As I watched stupefied, Cameron himself had the good sense to suggest that the interviewer might be better off talking to a veterinarian.

Once the world didn't end . . . that day . . . and the facts of the story proved too boring, our ADHD news cycle moved on. So, what really happened to the birds? A recent article by Charles Choi in *National Geographic News* shed some sanity.

Beginning at roughly 11:30 p.m. on New Year's Eve, Arkansas wildlife officers started hearing reports of birds falling from the sky in a square-mile area of the city of Beebe. Officials estimate that up to 5,000 red-winged blackbirds, European starlings, common grackles, and brown-headed cowbirds fell before midnight. These four species, all of which are common in spring and summer in New Hampshire, flock together in enormous congregations during their winter stopovers in the southern United States. Flocks numbering in the millions are not uncommon and in many places they are considered an agricultural pest.

Results from preliminary testing released on January 5 by the National Wildlife Health Center in Madison, Wisconsin show the birds died from blunt-force trauma, supporting preliminary findings released by the Arkansas Livestock and Poultry Commission on January 3. "They collided with cars, trees, buildings, and other stationary objects," said ornithologist Karen Rowe of the Arkansas Game and Fish Commission. "Right before they began to fall, it appears that really loud booms from professional-grade fireworks – 10 to 12 of them, a few seconds apart – were reported in the general vicinity of a roost of the birds, flushing them out," Rowe said. "There were other, legal fireworks set off at the same time that might have then forced the birds to fly lower than they normally do, below treetop level, and [these] birds have very poor night vision and do not typically fly at night." Collisions with power lines resulted in the deaths of 500 blackbirds and European starlings in Louisiana on January 4. The 50 to 100 European jackdaws (a type of crow) found on a street in Sweden that same day showed no signs of disease and also apparently died from blunt-force trauma, according to the Swedish National Veterinary Institute.

The sad fact is that millions of birds die every year across North America (and on every continent) by striking tall buildings, cell towers, power lines, and other man-made structures. This is not a new story. A study in New York City estimates that at least 90,000 birds die from building collisions every year in that city alone. A "Lights Out" project organized by NYC Audubon is successfully encouraging skyscraper owners to turn off or dim their lights during the fall when night-migrating songbirds are most vulnerable. Similar projects have been successful in Chicago and Toronto. The disorienting nature of our overly-lit cities, combined with localized strong winds, or heavy rains or fog . . . or loud pyrotechnics . . . combine to create a veritable no-safe-fly zone for our migratory birds.

Unfortunately this is just one of many serious dangers that have drastically reduced songbird populations over the last few decades. Now that, news outlets, would be a story worth covering in a serious, in-depth way … just don't interview Justin Bieber about it.

Forging Trails is written by Executive Director Iain MacLeod.
You may contact Iain at 603-968-7194 x 23 or iain.macleod@nhnature.org.

SQUAM LAKES NATURAL SCIENCE CENTER

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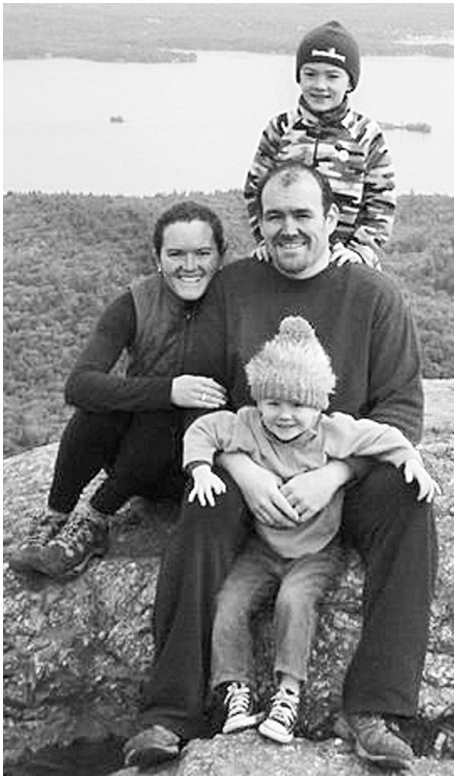
Squam Lakes Natural Science Center is a non-profit educational institution incorporated in 1966 as a charitable organization under statutes of the State of New Hampshire with its principal place of business in Holderness. Our mission is to advance understanding of ecology by exploring New Hampshire's 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.

MEMBER PROFILE

GRETCHEN GANDINI



Tell us a bit about your family and background.

I grew up in Gilford Village and left the area for college. After working and living in the city for a couple of years, I missed the mountains and lakes of New Hampshire. My husband Keith grew up in Connecticut, moved to New Hampshire for college, and never left. We were married in 2002 and bought a house one mile up the road from my childhood home in Gilford. We have two sons, Patrick (5) and Kyle (4).

What are your favorite things to do in the Lakes Region?

We spend a lot of time in the woods – hiking, snowshoeing, and exploring. We also appreciate spending time at our family camp on Lake Winnipesaukee's Diamond Island.

When was your first visit to the Science Center?

We visited the Science Center often when I was a child. I fondly remember getting up close and personal with the animals while on elementary school field trips.

What about it inspired you to become a member?

My parents gave us a family membership to the Science Center as a Christmas gift after our first child was born. We have been members ever since.

Do you have a favorite animal or exhibit?

While it is difficult to pick a favorite, we tend to spend the most time visiting the Red Fox and Mountain Lions. We also like to time our visits so that we can see the Otters eating their lunch. On one occasion the volunteer allowed the boys to drop the food into the water. It was a very thrilling moment for them. We also enjoy walking from the Raptor Exhibit to the wetlands boardwalk – we often catch a glimpse of at least one butterfly along our way.

Do you have a favorite childhood memory that involves nature?

My grandparents lived on a small lake when I was a child. I have fond memories of swimming, skipping rocks along the water, and chasing fireflies in their backyard.

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

I like the idea of children having a lot of outdoor, unstructured play. By exploring the natural playground that is their backyard, I hope they will grow to appreciate the simple beauty of the natural world and understand that we are all connected. My hope is that by fostering a strong connection to nature that they will become good stewards of the earth and always appreciate the simplicity of a walk in the woods.

In your opinion, what are some changes the Science Center needs to make in order to be successful in the future?

The Science Center does a great job of providing relevant and interesting information for all ages. I think continuing to enhance these offerings will help keep folks engaged and eager to visit.

NEWSBRIEFS

- We are grateful to 643 Annual Fund donors, who gave an (unaudited) total of $276,198, exceeding our $270,000 goal. We will tentatively finish 2010 with a surplus. Revenues were $18,318 over budget, due in part to strong trail and lake cruise attendance, including many group tours during the foliage season. Trail visitation ended at 48,773 visitors and lake cruises finished with 10,671 participants. A total of 15,899 school children and teachers from across the state attended a program or visited. A cadre of 398 volunteers donated 7,233 hours of service. And, at year's end we exceeded 2,000 'friends' on our Facebook page.

- In 2011, the Science Center will launch a new research and education project to track migrations of Ospreys nesting in New Hampshire. Using solar-powered satellite transmitters attached to the backs of Ospreys and interactive web-based technology, the birds will be followed as they migrate from New Hampshire to South America and back. Each backpack contains a GPS unit to record location, altitude, speed, and direction. Funding for this project was generously provided by Public Service Company of New Hampshire and the Jane B. Cook 1983 Charitable Trust, with matching funds from our own Innovative Project Fund. This project is part of a wider New England project led by Dr. Richard O. (Rob) Bierregaard, a Distinguished Visiting Research Professor at the Department of Biology at the University of North Carolina. Bierregaard has studied Ospreys on Martha's Vineyard since 1969 and began deploying satellite backpacks to track migrations in 2000, providing much-needed data about migration as well as identifying threats to Ospreys. Our New Hampshire project also includes a school program using real-time data for in-class citizen science. Look for updates this summer as this project gets off the ground.

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GARDENER'S NOTEBOOK

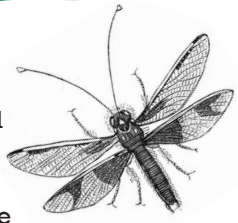
CREATE AN INSECT WELCOME MAT

By Brenda Erler

Gardeners tend to spend time thinking and worrying about various garden pests. Aphids, cutworms, borers, and certain beetle larvae are just a sampling of the tiny creatures that can create havoc in a flower or vegetable garden. Ask those same gardeners about "good" garden insects and they'll likely wax eloquent about bees and butterflies. They're beautiful, interesting to watch, and great pollinators. Some of the most common methods of dealing with garden pests involve chemicals and treatments that are harmful to bees and butterflies as well. So, what are ways to discourage pests while retaining the bees and butterflies? Gardeners should consider expanding their list of "attractive" garden insects to include beneficial insects such as ladybugs, lacewings, predatory wasps, and robber flies.

A backlash against chemical controls has led to natural pest control, fighting pests with their own natural predators. Some companies offer beneficial insects as eggs that can be dispersed in the garden to hatch and attack pests. In the short term, this can be wildly successful. A single ladybug larva can eat up to 400 aphids before pupating! The problem is in sustaining this helpful relationship. As the insects continue through their life cycle looking for mates, food, and shelter, they soon disperse to the wider world, leaving the gardener to wonder if there is any way to keep them close by.

There is! Plant a home "insectary," a place where predatory or parasitic insects may live, eat, and breed. With some careful planning and planting, such insects can be encouraged to make your garden home.



It is helpful to remember that as insects go through their life stages, their food needs change. Many beneficial insects eat or parasitize other insects while in their larval form but rely on plant nectar or pollen as adults. The reverse is true in other species. The lacewing is an example of an insect that eats aphids with great gusto as a larva but needs nectar to survive as an adult.

Plants in the carrot family (examples include dill, parsley, and Queen Anne's lace) are highly attractive to many beneficial insects. Their many, tiny, nectar-rich flowers are arranged in a flat-topped inflorescence that provides a convenient landing pad. The adults of some parasitic wasps are likely to drown in the nectaries of larger flowers but can safely feed on these plants. Overall, plants with small flowers in large quantities are preferable to plants with large single blooms. Plants to consider include garden favorites like asters, cosmos, daisies, zinnias, goldenrod, and coneflowers. Catmint and spearmint are especially appealing to predators like robber and hover flies. Ground covers provide protection for nocturnal feeders such as ground beetles.

Planting an insectary is both a low-maintenance and imprecise project. The first step is determining the pests that need to be dealt with and then learning who their insect enemies are. A great resource for this is *Garden Insects of North America* by Whitney Cranshaw. This and other resources can help you find out the food plants that will sustain your preferred insects. It will become somewhat of a balancing act, but with a permanent area of your yard dedicated to insect food plants, you should begin to see a reduction in insect pests.

NEWSBRIEFS *continued from page 3*

- Last year, four of New Hampshire's leading informal science education organizations – the Seacoast Science Center, the Squam Lakes Natural Science Center, the Mount Washington Observatory, and the McAuliffe-Shepard Discovery Center – pilot-tested an innovative curriculum, called Sea to Lake, Summit to Sky, to address the needs of science teachers as outlined in the state science education frameworks. In November, Jane's Trust awarded the collaborative an $85,000 grant, allowing expansion of the project to middle school classes across the state this year. Sea to Lake, Summit to Sky addresses the concept of environmental change as witnessed here in New Hampshire. Its curriculum combines the unique astronomical, climatological, geographical, and ecological perspectives afforded by the four partners and offered as a series of integrated lessons through interactive distance learning video-conferences into classrooms and off-site field trips.
- The Trailhead Gallery will feature a new exhibit this summer called *Seasons of Change: Global Warming in Your Backyard*. This traveling exhibition explores regional impacts of global climate change such as coastal flooding, invasive species, forest change, and fishing. Seasons of Change was developed by the New England Science Center Collaborative and Brown University's Watson Institute of International Studies and Center for Climate Studies, under a grant from the National Science Foundation. To prepare teachers, parents, and students for visiting the exhibit, a project website gives background on New England climate change and ways to become citizen scientist at http://seasons.terc.edu/index.html.
- Due to restructuring of the Retail and Admissions Manager position, Mary

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NATURALIST'S CORNER

A COLD-BLOODED SPRING TIME

By Beth Moore

Did you know that New Hampshire is home to 22 species of amphibians? What exactly are amphibians? Amphibians are ectothermic, often smooth-skinned, vertebrates with complex life cycles during which many species live part of their lives in water and part on land. So with all twelve species of salamanders and ten species of frogs hopping, swimming, digging, and crawling throughout the state, why don't we see any during the winter?

It all boils down to the fact that amphibians are ectotherms, or "coldblooded," animals. Ectotherms have low metabolic rates and cannot produce their own body heat. In order to increase their body temperatures, they must absorb heat from their surroundings. Other ectotherms in New Hampshire include insects, fish, and reptiles.

Temperatures during a typical New Hampshire winter are too low to provide amphibians with the heat they need. As a result, all amphibians hibernate during this time. Hibernation is a state of inactivity in which the animal has a significantly lower body temperature and uses significantly less oxygen. Occasionally the term brumation is used to describe the winter state of cold-blooded animals, as the processes that they go through vary from those of warm-blooded animals. Regardless of the term applied, these animals are not active during the winter, and their bodies go through physiological changes to help them survive through an extended period of inactivity.

Overall many amphibians have a relatively high tolerance for cold temperatures compared to other ectotherms. This may be why we see signs of amphibian activity in the early spring, even though the temperatures are still quite cold. In fact, it is during the early spring that I enjoy observing wood frogs and spotted salamanders the most. When snow melt and spring rains saturate the ground and accumulate to form temporary pools (also referred to as vernal ponds), wood frogs emerge from hibernation and begin their annual migration to begin breeding. When the wood frogs arrive at the vernal ponds, they make a distinctive call in order to attract a mate. In my mind there is no sound quite like the quacking chorus of mating wood frogs. An observer must be patient, however, because if the frogs sense danger they will cut off their songs all together, as if timed by an unseen conductor. After mating occurs, the female deposits the eggs and the male fertilizes them externally. The egg masses can often be seen attached to partially submerged vegetation in the shallow sections of vernal ponds (where the temperature is highest).

Another spring favorite of mine is the spotted salamander. Although common, these secretive nocturnal salamanders spend much of their time underground and are rarely seen outside of the breeding season. They emerge on one of the first rainy or wet nights in March or early April and migrate to vernal ponds, often to the same pools used by wood frogs. Once in the pools, the salamanders swim around in groups and vigorously nudge and rub each other. When in mated pairs, a male circles the female and swings his head back and forth over her body and lifts his head under her chin. The movement looks like salamanders dancing in the night. The males then deposit spermatophores on the leaf litter at the bottom of the pond. These are later picked up by the females (fertilization occurs internally). The female then deposits her eggs in masses and within a few days the adult salamanders return to the forest, rarely to be seen again until the following year.

There is something mystical about hearing the early spring quacks of the wood frogs or staying up late to witness hundreds of rarely seen salamanders "dancing" in the vernal ponds. It is moments like these that make me treasure the wildness of New Hampshire and look forward to spring each year.

Learn more about vernal ponds on Saturday, April 16. See page 6 for more information.

FROM THE HERON'S NEST

By Laura Mammarelli

In December, before the snowflakes began to fall, the children at Blue Heron School explored geology. At the new geology exhibit they visited big boulders with Naturalist Eric D'Aleo. Climbing on the large rocks was irresistible fun, as well as looking for sparkles and colors in the rocks. The children even used rocks to make rhythms and learned an original "rock" song, composed by Eric. Above, they perform as a rock band, wearing sunglasses.

Blue Heron School, a nature based Montessori school for children ages three to six, operates from Monday through Friday, 8:30 a.m. to 1:00 p.m., September to June. Blue Heron School starts its second year in September and is now accepting applications for enrollment. For an application or more information, contact Laura Mammarelli at 603-968-7194 x 40 or blueheron@nhature.org.

SPRING OPEN HOUSE

FRIDAY · APRIL 8 · 4:30–6:30 P.M.

If you are interested in learning more about Blue Heron School, please drop in during the Spring Open House to see the classroom, meet teachers Laura Mammarelli and Jordan McDaniel, and learn more about this unique blend of the Montessori approach with the nature school philosophy.

Natural Adventures

COLOR CODED MESSAGES

First Wednesday of the Month
June 1 • July 6 • August 3 • September 7
9:30–10:30 a.m.
Ages 3 and younger

Nature talks with color – some colors help to hide, some to say danger, and still others mean welcome. Explore the natural world of color with your child. Adult must accompany children at no charge.

Cost: $5/member; $7/non-member

VERNAL POOL EXPLORATION

Saturday • April 16
10:00 a.m. –12:00 p.m.
Age 4+

Melting snow and spring rains collect in shallow depressions forming what are known as vernal pools. Although these pools are temporary they create an ideal place for several species of amphibians and invertebrates to reproduce. Our exploration will include collecting and observing some of these amazing creatures. We will begin inside with an overview of what we hope to find and then take a short hike to a seldom-visited vernal pool on the Science Center's grounds.

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

PLANTING WITH PRESCHOOLERS

Friday • April 29 • 9:30 –11:00 a.m.
Age 4 to 6

Spring is an exciting time of growth and renewal outdoors. Join us for a morning filled with exploration, play, and song. We will discover seeds and the processes they undergo to grow into plants. We'll plant native wildflower seeds on site and each child will also plant some in a container to take home. Adult must accompany children at no charge.

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

FIVE FINGER POINT BY LAKE AND LAND

Saturday • May 21 • 1:00–3:30 p.m.
Age 8+

Five Finger Point is an intriguing peninsula on Squam Lake shaped roughly like a hand. We will travel there by Science Center pontoon boat, looking for loons and checking the bald eagle nest on the way. Then we will hike this wild area on a loop trail (a little over a mile) that runs along a rocky shoreline, past secluded coves, tiny beaches, and towering trees. Come explore one of the jewels of Squam Lake!

Cost: $16/member; $18/non-member

BREEDING BIRD CENSUS

Saturday • June 4 • 6:00 and 8:00 a.m.
Age 10+

For over three decades Senior Naturalist Dave Erler has conducted a breeding bird census on the Science Center's 200 acres. By listening for birds singing on territory as well as observing birds carrying nesting material, food, or fecal sacs we will get a "snap shot" of what bird species are nesting from year to year. Come early to help inventory the forested sections, including a hike up Mt. Fayal, or join us at 8:00 a.m. as we cover the fields and forest edges.

No charge but reservations are requested.

STOKES *FIELD GUIDE TO THE BIRDS OF NORTH AMERICA:* YOU, BIRDING AND NEW HAMPSHIRE BIRDS

Tuesday • June 7 • 7:00 p.m.

New Hampshire residents and nationally acclaimed bird authors, Don and Lillian Stokes, will present their newest work, *The Stokes Field Guide to the Birds of North America* and tell how they designed it for you, the birdwatcher of today. Six years in the making, and with over 3,400 color photos, this is the most comprehensive national photographic field guide ever published. Don and Lillian will take you behind the scenes into what's involved in producing a work of this magnitude and teach you how to fast-forward your bird identification skills. They will also show favorite photos of New Hampshire birds from the book including birds of the Lakes Region.

No charge but reservations are required.

HOORAY FOR TREES

Sunday • June 12 • 1:00–2:30 p.m.
Families

From the small dwarf willows to the mighty redwoods, trees are fascinating plants! Celebrate trees by learning how trees are different from other plants, how trees grow, and why they are important to humans and other animals.

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

INSECT INVESTIGATIONS

Thursday • June 23 • 9:30–11:30 a.m.
Families

There are more insects than people on this planet! Come take a closer look at these intriguing creatures that live nearly everywhere. We will venture to both terrestrial and aquatic communities to observe the many shapes, colors, and sizes of insects. We'll visit with some insect eaters too!

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

New! LEARN TO IDENTIFY BIRDS

Fridays • May 6 and 20 • June 3 and 24
7:00–11:00 a.m.
Age 14+

Join Executive Director Iain MacLeod for one or all four beginning birding programs to learn to identify the huge variety of birds that fill our woods, meadows, and wetlands each spring. Explore a different habitat in the Lakes Region each trip. Learn identification by sight and sound.

Cost: $12/member; $15/non-member per date
Reserve all four:
$40/member; $52/non-member

MOOSE AND BEAR TOURS

Saturdays in May and June
May 7, 14, 21, 28 • June 4, 11, 18, 25
6:00–10:30 p.m.
Age 10+

Join us to travel to the North Country for an evening of moose and black bear watching. Meet at the Science Center and journey together (by van) to visit a special place where mother black bears graze on a salad of flowers and berries while their cubs frolic nearby; then as dusk approaches we'll visit a moose 'hot spot' in hope of sighting these giants as they feed on roadside mud.

Cost: $18/member; $22/non-member

FISH QUIZ Answers

Questions on page 10

1. C
2. False. They feed on the yolk from their egg sacs.
3. A
4. B
5. C

Limited space available; reservations and advance payment required unless otherwise noted.
Programs are subject to cancellation if minimum enrollment is not met.

Special Events

Kirkwood Gardens Day

Saturday • June 11

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-related items
- Plants from knowledgeable local gardeners
- Garden collectibles and treasures
- Expert opinions and advice
- Drinks, sandwiches, and baked goods available
- Exceptional vendors of herbs, pottery, table linens, lamp shades and nightlights and more.

TO BENEFIT THE KIRKWOOD GARDENS

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Clean Up Day

Saturday • April 23 • 9:00 a.m.–1:00 p.m.

With the arrival of spring, our annual Clean Up Day soon follows! Join staff and other volunteers to clean up the trails and grounds for our May 1 opening day and spruce up Kirkwood Gardens after the long winter. Most work is outdoors and some projects are messy, so dress appropriately. Extra leaf and garden rakes and work gloves are helpful too. A complimentary picnic lunch is served at noon. Groups are welcome.

Sign up by contacting Volunteer Coordinator Carol Raymond
603-968-7194 x 22 • carol.raymond@nhnature.org.

New Hampshire Day

Sunday • May 1 • Trails open at 9:30 a.m.
$3 Admission for New Hampshire residents

Thanks to the generous sponsorship of Dead River Company

Celebrate the start of the 2011 trail season on New Hampshire Day! You might also find a bargain at the Howling Coyote Gift Shop sale.

Time your visit to take in a presentation
Up Close to Animals – 11:00 a.m.• 12:00 p.m. • 1:00 p.m.

Save these Dates

SUNDAY MAY 8
MOTHER'S DAY
Free admission for moms with another paid admission

SUNDAY MAY 15
WILD CATS DAY
Learn about New England's native wild cats!

SUNDAY JUNE 19
FATHER'S DAY
Free admission for dads with another paid admission

GREEN FACT

Here is one small thing that will make a big difference!

This spring consider energy in your garden planning while looking through catalogs for flowers, shrubs, and trees for your yard or garden. Evergreens planted on the north side of a building protect it from winter winds. Deciduous trees planted on the east and west sides of your home provide additional shade from the sun during the morning or afternoon. Ground covers planted by your home's foundation can absorb sunlight, thereby preventing heat from reflecting back inside.

SHARE THE DISCOVERY
BECOME A DOCENT IN 2011

Docent Training
Age 18 and up

Saturday • June 4 9:00 a.m–4:00 p.m.
Monnday • June 6 4:00–8:00 p.m.
Wednesday • June 8 4:00–8:00 p.m.
Thursday • June 9 4:00–8:00 p.m.

Docents interact with guests on the Gephart Exhibit Trail, providing information about the Science Center and its exhibits and often demonstrate a live animal. Docents travel to off-site programs to assist naturalists, serve as mentors to First Guides, help with animal enrichment, and represent the Science Center at local fairs and events.

Cost: $45 (financial aid available)

First Guides—Teen Volunteer Training
First Guides demonstrate natural artifacts on the Gephart Exhibit Trail, accompanied by adult volunteer docent mentors. First Guides also assist with Guided Discoveries courses for children.

Level I • Age 14–17 Tuesday • July 5 **AND** Wednesday • July 6
9:30 a.m. –4:00 p.m.
Cost: $45 (financial aid available)

Level II • Age 15–17 Thursday • July 7 **AND** Friday • July 8
9:30 a.m. –4:00 p.m.
Pre-requisite: Completed Level I
No fee, but registration is required.

Level III • Age 16–17 Saturday • May 7 • 9:00 a.m.–4:00 p.m.
Pre-requisite: Completed Level I and II
No fee, but registration is required.

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

SCIENCE CENTER LAKE CRUISES

EXPLORE SQUAM
May 21–June 30 • Daily at 1:00 p.m.
July 1–October 16
Daily at 11:00 a.m. • 1:00 p.m. • 3:00 p.m.

EAGLE CRUISE
May 24–June 28 • Tuesdays at 3:00 p.m.

LOON CRUISE
June 17–August 19 • Fridays at 3:00 p.m.

NATURE OF THE LAKES
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Tuesdays, Wednesdays, and Thursdays at 4:00 p.m.
September 1–October 6
Tuesdays, Wednesdays, and Thursdays at 3:00 p.m.

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

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You can help to support Squam Lakes Natural Science Center by booking your next trip through our partner, **Nature Treks & Passages** (NT&P), a travel business based in Bryantville, Massachusetts. NT&P donates a portion of their fees to the Science Center from any trip booked by a member. Upcoming trips explore the beauty and arts of southwest America and Central America, as well as Alaska. Contact NT&P at **781-789-8127** or e-mail **info@naturetreks.net.** Include your Squam Lakes Natural Science Center membership number when you book your tour and thank you!

CHOSEN FISH *continued from page 1*

A highlight of the year for brook trout comes in fall with spawning. Ideal spots for laying eggs are cool spring-fed streams, with areas of gravel where water filters through, bringing fresh oxygen. The "redd," or spawning bed, may be one to two feet in diameter and is made by the female using her tail to create a depression. When all is ready, the female lays pea-sized eggs which are immediately fertilized with milt from the male. Over the winter the eggs develop, and in spring, hatch into "alevins," miniature fish which remain in the gravel, feeding on the yolk from their egg sacs. Once that food is gone, the youngsters, now called "fry," venture into the brook or lake, feeding on tiny creatures like zooplankton. As adults, brook trout feed on insects such as mayflies and caddisflies, as well as crayfish, worms, and other fish. Some brook trout, called "salters," particularly in the Maritime Provinces of Canada, migrate to the ocean, spending about three months near the river mouths before going upstream to spawn. To augment local populations for fishing, all six New Hampshire state fish hatcheries raise brook trout for stocking statewide.

How does a brook trout's senses compare with ours? Their sense of smell in water is excellent, detecting food and chemicals as water moves through tiny nostrils and over olfactory organs. Seeing in water as a brook trout is different too. With eyes located toward the top of their heads, they can detect predators like eagles coming in from above. Hearing is well-developed as well, even without external ears. Sound vibrations move through their tissues to the inner ear. A special advantage brook trout and most fish have is sensory organs called lateral lines. If you look at the side of a fish, you can just discern a line running from near the gill covers along to the base of the tail. Special receptors along this line are sensitive to vibrations in the water and help fish detect predators, prey, and other fish at a distance.

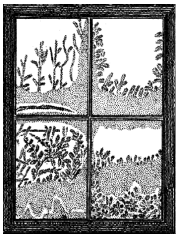
If you would like to try your hand at fishing for brook trout or are a seasoned "pro," keep in mind that lost lead sinkers (weights) or lead jigs (metal fishing lures) are lethal to loons and other waterbirds that ingest them. Only certain sizes are prohibited in New Hampshire but legal sizes are still deadly to wildlife and all are hazardous to handle. Try alternatives that work as well or better and are safer such as tin, bismuth, steel, tungsten-nickel alloy, pewter, or brass and dispose of your lead gear in a proper way.

Even the brook trout as our state fish still faces challenges. Brook trout are confronted by such threats as development, logging, and introduced species. Keeping brook trout populations healthy is good news for aquatic habitats. John Magee, Fish Habitat Biologist with the New Hampshire Fish and Game Department, reports that radio telemetry research has been used to track migration patterns of several populations of wild riverine New Hampshire brook trout. By identifying critical elements these fish need to survive, they hope to design better restoration and protection efforts. Because brook trout require clean, cold water to survive, a healthy environment for them will benefit other species. Brook trout are winners and a bright choice as our state's chosen fish! ■

NEWSBRIEFS *continued from page 4*

Ellen Downing resigned at the end of January. For the past five years, Mary Ellen's work contributed to the growth of the Howling Coyote Gift Shop. We thank her and wish her well.

- The Winter *Tracks & Trails* should have stated that trustee John McRae achieved a total of 2,000 service hours (not 1,000). And further congratulations to John, who was honored in December by VolunteerNH.org as a finalist for the Spirit of New Hampshire Volunteer Service Award for extraordinary service to the Circle Program. Thank you, John, for all you do!
- Animal Care Assistant Tom Anderson took part in "Basic Concepts" and "Advanced Concepts" training offered by the International Marine Animal Trainers' Association in December in Boston. Volunteer Coordinator Carol Raymond attended the quarterly meeting of the New Hampshire Association of Volunteer Administers in January. Guest speaker Harry Duchesne, of the Massachusetts College of Pharmacy and Health Services, gave a presentation on service learning volunteers. Blue Heron School Director Laura Mammarelli attended a workshop on cultural studies in the Montessori classroom at Country Village Montessori School in Amherst in January.
- The Green Team, managed by Naturalist Eric D'Aleo, reports that the Science Center has reduced electric use by eight percent and heating fuel use by 14 percent, from 2006 to 2010.
- Trail admission prices will increase to $15 for adults, $12 for seniors, and $10 for youth, making 2011 a great time to purchase a new membership or renew your current one and reap all the benefits, including free trail admission. Membership and Lake Cruise fees will remain the same.
- The Science Center gained national accreditation in 2006 from the Association of Zoos and Aquariums (AZA) and became the only AZA-accredited institution in northern New England. Animal Care Curator Katie Mokkosian led the collaborative staff effort to apply for AZA reaccreditation in February; results will be learned in September.
- We renewed our AZA reciprocal admission agreement at the 50% level for 2011. Science Center members receive 50% discounted admission at participating institutions, typically for a family of four, although members should verify each discount beforehand. Guests from other participating AZA organizations will receive a 50% discount for up to two adults and two children when they visit here.
- The historic Holderness Inn next to Kirkwood Gardens will feature Kirkwood Café and Squam Lakes Artisans Gallery again this year. Squam Lakes Artisans, a gallery specializing in unique and locally crafted New Hampshire gifts, opens in late May. Kirkwood Café, opens on June 25, and serves snacks, sandwiches, and beverages.
- The Squam National Register Project will hold a fundraiser on Sunday, July 10. For information, contact Betsy Whitmore at 603-968-7548.
- For Sale: A fine, old, 10-inch, 220-volt Yates American table saw, with a 52" Biesemeyer fence for $1,000. Proceeds of the sale will be used toward purchase of a similar new "Stop Saw," with added safety features.



Opening A Window to the Natural World

ANYONE CAN MAKE AN ESTATE GIFT

By Laurie Beeson

Susan and I have been huge fans of the Science Center since our kids were young. So when I first started hearing about planned giving I thought it would be something great to do. But I figured we were too young, and I didn't want to run up legal fees for "estate" planning purposes that might change over time as our priorities did. (That's "estate" only in the purest legal sense of the word.)

Then I discovered it's possible to plan some giving in a cheap, easily changeable way: IRA or 401-k beneficiary designations. You go to the website of whoever manages your fund, plug in the name of a lovely non-profit like Squam Lakes Natural Science Center as a primary beneficiary along with a percentage of the assets you'd like them to get, and allocate the balance of the fund to another primary beneficiary like your spouse or kids.

So that's what I did. It took less than a minute and cost nothing, but guarantees the Science Center the equivalent of several years' annual fund contributions from me....in the event I get run over by a moose. The law says I have to start taking withdrawals from that account in four to five years, but if I need to re-do the percentages to keep the planned giving amount adequate, it still won't cost anything or require much time.

You may contact Janet Robertson, Development and Communications Director at 603-968-7194 x 12 or janet.robertson@nhnature.org.

FISH QUIZ

1. Brook Trout spawn in the . . .
   A. spring **B.** summer **C.** fall

2. **True or False?** Newly hatched brook trout immediately start feeding on microscopic zooplankton.

3. Which of these fish is native to New Hampshire?
   A. Brook trout **B.** Rainbow trout
   C. Brown trout **D.** None are native

4. What is the special sensory organ along the side of fish called?
   A. Equatorial line **B.** Lateral line **C.** Medial line

5. What is the most distinctive trait that you can use to distinguish a brook trout from a rainbow trout?
   A. Color of the eyes **B.** Shape of the head
   C. Color of the fins

Answers on page 6

We are grateful for these memorial and honorary gifts received from October 1 through December 31, 2010:

In memory of Anne and James Alvord
Gail DeHaven and family

In honor of Susan and Laurie Beeson
A. Elizabeth and Henry Holden

In honor of Lydia Eaton's birthday
Martha Deering and Rev. John Brock

In memory of James Eckert
Joan Brewer

In memory of Josiah H. V. Fisher
Cecilia Taylor

In honor of Diane Garfield Gross
Claudia and James Richter

In memory Patricia Keiver
Robert Keiver

In honor of Janine and Brent Mahle
Georgene and Richard Fabian

In memory of Gilbert Merrill
Rose Anne Merrill

In honor of Russell C. Orton
Janet Orton

In memory of Donald Parsons
Priscilla Fletcher
Natalie Parsons, Donna Parsons, Susan Parsons
Nancy Parsons and James McDermott

In memory of Greg Smith
Ann and Richard Chalmers
Barbara and Ronald Geigle
Frances Chalmers and Gail Smith
James Talcott Fund
of the New York Community Trust

NATURALIST'S LEGACY SOCIETY

If you have already named the Squam Lakes Natural Science Center through your will or other estate plans, please let us know. As a member of the Naturalist's Legacy Society, you will be invited to donor recognition events and recognized in the Annual Report, unless you prefer to remain anonymous. Recognizing planned giving donors allows us to express our appreciation and may also inspire others to give support through their own estate plans.

TRAIL'S END

Our naturalists write such fascinating articles that it's daunting to write anything for the same publication. But as the old saying goes in the not-for-profit world, if you can't say anything fascinating, thank your supporters. Actually I said that, about five seconds ago, but I bet wise people have been thinking it forever.

The Science Center is blessed with wonderfully committed financial supporters and volunteers. Well over 600 families responded to our annual appeals last year; nearly 90 percent of these were returning donors. The philanthropic journals tell us contributions to all but colleges and churches are down significantly since Lehman's collapse and all that followed, and I've heard that many New Hampshire organizations that have been affected. Not so the Science Center!

And volunteers, holy cow, do we get phenomenal help from the community. Trustee John McRae was recently honored as a NH Volunteer Spirit Award finalist – mostly for his work with The Circle Program, but his work for the Science Center would have qualified him for it as well. Almost 400 volunteers contributed 7,233 hours in 2010. They assisted with school programs, staffed outreach events, taught visitors on the trail, helped with facilities, met buses, led otter enrichment, helped with mailings, served on committees, . . . the list goes on and on.

So, thank you again volunteers and thank you again donors. We never get enough opportunities, or big enough opportunities, to say that. Once the skywriting industry gets the environmental kinks out of their process, look for a more sensational message to the same effect.

Trail's End is written by Laurie Beeson, Chairman of the SLNSC Board of Trustees.
You may contact Laurie at 603-968-2409 or lbeeson@worldpath.net.

Renew your membership online at www.nhnature.org

Squam Lakes Natural Science Center

SPONSOR A SPECIES

Sponsor a Species is an educational experience. Once you have chosen a species and submitted the form, you will receive a certificate, information about your species, a natural history word game, and a photo postcard. You will also be satisfied knowing that you are helping the Science Center teach its visitors about wildlife. Your name will be listed on a poster in the Trailhead Gallery from May 1– November 1.

I want to Sponsor A Species

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Name to be listed in Trailhead Gallery: _____

Select the species you woul like to sponsor for this season for $50. All gifts are tax deductible.

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