



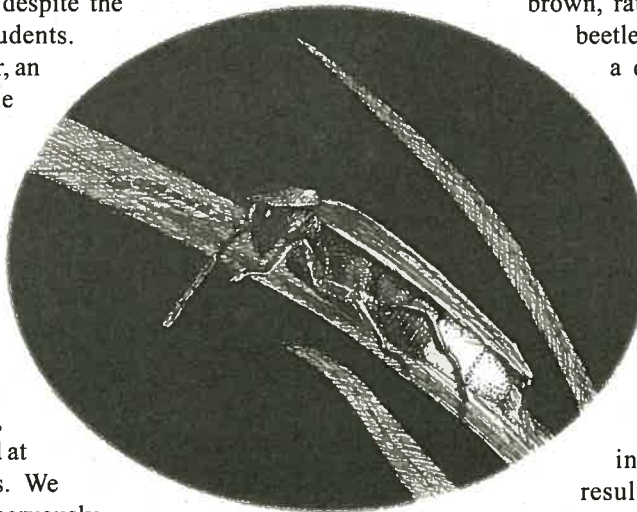
FESTIVAL OF LIGHTS

By Margaret Gillespie, Illustration by Cheryl Johnson

The auditorium at Cornell University was dark and strangely quiet despite the presence of over 200 students.

Our Entomology professor, an extremely knowledgeable educator filled with deliciously eccentric enthusiasm, had a firefly mating demonstration underway. I had been chosen as the female firefly (definitely a “why me?” situation) and was crouched center stage. My male counterpart, a total stranger, was poised at the top of one of the aisles. We both had flashlights and nervously exchanged light signals as he “flew” down, flashing his way closer. Thankfully this romantic drama was precipitously terminated by the overhead lights coming on just as he set foot on stage. Let’s take this opportunity to meet the real characters in the cast.

Fireflies, also known as lightning bugs, are surprisingly neither flies nor true bugs. Belonging to the order Coleoptera, fireflies are actually beetles. One characteristic of beetles is that they have two pairs of wings, with the forewing being a hard or leathery covering. If you watch fireflies take to the air, you will see the leathery elytra or front wing lift forward, making space for the rear wings to do the flying. More specifically, fireflies belong to the family Lampyridae, which translates from Greek as



“shining ones.” The fascination in these drab, brown, rather small (1/2 to 3/4 inches) beetles is the fact that many have a distinctive bioluminescence that still mystifies scientists in some respects. There are over 2,000 species of fireflies worldwide; some are diurnal and thus have no need for luminescence.

Fireflies create light in their rear abdominal segments. Unlike light which humans produce using incandescent electric bulbs, resulting in 10% light and 90% heat, fireflies create the opposite, referred to as “cold light” – 90% light and 10% heat! More than the light is cool – the beetles don’t cook themselves with their luminescence! How do they make such special light? The key is an enzyme, luciferase, which starts a reaction involving luciferin, ATP (adenosine triphosphate) and oxygen. Humans are exploring the potential for luciferase in genetic studies, medical imaging, and forensics (tracing blood remnants). Now, how do fireflies turn the light on and off? That answer remains inconclusive but there is speculation that it may involve regulating oxygen or perhaps controlling the reaction through the insect’s nervous system.

Would you like to attend a firefly “festival of lights?” Scheduled time is late spring and early summer. Good

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FORGING TRAILS

As I write this column (late again) it is New Hampshire Day at the Science Center. The parking lot is as full as it can be, hundreds and hundreds of New Hampshire families are streaming through admissions, volunteers in their orange vests are directing visitors, and the sun is shining. What a delight to be open again and to be sharing this wonderful place with so many people. This is what it’s all about!

Although many of our staff breathe an understandable sigh of relief when our season ends on November 1, I, for one, quickly long for spring to come around again. As soon as we close the trail in the fall, we are all planning and preparing for the following year. Over this past winter our staff has been particularly busy sprucing up exhibits, carrying out capital improvements and repairs on buildings, and preparing for new and exciting attractions.

This will be my third full season here and as we open the trails I am particularly excited about the six months ahead. If New Hampshire Day is any gauge, we are in for a busy season.

Continued on page 2

FORGING TRAILS continued from page 1

As I walked through the exhibits this morning, I have to say that the animals seemed excited to see visitors (well, some of them). The new young bobcat was literally climbing the walls of the enclosure to see who was coming down the trail. He apparently got even more animated when volunteer Judy Sniffen walked by with a Barred Owl!

The Otters, as usual, were active in the morning, pressing their noses to the glass in the hope that my pockets might be filled with fishsicles. The skunks and foxes were running laps and the deer were enjoying the shade. Out at the raptor exhibit the Red-tailed Hawks were puffed up and very aggressive – it's nesting season after all – and the Red-shouldered Hawks were screaming up a storm. Only the bears seemed unimpressed by the waves of people – still seemingly lethargic from their winter sleep.

Everyone seemed to have a wonderful day. Only the occasional, inevitable child meltdown broke the calm – with screams to rival the Red-shoulder! Only one lost little boy (found in five minutes), a couple of minor problems with the new credit card machine . . . ah . . . it's good to be open!

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

NEWSBRIEFS

- ◆ Marketing Manager Laura Dentel resigned at the end of March – we wish her well. Laura worked here for almost two years and was quietly dependable as she effectively promoted the Science Center. She will be missed by staff and volunteers. A search for Laura's replacement is underway.
- ◆ We welcome three Education Program Interns this summer. Erin Mechan finished her degree in Wildlife Management at State University of New York, Cobleskill. She has worked as an animal caretaker/public educator at the Popp Butterfly Conservatory in Oneonta, NY and as a summer environmental educator for the Headwaters Youth Conservation Corps in Norwich, NY. Chelsea Nahill is a junior at Colby College with a double major in Biology and French studies. Her hometown is Amherst, NH. She has worked as a lifeguard and boating instructor, as well as at children's summer camps. She is a member of Colby College varsity women's crew. Kaitlyn Fieseler's hometown is Mountain Lakes, NJ. She attends Ohio State University, where she is a candidate for a B.S. in Agriculture in 2011. She has worked as an assistant at an animal hospital and has also volunteered at another veterinary clinic and as a horse leader and side walker, working with disabled children on horses during therapy sessions. Sarah Milnor is the 2009 Communications Intern. She is a third year student at the University of St Andrews in Fife, Scotland where she is pursuing an M.A. Honors degree in Modern History and Art History. Sarah is from Woodbury, Connecticut, and also spends time at her family's summer home in West Alton. She previously interned at Litchfield Historical Society.
- ◆ We are pleased to welcome Dale Lary of Ashland and David Martin of Holderness who join the returning Lake Cruise staff for 2009. We also welcome all of last year's Admissions and Howling Coyote Gift Shop, Kirkwood Café, and Finance staff this year. Susan Stepp, Development Assistant, will join the Admissions and Café part-time this year.
- ◆ One hundred twenty volunteers and staff worked together on Clean Up Day, April 25 to prepare the trails and grounds for opening day on May 1. Everyone pitched in to help by raking trails, cleaning exhibits, staining buildings, and more. We thank these community groups that participated: Cub Scout Troop #56, Plymouth and Rumney, Plymouth Regional High School National Honor Society, Tau Omega Sorority, Plymouth State University, University of Michigan alumni, and Wal-Mart, Gilford. Thank you also to Bob's Shurfine Market, Ashland, Dunkin Donuts, Ashland, Golden Pond Country Store, Holderness, Hannaford Supermarkets, Plymouth, Hart's Turkey Farm Restaurant, Meredith, Lakes Region Coca-Cola Bottling Company, and Shaw's Supermarket, Gilford for in-kind donations to provide lunch.
- ◆ Daily *Explore Squam* cruises resumed May 23 with one cruise daily at 1 p.m. and then starting June 13 with three cruises daily at 11:00 a.m., 1:00 p.m. and 3:00 p.m. *Nature of the Lakes* cruises, led by a staff naturalist, start July 1 at 4:00 p.m., and run

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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 sent to all members. Comments about the newsletter are welcomed by newsletter editor Janet Robertson at 603-968-7194 x 12 or janet.robertson@nhnature.org.

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TRUSTEE PROFILE

ALAN ENGLISH



You worked for prestigious Bell Labs. Tell us about your career and background.

After finishing graduate work at MIT in metallurgy, I joined the technical staff at what was then known as Bell Telephone Laboratories. This research organization had about 1,500 people working in fields like materials science, communications science, basic physics and chemistry, semiconductor devices, and network engineering. The next 20 years saw rapid progress that transformed the field of telecommunications: glass fibers for high-bandwidth transmission; electronic switching systems; semiconductor LEDs and lasers; UNIX operating system; high-capacity undersea cables; and new software systems for controlling network operations. In 1982 I switched careers to marketing and sales support of AT&T. The idea was to use briefings on emerging technology to attract customers. During this time I met industry and political leaders from around the world, including at least three who later became Heads of State in their country.

How did you become involved with the Science Center?

My first involvement was in 2003 when the Education Committee asked me to be a member of the Natural Science Advisory Committee. The product was a recommendation to strengthen the education program. This was adopted into the recent Five-Year Strategic Plan. It calls for addressing the theme of the dynamic nature of the Earth's environment and the role of mankind in driving changes, for good or ill.

What initially interested you and keeps you involved?

I think it is critical for citizens to have a strong appreciation of the natural world and

a commitment to stewardship. The Center's programs give children the opportunity to experience the natural world directly.

Do you have favorite animals or exhibit?

It's hard to choose, but it's either the otters or the bears.

Do you have a favorite childhood memory that involves nature?

Experiences in the wilderness (back country hiking in the High Sierras, for example) helped me understand that this is the home turf of the native animals (most importantly—bears) and we are visitors. Confronting a black bear in his territory is an unforgettable memory.

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

Two reasons: first, unstructured play and observation in a natural setting develops the child's mind and encourages appreciation of the precious diversity of life. Hopefully, visits to our Center encourage children to feel "wonder" in the face of nature. They should also learn that skepticism is an important part of the scientific method. Second, adult citizens with this kind of perspective will, we hope, raise the value assigned to ecology and conservancy of the natural world in the forum of public policy formation.

What is your favorite books and why?

I particularly enjoy books where history and science intersect. A great read is *Galileo's Daughter* by Dava Sobel, based on letters between father and daughter during Galileo's struggle to publish his ideas without getting into trouble with the Pope. *The Emergence of Everything* by Harold Morowitz is an ambitious attempt to explain how complexity, biological "stuff" and, ultimately, human beings came to be through a series of about 30 astounding, seemingly improbable "emergences" over a billion years or so.

Who is your role model and why?

I have no specific individual that I admire the most. I was greatly influenced by my thesis advisor, Prof. Walter A. Backofen, at MIT. He taught me the importance of intellectual integrity, and daily provided a relentless insistence on clarity in writing and speaking ("crisp" captured his standard for both).

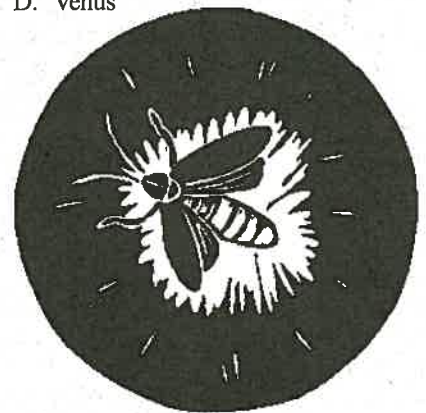
Tell us about your hobbies and interests.

I enjoy music, foreign languages, travel, photography, backpacking, history, including family history and genealogy, acting (a late arrival on the list), politics – and others.

Alan English has been a trustee since 2004. He is chairman of the Education Committee and a member of the Trustee Affairs Committee. Now retired, he consults in business development and marketing. Alan and his wife Jerry divide their time between New Jersey and Holderness.

SUMMER NATURE QUIZ

- Fireflies make flashes of light with the purpose of . . .**
 - warming themselves
 - illuminating their way
 - communicating with potential mates
 - confusing predators
- True or False? The "horns" of the Great Horned Owl are actually feathers covering their ears.**
- In a beaver colony, who is the head of the family – the male or female?**
- Which of these plants is NOT carnivorous?**
 - Pitcher Plant
 - Indian Pipe
 - Sundew
 - Bladderwort
- Which is the brightest planet in the night sky?**
 - Jupiter
 - Mars
 - Saturn
 - Venus



Answers: 1. C 2. False. An owl's ears are on the side of its head.
3. Female 4. B 5. D



NATURAL ADVENTURES



NATURAL CHOICES: INFORMED SOLUTIONS FOR SUSTAINABILITY

A Free Lecture Series for Adults

WHERE DOES YOUR ELECTRICITY COME FROM?

Tuesday, June 30 • 7:00 - 8:00 p.m.

Flip the switch, the electrons flow and the lights are on, but where do those electrons come from? Learn how the New England bulk power system and region's wholesale energy markets work. Hear Steve Kaminski, Vice President of Power Resources and Access at New Hampshire Electric Co-op, explain how the Co-op goes about buying the energy its members use and the Co-op's efforts to increase the role of renewable resources in "Co-op Power."

GREEN BUILDINGS: WHAT ARE THEY AND WHY SHOULD WE BUILD THEM?

Tuesday, July 28 • 7:00 - 8:00 p.m.

This presentation by Paul Leveille, of the Jordan Institute, will define green or high-performance buildings and discuss their advantages over "brown" buildings. Paul specializes in building design, construction, and operation to optimize environmental performance in all areas, including energy efficiency, pollution prevention, indoor environmental quality, and site protection. Here we will explore the costs and benefits as well as environmental and health benefits of green buildings. Several buildings have been built this way in New Hampshire recently and we'll look at some through photos, discussion, and performance data. Homework will be assigned!

GREENING YOUR EXISTING HOME

Tuesday, September 15 • 7:00 - 8:00 p.m.

Join a representative from Plymouth Area Renewable Energy Initiative (PAREI) for tips to reduce the amount of energy your home uses. We'll discuss ideas such as energy-saving lifestyle tips, ways to locate air leaks, and energy-saving devices such as one that can recover heat from hot water going down your drain. The presentation will also include a brief introduction to solar water heating. PAREI formed in 2004 to help Plymouth area residents and businesses prepare for an energy-constrained world. Their motto is "Plan Now for your Energy Future."

Cost: Free; No reservations required

DISCOVER YOUR WORLD SERIES

Wednesdays

**June 3, July 1, August 5, September 2
9:30-10:30 a.m.**

Ages 3 and under

It's important to introduce children to the world around them as soon as possible. You can foster your child's own "natural curiosity" and sense of wonder as we visit a different natural community each month. These special times you spend with your child will build a foundation for a lifetime of enjoyment and appreciation of the natural world. Adult **MUST** accompany child at no additional cost.

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

ANNUAL BREEDING BIRD CENSUS

Saturday, June 6

6:00 a.m. and 8:00 a.m.

Ages 10+

The Science Center's annual breeding bird population census has been a tradition for nearly 30 years. Join Senior Naturalist Dave Erler and learn to identify some of the area's resident birds. Early risers meet us at 6:00 a.m. to help scan the skies or join us at 8:00 a.m. to complete the census. No reservations required.

Cost: No charge/members; \$4/ non-members



NORTH COUNTRY MOOSE EXCURSION

Saturday, June 13 • 5:00 - 10:30 p.m.

Adults

Join Iain MacLeod for a special evening-long visit to New Hampshire's North Country in search of moose. We will meet at the Science Center; Iain will drive a van from there. On the way north we will stop for dinner at the Rosa Flamingo Restaurant in Bethlehem (a big hit last year). After dinner we will visit local moose hotspots to see these leviathans as they emerge from the woods to feed on roadside mud.

*Cost: \$18/member; \$22/non-member
(not including dinner)*

NATIONAL GET OUTDOORS DAY

Saturday, June 13

Enjoy a special admission discount for National Get Outdoors Day - an annual event designed to encourage healthy, active, outdoor fun. This is important since American youngsters spend up to six hours a day watching TV or movies, on the Internet, and playing video games and a scant 30 minutes a week of unregulated time outdoors, according to the American Recreation Coalition. Participating partners will offer opportunities to introduce children and their families to the joys of the outdoors through traditional and non-traditional types of outdoor activities. National Get Outdoors Day encourages Americans, especially youth, to seek out healthy, active outdoor lives and embrace the nation's parks, forests, refuges and other public lands and waters. On June 13 at the Science Center all children (under 15) will enjoy free trail admission with a regular adult or senior paid admission. No charge/members.

A NIGHT OUT

Friday, June 26 • 7:30 - 9:00 p.m.

Friday, July 31 • 7:00 - 8:30 p.m.

Ages 8+

Come learn about creatures of the night and their nocturnal ways including an up close visit with some live animals. Then we'll go for a night walk with activities along the way to challenge your night senses!

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

UNDER THE CANOPY: SHADE GARDENING WITH NATIVE PLANTS.

Wednesday, July 1 • 6:30 p.m.

Adults

All shade is not created equal. Even in a shade garden you need to choose the right plant for the right shade. Scott LeFleur, Horticulture & Botanic Garden Director at New England Wild Flower Society and Garden in the Woods, will discuss layers of the woodland garden and how to plan accordingly, looking past flowers to texture, shades of green, and the interaction of light. Additionally, Scott will share his favorite native plants to use in shade gardens. At the New England Wild Flower Society and Garden in the Woods, Scott oversees one of America's great botanical gardens. He curates and manages an extensive public collection of 1,500 native plant species, including 200 rare and endangered species, presented in their natural habitats throughout the living museum's 45 acres in Framingham, Massachusetts.

Donations welcome! No reservations required

*Reservations and advance payment
required unless otherwise stated.*



NATURAL ADVENTURES



BE A COPYCAT!

Saturday, July 4 • 10:00 - 11:30 a.m.
Saturday, July 25 • 10:00 - 11:30 a.m.

Ages 6+

It is fun, smart, and useful when we copy and learn from nature! From echolocation to camouflage, inventors have learned from animal adaptations. Join us outdoors as we experiment with some of nature's inventions and see how they work for animals and people, too. We'll also visit up close with an animal many of us would like to copy!

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

WHAT'S LURKING IN YOUR GARDEN?

Thursday, July 9 • 9:30 - 11:30 a.m.

Ages 16+

Everyone who gardens is challenged by a host of other organisms that attack garden plants! We will investigate Kirkwood Gardens to see what is lurking there. Ten each of the most common and problematic insects and diseases in garden and landscape will be discussed. Participants will learn how to identify and control these garden challenges, including use of organic strategies.

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

YOU HIDE, WE'LL SEEK

Friday, July 10 • 10:00 - 11:30 a.m.
Friday, August 14 • 10:00 - 11:30 a.m.

Age 6+

Have you ever walked into a forest or field and wondered where all the wildlife is? In this adventure-filled program we will search through leaves, roll over logs, and pull back the grass to see what is hiding out there! Adult MUST accompany child at no additional cost.

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

GARDEN YOGA

Fridays, July 10 through August 14
5:30 - 6:30 p.m.

Adults

Join us in Kirkwood Gardens for these Friday evening yoga sessions to relax and unwind from a busy day and week. This is a wonderful opportunity for you to enjoy the beauty of the outdoors while strengthening your body, mind, and spirit. This class is open to all levels, welcoming both beginners and seasoned yogis. We will explore sun salutations, warrior poses, and balance poses as well as restorative poses and meditation. Instructor Pasha Marlowe owns Holland Hill Studio for Yoga and Fitness in Moultonborough and has been working as a yoga instructor, personal trainer, and life coach in the Lakes Region since 2001.

Cost: \$48/member; \$60/non-member for all six sessions or \$12/person/session

STONE WALLS AND CELLAR HOLES

Tuesday, July 14 • 10 a.m. - noon
Tuesday, August 18 • 10 a.m. - noon

Ages 12+

Stone walls and cellar holes built during the 1800's are found throughout the forests of New Hampshire. Some of these structures were built in unlikely places, making people of today question the judgment of their builders. But what do these stone remains tell us about the past and do they serve any purpose today? We'll look at how the surrounding forest was affected by the disturbance associated with these stone formations, how they are being utilized today by new homesteaders, and how the plants in the area provide clues to previous uses of the land. Adult MUST accompany children 16 and under.

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

WHAT'S UP WITH BATS?

Thursday, July 16 • 7:00 - 9:00 p.m.

Ages 8+

Bats in the Northeast are currently facing a huge challenge to survival. Over the past three winters, countless numbers of bats have been found dead or dying outside their hibernacula. The causative disease has been dubbed "White Nose Syndrome" since many of the dead bats display what appears to be a white fungus around their snouts. We will discuss the latest in ongoing research to find the disease source. General bat biology will also be covered and we will meet a live big brown bat. The program will end with an outside visit to the Science Center's bat houses to watch the evening bat emergence.

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

SUMMER SKY CELESTIAL DELIGHTS

Friday, July 17
cloud date Saturday, July 18
8:30 - 10:30 p.m.

Ages 8+

In celebration of the International Year of Astronomy, join staff from the McAuliffe-Shepard Discovery Center for a program about the summer sky. Learn about the Ring Nebula, the Hercules star cluster, double stars, and more. View these objects through a telescope, see where the first black hole was discovered, and learn how to find the Summer Triangle! These celestial delights will be sure to change your view of our universe. It's yours to discover!

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

BUILD A BAT HOUSE WORKSHOP

Thursday, July 23

7:00 - 9:00 p.m.

Ages 8+

Find out everything you wanted to know about bat houses, what species of bats use them, why bats use them, where to place them, and how to build one. Participants may build a bat house at the workshop, take it home, stain or paint it, and put it in the proper location to provide a welcome shelter for bats in their own neighborhood. All bat houses will be pre-cut and ready for assembly.

Cost: \$8/member; \$10/non-member,
plus optional \$35 to build a bat house

SQUAM SHALLOWS

Tuesday, August 4

1:00 - 3:30 p.m.

Ages 6+

Join Senior Naturalist Dave Erler to explore some less often visited parts of Squam Lake. Aboard a Science Center pontoon boat we'll visit mucky marshes and sandy shallows. Abandoning the boat and venturing out with a variety of nets, we'll try to view some species of small fish and invertebrates that support the lake's food chain. Come prepared to wade and get wet!

Cost: \$12/member; \$15/non-member

PRUNING CLINIC

Thursday, August 6

9:00 - 10:30 a.m.

Adults

Join us to learn about the selection, use, and maintenance of pruning tools (including sharpening of pruners and loppers). Discover how, when, and why to prune flowers, shrubs, and trees with an opportunity to observe the techniques in Kirkwood Gardens. This workshop will prepare you to make some positive changes in your own garden.

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

GARDEN DESIGN WITH NATURE

Thursday, September 10

4:00 - 6:00 p.m.

Ages 16+

Come learn about using patterns and rhythms in nature as mentors so that landscape design becomes ecological, self-renewing, sustainable design. Plan next year's garden now! Mimicking natural ecosystems' structure and function, we create self-regulating ecologies that interact, cooperate, and depend on one another to sustain life. This is an opportunity to create low impact, self-maintaining ecologically responsible, livable landscapes.

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

Reservations and advance payment
required unless otherwise stated.

BIRD ID SERIES

BOBOLINKS, BLUEBIRDS AND BUNTINGS: GRASSLANDS AND FOREST EDGE BIRDS

Thursday, June 25 • 7:00 - 9:00 p.m.

Sunday, June 28 • 8:00 a.m. - 3:00 p.m.

Ages 16+



Learn about birds that inhabit New Hampshire's grasslands and forest edges. Iain MacLeod will lead this in-depth workshop, starting Thursday with an audiovisual presentation for tips to identify this diverse group of birds. On Sunday we will take a field trip to these habitats to see and hear as many species as possible. Highlights include Bobolink, Eastern Meadowlark, Alder Flycatcher, Prairie Warbler, Eastern Towhee, and Indigo Bunting.

Cost: \$45/member; \$55/non-member
(includes both sessions)

SANDPIPERS, PLOVERS AND OTHER COASTAL SHOREBIRDS

Thursday, August 13 • 7:00 p.m. - 9:00 p.m.

Sunday, August 16 • 8:00 a.m. - 5:00 p.m.

Ages 16+

Join Iain MacLeod for another in this series of in-depth workshops, this time on migratory sandpipers and plovers, which pass by New England's coastal habitats on their southbound migration. On Thursday, Iain will use audiovisual presentations to help you learn to recognize these birds. On Sunday, we will travel to New Hampshire's coast and Plum Island in Massachusetts for a spectacular show, which should include Semi-palmated Sandpipers, Dunlin, Red Knot, Whimbrel, Least Sandpipers, Willets, Short-billed Dowitcher, Greater and Lesser Yellowlegs, and maybe a Godwit or two.



Cost: \$45/member; \$55/non-member (includes both sessions)

Cost to attend both June and August sessions:
\$75/member; \$95/non-member

SCIENCE CENTER LAKE CRUISES



Pick your favorite of these 90-minute cruise options

EXPLORE SQUAM

May 23 - June 12 • Daily at 1:00 p.m.

June 13 - October 18

Daily at 11:00 a.m., 1:00 p.m., 3:00 p.m.

This tour has something for everyone. Experience the wonders of the area where *On Golden Pond* was filmed. Enjoy the pristine beauty of Squam Lake.

NEW! LOON CRUISE

Every Friday, June 19 - August 21 at 3:00 p.m.

We are joining forces this summer with our close friends and colleagues at Loon Preservation Committee (LPC) to offer special weekly cruises focusing on Common Loon conservation, biology, and monitoring. Each Loon Cruise will be joined by an LPC biologist who will discuss the work LPC is doing across the state and here on Squam to protect these very special birds. The route of the cruise will be chosen to maximize Loon observations. The Loon Cruise replaces Friday's regular 3:00 p.m. *Explore Squam* tour.

NATURE OF THE LAKES

July 1 - October 15

Tuesdays, Wednesdays, Thursdays
4:00 - 5:30 p.m.

This tour focuses on the science of the lakes and the creatures that make Squam their home. Explore the lakes with an experienced naturalist as we search for wildlife, including the Common Loon and Bald Eagle. We will observe loon behavior and communication first-hand. Learn about the interactions that occur among the lake, people, and wildlife as you take in the surrounding landscape. Come away with an enhanced appreciation and understanding of the lake and the wildlife that call it home.

	Member	Non-Member
Adult	\$20.00	\$22.00
Senior	\$18.00	\$20.00
Youth (Ages 3 - 15)	\$16.00	\$18.00
Ages 2 and Under	Free	Free





SPECIAL EVENTS



Kirkwood Gardens Day

Saturday
June 13, 2009
9:00 a.m. to 1:00 p.m.

**Gain inspiration
from Kirkwood Gardens
while searching for
beautiful additions to your own!**

- ✿ Fine perennials from a prestigious New England nursery
- ✿ Silent Auction of desirable plants and garden-related items
- ✿ Plants from knowledgeable local gardeners
- ✿ Drinks, sandwiches, and baked goods available
- ✿ Garden collectibles and treasures
- ✿ Expert opinions and advice
- ✿ Exceptional vendors, including:
Canterbury Herbs
South African handmade table linens
Earth Jewelry by Lois Stratton
Wooden bowls by Robin Dustin
Bird Carvings by John Harris

TO BENEFIT THE KIRKWOOD GARDENS
established 1995

Generously sponsored by:

B Belknap Landscape Company
160 Lily Pond Road, Gilford, N.H.
603-528-2798
www.belknaplandscape.com

COME PLAY THE WILD ANIMAL WAY! Wednesday, July 15

9:30 a.m. - 4:30 p.m.

Have you ever wondered what a paper towel tube, cinnamon, and a skunk have in common? Find out at this fun-filled day focusing on animal enrichment. Enrichment provides stimulating activities for captive wildlife to keep them engaged in their surroundings and allow them to lead the best lives possible in captivity. Live animal presentations and demonstrations will be held throughout the day.

New this year, there will be a special sale of art created by a few resident animals.

No reservations are needed.

*Cost: free/member; \$13/adults, \$9/youth,
age 2 and under free/non-member*

Save the Date

AUTUMN FESTIVAL

Saturday, September 26

Autumn Festival is
sponsored by



Community Guaranty Savings Bank
of Plymouth

NATURE TOURS

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A North Country Tour Weekend at the Balsams
Saturday and Sunday, July 11-12, 2009

Yellowstone and Grand Teton National Parks
September 2009

Raptors of Scotland
October 4-11, 2009

Wildlife of New Mexico
November 2009

Scotland's Northern Isles: Orkney and Shetland
June 2010

For more information,
visit www.nhnature.org/nature_tours.html
or email Iain at ain.macleod@nhnature.org.

NEWSBRIEFS

Continued from page 2

every Tuesday, Wednesday, and Thursday through October 15. We are delighted to announce we are joining forces this summer with our close friends and colleagues at Loon Preservation Committee (LPC) to offer special weekly cruises focusing on Common Loon conservation, biology, and monitoring. On each *Loon Cruise* the Science Center Tour Captain will be joined by a LPC biologist who discuss the LPC's work across the state and here on Squam to protect these very special birds. The route of the cruise will be chosen to maximize Loon observations. All cruises are 90 minutes and cost \$22 for adults (with discounts for seniors, youths, and members). The *Loon Cruise* replaces Friday's regular 3:00 p.m. *Explore Squam* tour.

- ◆ New bathroom facilities, located in the new wing of the Red Barn next to Kirkwood Gardens, are now available for visitors. Facilities Director Tim Curry and his staff have spent a great deal of time over the winter gutting and reorganizing the barn's interior. In addition to the new bathrooms, the new wing includes a spacious gathering space for meetings, classes, and workshops. Exterior portions of the barn and the staff residence have also been given some TLC. A huge thanks to Bishop and Davis Builders of Holderness for their excellent work and many donations to the Science Center. The Red Barn has a new lease on life.
- ◆ Look for Squam Lakes Natural Science Center on Facebook and become a fan. We send a special thank you to volunteer Mari Hoell for starting our page on this new Web 2.0 media.
- ◆ New Hampshire Day on May 2 was generously sponsored by the New Hampshire Electric Co-op Foundation. The weather cooperated and 1,229 people got "Nearer to Nature." We have planned a series of special days this year, which include discounts on Mother's and Father's Day (moms or dads admitted for free with a matching paid admission), Black Bear Day on May 16 – a special day to learn about New Hampshire's bruins with reduced admission fees, Get Outdoors Day on June 13 (when youth will be admitted for free with a paid adult admission) and Coyote Day on June 20. Many libraries across the state purchase memberships for use by their patrons, which provide admission discounts.
- ◆ We welcome 15 teen volunteers for the new First Guides program. First Guides is based on our successful docent program and adult docent mentors will play an important role in training the teens. First Guides will be visible on the Gephart Exhibit Trail wearing

lime green shirts as they exhibit props and discuss ecology with visitors, starting in July. Funding for this project was provided by the Bea and Woolsey Conover Fund of the Lakes Region/New Hampshire Charitable Foundation.

- ◆ On your next visit, be sure to stop at the Howling Coyote Gift Shop. You will find attractive new inventory this year, including: Natural gourd bird houses, board games and puzzles to inspire learning about nature, complete science and exploration kits for children, pure New Hampshire maple syrup and candies, many new green items, including Ecoist bags made from recycled candy wrappers, several Fair Trade items, Sigg water bottles, natural musical instruments, organic honey and beeswax products, great books again, and an adorable line of organic infant T shirts, bibs and onesies.
- ◆ Gain inspiration from Kirkwood Gardens while searching for beautiful additions to your own on Kirkwood Gardens Day, Saturday, June 13. Once again, there will be a sale of fine perennial plants from a prestigious New England nursery, plants from knowledgeable local gardeners, unique crafts from local artisans, a garden collectibles and treasures sale, and a silent auction of desirable plants and garden-related items. Drinks, sandwiches, and baked goods will be available for purchase and there is plenty of free parking and there is no charge to attend. Kirkwood Gardens Day is under the tents in the garden on Route 3, rain or shine. We would love to have your garden-related items for our garden 'treasures' sale and your extra garden plants for the plant sale. Kirkwood Gardens Day income supports the care of the gardens. If you have a donation, please contact Gardens and Exhibits Assistant Brenda Erler at 603-968-7194 x 43 or brenda.erler@nhnature.org.
- ◆ We are pleased to announce a special collaboration with the new McAuliffe-Shepard Discovery Center in Concord (formerly the Christa McAuliffe Planetarium). Science Center members will enjoy free admission to the Discovery Center in September, which opened in March with a new name and new exhibits. Throughout September 2009, Science Center members are invited for one free visit to the Discovery Center (the number admitted for free is equivalent to number your Science Center membership allows). Be sure to take your membership card and show it at the Discovery Center admission desk. For directions and a schedule of events, visit www.starhop.com or call 603-271-7827. This offer is not valid on special event days and planetarium tickets are not included.
- ◆ Don't miss Come Play the Wild Animal Way! on Wednesday, July 15. This fun-filled day focuses on animal enrichment – stimulating activities for captive wildlife that keeps them engaged in their surroundings that allows them to lead the best lives possible in captivity. Live animal presentations and demonstrations take place all day. New this year, there will be a special sale of art created by a few resident animals.
- ◆ This year's Annual Meeting and Summer Gala Dinner is scheduled for August 8 at the Science Center. We are pleased to announce that Steve Curwood is the Annual Meeting Keynote Speaker. He is Executive Producer and Host of National Public Radio's *Living on Earth* (www.loe.org). The evening will include a live auction and a catered dinner by Great Events Catering of the Common Man Restaurant family. Proceeds will support the Science Center's education programs.

GREEN FACT

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

Thanks to everyone who purchased a compost bin or kitchen pail this spring. In cooperation with the Northeast Resource Recovery Association (NRRRA), the Science Center and 31 other organizations and towns sold 1,820 compost bins! Each bin diverts approximately 500 pounds of organic matter from household waste per year, diverting it from collection, the landfill, or incinerator. This year's sale will help divert a total of over 910,000 pounds of waste – the equivalent of 38 garbage trucks full of waste! Home composting benefits everyone: the municipality, the environment and you, the homeowner! If you are interested in purchasing a bin, kitchen pail, or rain barrel this year, please visit the NRRRA's website at www.nrra.net.

NATURALIST'S CORNER

PUT DOWN THE REMOTE AND GET OUTSIDE

By *Beth Moore*

When I was child, I appreciated nothing more than being outside. It was there that I could explore new places, discover new species, and visit far off lands. I grew up near some old farm land with overgrown pastures surrounded by woods. To a seven-year-old girl, the opportunities were endless. As soon as I got off the school bus, my neighbor and I would drop our school bags and run off to play. We would imagine ourselves into the land of fairies and dragons, climb trees to scout for new land, and make the most delicious meals out of dirt, twigs, and stones. On our less creative days we would scout the woods for perfect logs to roll over, just to see who was lurking underneath, and we would spend evenings catching fireflies in jars. Some of my fondest memories are of my outdoor childhood adventures.

But it seems as if my childhood experiences were very different than the typical child experiences these days. Recent research indicates that on average more than 85% of a child's time is spent indoors, and most of the time spent outdoors is in a moving vehicle. So I began to wonder, if the children are not playing outside, then what are they doing? The answer breaks my heart. Surveys indicate children are spending their free time watching television, surfing the internet, and playing video games. Now, as I look around parks and open spaces, they seem empty. Natural areas and hiking trails, although teeming with life, are often devoid of laughter.

According to research supported by the Children and Nature Network, unstructured outdoor free time encourages creativity, cooperation, and healthy lifestyles. Outdoor play is not only fun, it allows children to develop skills, make observations, and test limits, as well as teaches them to use their imaginations and ask questions. In other words, it is our experiences in nature that help us grow.

In response to this overall reduction in time spent outdoors, Squam Lakes Natural Science Center has joined the New Hampshire Children in Nature Coalition to team up with other organizations across the state to spread the message of the importance of outdoor experiences. In support of National Get Outdoors Day on June 13, a national event designed to encourage healthy, active outdoor fun, the Science Center is pleased to offer free admission to children ages 15 and under, with a regular adult or senior paid admission.

So for this summer, I have a challenge for you. Limit the amount of time your children spend in front of a screen and come up with some creative ideas to get them outdoors. There is a whole world out there waiting for you to explore, and you can start here at the Science Center!

GARDENER'S NOTEBOOK



WHERE THE GROUND-NUT TRAILS ITS VINE*

By *Volunteer Joan Mayerson*

The Groundnut (*Apios americana*) is native to Eastern Canada and the U.S. and is sometimes called Indian Potato. It is in the Legume (Pea) Family – that wonderful family of plants which give nitrogen back to the soil through the roots. Members of the Legume Family are easy to recognize because their seed is contained in pods (like the peas you might grow in your vegetable garden).

The Groundnut is a 3- to 10-foot climbing perennial vine. It grows best in moist areas or brushy thickets. I first encountered it as I walked back from the Ecotone Trail, descending a path down through the edge of a field toward the Upper Pond. I was traveling through tall grass very close to an old thicket of spindly trees. It was late July and I noticed the flowers first – tight racemes of pinkish-maroon pea-shaped blossoms rising from the leaf axils. What's a raceme, you ask? It is a tight cluster of flowers with each flower being attached by its stalk directly to a central stem. The flowers bloom in sequence starting at the bottom and moving upward.

If you arrive on the scene near the end of summer, you might find the seed pod already forming. These seeds are edible and have been used by Native Americans, early settlers, and wildlife as a food source for hundreds of years.

What you don't see, but which is even more interesting, is what happens underground. The roots are cordlike; attached to them like beads on a string are edible tubers (or groundnuts), which Native Americans and early settlers gathered in great quantity as a winter staple. The tubers of young plants are small but grow larger in size each year. The interior is white (much like a small potato). It is crunchy and delicious – rich in protein and starch and can be used in soup and stews, or roasted, or fried. Native Americans gathered groundnuts from the wild, probably storing them near their villages for winter use. This is often where you find the plant growing now... near where Native Americans lived or camped.

By 1590, European settlers knew about them as recorded in numerous reports. In 1635 and again in 1845, tubers and seed were sent to Europe as a new and interesting plant species. Records show Queen Elizabeth I received samples. Other records show there were attempts to cultivate them as a food crop. However, it appears they did not set seed and the tubers were small. In any event, another import – the potato – soon took over, and groundnut growing came to an end that is, until recently. Here in the U.S. there have been efforts to develop the groundnut as a commercial crop, so far with little success.

The groundnut is not a plant to be put in your garden, pretty though it might be. It likes to be wild, and better it be left that way. However, there might be some growing up that tall wire fence by Kirkwood Garden parking close to the River Otter Exhibit. Watch for it – it's pretty when in bloom and the blossoms smell nice!

* *From The Barefoot Boy by John Greenleaf Whittier.*

Gardener's Notebook and Kirkwood Gardens are sponsored by the Belknap Landscape Company, Inc.
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OPENING A WINDOW TO THE NATURAL WORLD

My many years as a teacher and my love of gardens and the natural world made it an easy decision for me to leave a bequest to Squam Lakes Natural Science Center. I have been a volunteer here for more than 30 years, a docent since 1999, and a trustee since 1993. Over the years I have seen first-hand the educational value of the Science Center. The consistently high quality of the programs, the unique nature trail, and the beauty of the Kirkwood Gardens are all assets essential to promote and preserve. It's important to me to help provide for their continuation into the future. Therefore I have made a bequest to the Science Center in my will. I hope you will also consider a contribution to Squam Lakes Natural Science Center from your estate through a bequest and join me as a member of the Naturalist's Legacy Society. Thank you.



*Trustee
George Carr*

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

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.



renew your membership online at
www.nhnature.org

We are grateful for these memorial and honorary gifts received from January 1 through March 31, 2009:

In memory of Susan J. Chandler

Maureen and Robert Zock

In memory of Patricia Foss

Ruth and Richard Chaffey

Lorraine and Ray Demers

Mrs. Russell A. Ege

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Mary and Richard Moore

Francesca and W. James Morrissey

Margaret and Douglas Newhall

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Mr. and Mrs. Armand Soucy

Harry Tabenken

SUMMER GALA AND ANNUAL MEETING SATURDAY, AUGUST 8

We are pleased to announce that Steve Curwood is the Annual Meeting Keynote Speaker. He is Executive Producer and Host of National Public Radio's *Living on Earth* (www.loe.org). The evening will include a live auction and a catered dinner by Great Events Catering of the Common Man Restaurant family. Proceeds will support the Science Center's education programs. Watch for your invitation in July!

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TRAIL'S END

CALLING ALL SENIORS

By the time you read this, another summer will be upon us and the Science Center will be in full swing. Indeed, it's a wonderful spring day today and Opening Day, May 1, is at the end of this week. The staff and many volunteers (what would we do without you?) have been toiling away to get the trails, the exhibits, the animals, Kirkwood Gardens, and all the other facilities, ready for the onslaught. School visits will start any day now with May and June already looking promising. Mother's Day will already be behind us when you read this, but there's always Father's Day or Coyote Day as special events - you don't need an excuse to come visit, since there's always something happening at the Science Center, come rain or shine.

More to the point, this is a special message to all of you loyal members who are grandparents, great-grandparents, great-uncles or aunts, or simply "those of a certain age" who are being visited by young folks this summer. Bring them to the Science Center. As *Forging New Trails* has it, our Mission is to "address the unique interests and education needs of children" and our 'Vision for the Future' states that "Children and young adults, in particular, will be excited by their experiences and will acquire a profound, lifelong respect and appreciation for the natural world." So, even if you haven't been to the Science Center in a number of years, please use the excuse of young visitors to renew your acquaintance with all we have to offer. If you don't have any youngsters visiting, we can probably arrange for you to borrow some! I know that my wife and I are looking forward to introducing our four great-nieces and nephews to the Science Center when they visit us from England in late July/early August - ranging from 8 to 13 they are just the right age. We can't wait to see all the Science Center's wonders through their eyes.

*Trail's End is written by Peter M. Wood, Chairman of the SLNSC Board of Trustees.
You may contact Peter at 603-968-7194 x 27 or peter.wood@nhnature.org.*

FESTIVAL OF LIGHTS from page 1

locations are lawns and meadows as are woodland edges. Time is dusk – creatures active at this time have the intriguing label of "crepuscular." Different firefly species take advantage of varying amounts of light so the cast changes over the course of the evening. If you are wondering who is in this flashing spectacle, remember the mating demonstration – the males fly while the females respond from the ground or perched low. In *A Guide to Observing Insect Lives*, Donald W. Stokes describes how the flashing patterns vary in different species by "the duration of the signal, the interval between signals, the number of flashes in a complete signal, the distance the insect flies between signals, the color of the flashes and whether the signal is composed of one or many flashes." One almost needs a program for this light show!

Once male finds female, they mate and the female subsequently lays eggs on or just beneath the ground. Larvae hatch about a month later. I have watched firefly larvae before dawn in the grass outside my home. How? They are luminescent too, intermittently glowing to the world around them. Apparently this light is a warning signal to predators that the larvae would make nasty snacks. Firefly larvae

are equipped with neurotoxins that they use to attack their own prey – small snails and slugs. These larvae overwinter and may remain in this immature stage for a season or more, eventually pupating in spring and emerging as adults in time for their summer "show."

How can we make these performers welcome? First, let them provide their own lighting! Artificial lights around our houses can make it difficult for them to communicate by their flashes. They do not even appreciate the full moon getting in on the action so don't expect the fireflies to appear at that time of the month. In addition, a chemical-free lawn makes your site attractive and more environmentally sound into the bargain. Also when you are trimming in your yard, think about day-time shade and shelter for fireflies in the form of shrubs and low growing plants.

As prepared as you think you may be for viewing natural events, fireflies have surprises under their wings (as opposed to up their sleeves!). You may find yourself going outside on a warm evening at the end of June with much on your mind and find yourself in the midst of an amazing festival of lights. The joy is in serendipity!

WISH LIST

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