

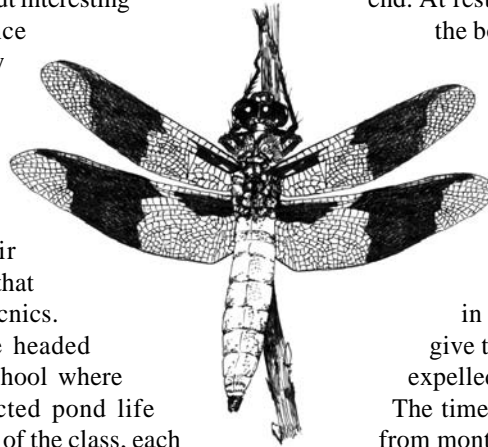


DRAGON WATCHING

By Margaret Gillespie, Illustration by Cheryl Johnson

People collect some strange but interesting things! Not surprisingly, Science Center naturalists are noteworthy in this respect. Let's zoom in and watch them at a pond on a spring afternoon. In their hands are long-handled nets and as they scoop bottom mud and decaying vegetation, their bounty is deposited in coolers that we ordinarily associate with picnics. Destination? These coolers are headed for Moultonborough Central School where the Science Center has conducted pond life classes for over 25 years. As part of the class, each student team will get a scoop of "muck" to investigate. Initially there may be cries of "There's nothing in here!" but suddenly the tone changes as they lift a leaf to see a miniature dragon moving like a camouflaged military tank out of the shadowy murk. Now animated, to put it mildly, these students have discovered a dragonfly nymph – the fascinating aquatic life stage of this insect. A closer look reveals some amazing adaptations of this tiny predator.

Dragonflies belong to the insect order Odontata, meaning "toothed" and the nymphs as well as the adults have ridges on their jaws resembling and functioning like teeth. In addition, nymphs have a specialized hinged labium or lower lip with sharp grasping pinchers at the



end. At rest, this structure is held closed against the bottom of the head. If a mosquito larva swims past, this labium can extend swiftly forward, grab the prey and whisk it into the nymph's mouth.

Getting oxygen from the water involves another adaptation – special miniature gills lie inside the nymph along the rectal walls of the abdomen. Muscles draw water in and out of the chamber and can even give the nymph "jet propulsion" if water is expelled rapidly to push the insect forward. The time spent as a nymph varies and can be from months to two years or more.

What happens next? You can find evidence of the dragonfly's next step by checking aquatic plant stalks, rocks near water, or a dock by a quiet lake. The nymph's exoskeleton or exuvia is all that remains but look for a ragged opening on the dorsal thorax section. If we are really in luck we may glimpse the transition where the dragonfly emerges through the opening and proceeds to pump fluids into its wings in preparation for flight. Now officially called a teneral, the dragonfly spends time away from the pond until its new exoskeleton and wings harden and it becomes sexually mature. During this stage, we may see them quite a distance from water, often in upland areas.

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FORGING TRAILS

CHANCE MEETINGS: LIFE CHANGES

The fifth of May marked the 20th anniversary of my immigration to the US from Scotland. Little did I know when I took that leap of faith (with a six-month-old child and no job to go to) where this new life in New Hampshire would lead. Every once in a while I think back to the decisions, opportunities, and circumstances prior to that fateful move that at the time seemed inconsequential, but, as it turned out, had life-changing repercussions.

The most profound alignment of the stars happened on July 26, 1986, when I met Susan at a Ceilidh on the Island of Rhum – a remote island in the Scottish Inner Hebrides. I know you all have stories of that first fateful meeting with the love of your life, but . . . I have a column to fill, so you're going to hear mine! The threads of circumstance and chance started to weave themselves together more than four years earlier, and like so much of my life, one of the common threads was birds.

One rainy winter day in 1982 I was taking shelter in a friend's car in the parking lot of a county beach park after completing an arduous bird survey on a section of North Sea-battered coast near Aberdeen. We met a guy who introduced himself as the Park Ranger. His name was Dan Hale; tall, bearded, Canadian by birth, now a Scottish resident.

A few months later I bumped into Dan again while observing an Osprey nest (no surprise there!) in Aberdeenshire. Later that summer, I was wading in a roaring brook catching and banding Dippers – a stocky, black, white and

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FORGING TRAILS *continued from page 1*

chestnut robin-sized bird that feeds by swimming underwater in fast moving streams and rivers. I had just found a nest under an old stone bridge and was extracting the youngsters from their domed mossy home, when I heard a shout. Running across the lawn that ended in the brook was Dan demanding to know what the bloody hell we were doing in his garden. After mutual greetings and quick mollifications he helped band the chicks and replace them in their nest.

The following spring, I was taking a stroll through the small village of Kinloch on the Island of Rhum. I had arrived earlier that day on a boat with a team of 20 strangers to spend six weeks on an archeological excavation. (I'll leave the details of how I became an archeologist for another day . . . when I have another column to fill.) Who should I see walking towards me but Dan? After all these incongruent and coincidental meetings we decided that we were either following each other or simply destined to be friends.

Dan was on the island as a field assistant to Kate Thompson, a Glasgow University PhD candidate who was studying Manx Shearwaters – a long-winged pigeon-sized, black and white seabird related to petrels that nest on the slopes of Rhum's mountains. During my six weeks on Rhum I got to spend a couple of truly magical overnights high in the mountains banding shearwaters with Dan and Kate. By day the rocky slopes are devoid of life, but after dark 100,000 shearwaters come home to take over incubation duties or feed their chicks in underground burrows, and 100,000 mates leave to feed in the vastness of the Atlantic Ocean. The entire mountain slope comes alive with sound and motion. As I banded one shearwater, another would land in my lap, and another would crawl underneath the shelter of my legs. Shining the beam of my headlamp into the inky black sky would reveal a rush hour of black and white birds. The cacophony of their night-time cackling is so loud and sinister-sounding that early Norse settlers were convinced that trolls and witches were reveling in the mountains and feared to venture up there after dark.

And so it was, two years later that Dan and Kate invited me to return to Rhum to attend a party (a Ceilidh) to celebrate their wedding. I jumped at the chance to revisit this special place, even though accepting the invite meant an all-day drive and ferry ride. Susan was on the island as part of an Earthwatch expedition – a working vacation to escape her busy life in Philadelphia. She could have chosen to study sea turtles in the Caribbean, but she chose Shearwaters on Rhum . . . and ended up with a husband.

The rest, as the saying goes, is history. All those interconnections and dissections of circumstance conspired to bring me across the Atlantic to New Hampshire 20 years ago . . . and I'm very glad they did.

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

- ◆ Squam Lakes Natural Science Center staff members visited the Seacoast Science Center (SSC) in Rye on April 14 following a visit from SSC to Holderness in January. We toured each other's facilities, met and discussed common issues with our counterparts.
- ◆ Senior Naturalist Dave Erler is the recipient of the 2008 Elizabeth Abernathy Hull Award. This annual award is presented by the Garden Club of America and is "Awarded to an individual who provides outstanding environmental education for youth under 16 years of age." Trustee Betsey Moran championed Dave's nomination through her affiliation with the Dublin Garden Club. Congratulations Dave!



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SQUAM LAKES NATURAL SCIENCE CENTER

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The 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 the 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 TASHIA MORGRIDGE

By Laura Dentel



LD: How did you become involved with the Science Center?

TM: When we bought our Squam house in 1990, one of our first visits was to the Science Center. I was so honored to be asked to join the board.

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

TM: The otters are such showmen and always hold my attention with their antics.

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

TM: Being outside, active, and involved with the natural world gives balance to life. Children use their energy and curiosity to engage with nature. They smell, touch, hear, see, splash, jump, and sometimes even taste. Such freedom!

LD: Do you have a favorite childhood memory that involves nature?

TM: We spent all day everyday outside whenever possible. We biked, skated, caught turtles, built forts, swam, and put on circuses, and so on.

LD: Tell us about the Cousins' Camp book and why you decided to write it.

TM: For the last 13 years we have had a one week "camp" for our six grandchildren. This has become an important family tradition. We just decided to share our ideas with others. The Squam area offers so many possibilities for outdoor activities.

LD: What are your hobbies and interests?

TM: I hike, bike, ski, read, travel, and enjoy being "Grandma."

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

TM: I just love being here. I love the quiet of the lake. I love watching the lake change

from morning to night and from spring to fall. I love the people we have met. I love to climb Livermore or Morgan for another view of the lake.

LD: What one word would your friends use to describe you?

TM: Busy.

LD: How would you describe yourself?

TM: Too busy.

Tashia Morgridge has served on the board since 1999. She holds a baccalaureate degree from the University of Wisconsin-Madison and earned a Master's in Special Education from Lesley University in Cambridge, Massachusetts. The author of a book of lessons for use in elementary classrooms, she is a retired special education teacher. In addition, Tashia is the Grandma who wrote the book, *Cousins' Camp*. In addition to the board of the Science Center, Tashia serves on the boards of the Lucile Packard Children's Hospital, the Stanford Schools Corporation, the Morgridge Institute for Research, the Fund for Wisconsin Scholars, the board of visitors for the School of Education at the University of Wisconsin and the TOSA Foundation. She and husband, John, had three children and have six amazing grandchildren.

NEWSBRIEFS *Continued from page 2*

◆ We are pleased to welcome Beth Moore as our new Naturalist. Beth attended the University of Vermont where she obtained a B.A. in environmental studies, with a concentration in environmental education. She has been working as an environmental educator since 2003 at other non-profit education centers including Kestrel Educational Adventures and Seacoast Science Center. While growing up, Beth enjoyed visiting here with her family and is excited to join the education team.

◆ A school program poster was sent to every teacher in the state at the beginning of March. We mailed approximately 10,000 posters! Featuring photos of our animals and Squam Lake, we hope the poster will be displayed in classrooms across the state and help boost school attendance in 2008.

◆ A new season brings a new staffer: Pam Clark of Laconia joins returning Admissions and Howling Coyote staff Abby Horton, Deb Joyce, Priscilla Fletcher, Gloria Lindia, and Kirsten Pickel. Tom Klein of Center Sandwich returns as full-time Lake Cruise Manager.

◆ Daily Explore Squam cruises resume May 24 with one cruise at 1 p.m. and move to three cruises daily at 11:00 a.m., 1:00 p.m. and 3:00 p.m. on June 14. New this year, Nature of the Lakes cruises will start July 1 at an earlier time (4:00 p.m. Tuesdays, Wednesdays, and Thursdays), and extend through fall foliage season, ending October 16.



◆ In May, Aliaksandr Novikau became our first Communications Intern. Aliaksandr is a participant in the Edmund S. Muskie Graduate Fellowship, a program of the U.S. Department of State. The Muskie Program allows graduate students from Eurasia to study in the U.S. and fosters democratization and economic development in participating countries. Aliaksandr is one of 140 chosen from more than 3,000 candidates. He is currently a student at Northern Arizona University, pursuing a Master's in environmental science and policy. Previously Aliaksandr worked in Minsk, Belarus at Optimum Media Direction, providing communications for several environmental organizations, at the Department of Information at the International Sakharov Environmental University, developing environmental policy, and as Editor at the Fabric of Informative Technologies, where he reported, directed and edited an environmental TV program.

◆ We welcome three new Education Program Interns this summer. Kelly Chevett is a junior at the University of Connecticut majoring in Natural Resources Management and Engineering, with a concentration in wildlife conservation. She has volunteered at the New England Aquarium Penguin Exhibit and at the Milford Animal Shelter. Amanda Molter will graduate from the University of Wisconsin-Stevens Point following completion of her internship. Her major is in biology, with a minor in captive wildlife management. She has worked at the Portage County Humane Society and was active in the UWSP Wildlife Society. Jessica Wright is junior elementary education major, with minors in biology and behavioral sciences at Christian Brothers University in Memphis, Tennessee. She has worked at the Memphis Zoo where she handled a variety of small animals and taught children about wildlife conservation.

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NEWSBRIEFS *continued from page 3*

- ◆ On your next visit, you will find attractive new inventory at the Howling Coyote Gift Shop, including: solar-powered robot kits, board games about nature, children's science kits, pure New Hampshire maple syrup and candies, many new green items, including Ecoist bags made from recycled candy wrappers, Acorn slipper socks, Sigg water bottles, natural musical instruments, bees wax candles, great books, and beautiful new t-shirts.
- ◆ One hundred seventeen volunteers, along with staff, joined together on Clean Up Day, held April 26, to prepare the trails and grounds for opening day on May 1. Working around a few piles of snow that remained, volunteers pitched in raking trails, cleaning exhibits, and staining buildings, among other tasks. These community groups also participated: Boy Scout troop #82, CADY Launch program, Friends Program, Interlakes National Honor Society, University of Michigan alumni, Mount Prospect Academy, Plymouth National Honor Society, TAU Omega sorority from Plymouth State University, Tilton Boy Scouts, and Tilton Cub Scouts. Thank you also to Bob's Shurfine Market, Ashland, Dunkin Donuts, Plymouth, Hannaford Supermarkets, Plymouth, Lakes Region Coca-Cola Bottling Company,

Shaw's Supermarket, Gilford, and Stonyfield Farm Yogurt for in-kind donations to supply lunch for volunteers.

- ◆ New Hampshire Day was held on May 3 with 576 people braving a cold and rainy day. We are grateful to the New Hampshire Electric Co-op Foundation for generously sponsoring this special event.
- ◆ Squam Lakes Artisans and Kirkwood Café return again this year to the historic Holderness Inn adjacent to Kirkwood Gardens. Squam Lakes Artisans, a cooperative of juried artists from central New Hampshire, specializing in unique and locally crafted gifts, is open daily from May 23 through September 1 from 10:00 a.m. to 5:00 p.m. with a reduced schedule in the fall. Kirkwood Café will be operated by the Science Center under the management of Susan MacLeod for the convenience and benefit of our visitors. Kirkwood Café will serve gourmet snacks, sandwiches, and beverages on the porch or terrace overlooking the gardens. The Café is open daily from June 28 through September 1 from 11:00 a.m. to 3:00 p.m.
- ◆ The Samuel P. Hunt Foundation awarded a \$9,000 grant in April for a project to develop a new home-school curriculum and complete a framework alignment of current school group programs to ensure that all our education classes meet new specific teaching and testing requirements of New Hampshire schools.

GREEN PROGRESS

By Eric D'Aleo

You may recall the spring 2007 Tracks & Trails mentioned the creation of a Green Team and promised future updates. Here it is, 18 months later and we have made some interesting discoveries and forward progress. Last year was devoted to collecting information and creating a framework to guide our future efforts. The information collected provides a baseline to measure future improvements and changes. Data on electricity and fuel usage was collected for multiple buildings and exhibits. Our energy use varied from the expected (the highest electricity use is during the summer) to the unexpected (the Webster Building consumes more electricity than we originally thought). The Green Team also formulated a mission, which states: we will pursue the efficient and sustainable use of resources utilized in the operation of SLNSC by implementing practices to reduce, reuse, recycle waste, as well as promote energy conservation, sustainable (native) landscaping and alternatives to toxic chemicals. It is our hope that these practices will inspire and educate the public and staff on the importance of conservation actions that individuals and organizations can take.

So then, what steps have we undertaken with this information and goals in hand? To help reduce electricity use, motion detectors were installed in the Webster Building bathrooms, energy misers were installed on soda and water machines, and the staff made a commitment to reduce "phantom loads." For eight of the 12 months in 2007 our total electric use was at or below the same month in 2006 although there is still progress to be made. No idling signs were installed outside the Welcome Center to encourage guests to reduce their fuel consumption and provide cleaner air adjacent to the building. Compostable cups and plates are now used as an alternative to plastic dinnerware for volunteer potlucks and member programs to reduce the amount of trash produced.

Currently there are two main goals for 2008. First to conserve energy and save fuel, we researched alternatives to insulate the

Webster Building attic. In April, cellulose insulation was installed, which will not only lower our fuel use, but will also make the building more comfortable for the staff members who work there. Our second main project is a trial project in which we will experiment with composting the bedding used by the program animals. Currently, the bedding, mainly composed of wood shavings, is disposed of in a landfill, but if we can successfully compost it, we'll be generating less waste and creating compost to use on our property. We will also take fewer trips to the dump. Other smaller projects include continuing to replace incandescent bulbs with compact fluorescents, visiting other sites for green tips and ideas, and researching additional large and small steps. We also invite and encourage you to consider all the options available to you to make a positive impact on the natural world.

GREEN FACT

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

WHAT IS A PHANTOM LOAD?

Many devices in your home consume electricity even when they appear to be off. These phantom energy wasters include computer peripherals, shared printers, radio chargers, office equipment, and electronic scales, as well as conventional sources such as instant-on TVs, microwave clocks, VCR displays, cordless vacuums, and telephones. Phantom loads add up to a huge waste of electricity in the U.S. costing consumers more than a billion dollars per year. The total phantom load in most American homes varies from 1.5 to 4 kilowatt-hours per day, or several dollars per month.

NATURALIST'S CORNER

THE YEAR OF THE FROG

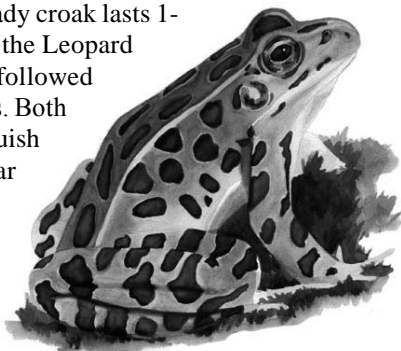
By Dave Erler

The year 2008 has been declared the “Year of the Frog” by the Association of Zoos and Aquariums and other conservation groups throughout the world. Why the year of the frog? For the past decade there has been increased concern over the dramatic decrease in many species of amphibians. The possible reasons for their decline are numerous and in some cases still a mystery. Some of these threats include habitat loss or degradation, loss of atmospheric ozone resulting in increased UV radiation, increased road construction and resulting road kill, effects of acid precipitation and other forms of pollution, overuse of pesticides, and spread of diseases and parasites. To explore how each of these factors affects amphibians would require a column longer than allowed here. Rather, I will focus on two particular species of native frogs that look similar but are faring much differently. The two frogs in question are the Northern Leopard Frog (*Rana pipens*) and the Pickerel Frog (*Rana palustris*).

Northern Leopard and Pickerel frogs are just two of 20 species of amphibians residing in New Hampshire (14 species in the Lakes Region). Of those 14, half a dozen are salamanders with the remaining eight species being Anurans (frogs and toads). The Northern Leopard frog resembles the much more common Pickerel frog. Both species sport a pattern of black spots on a tan or greenish background skin color. The Pickerel frog has somewhat square-shaped spots, and, if you are able to see its hind legs, the undersides are a bright yellow. The Northern Leopard frog has roundish spots, each surrounded by a light ring or halo, a light line on the upper jaw and no yellow on the undersides of the back legs. In my experience, the Leopard frog is more commonly greenish in color and the Pickerel frog more often tan. Both can be found in or near the vegetated edges of lakes, streams, ponds, marshes, wet meadows, and fields, but the Leopard frog seems to have a strong preference for wet meadows. Typically, both species are 1 ½ to 3-inches long with the Leopard frog occasionally slightly larger.

The spring calls of the males can be heard mid-April to mid-May here in the Lakes Region. The Pickerel frog’s low steady croak lasts 1-2 seconds. In contrast, the Leopard frog has a deep snore followed by 3 or 4 clucking notes. Both calls are easy to distinguish from the more familiar high pitched whistle of the Spring Peeper or the low “jug of rum” of the Bull Frog.

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GARDENER'S NOTEBOOK



NATIVE AQUATIC PLANTS

By Volunteer Joan Mayerson

Water or aquatic gardens have become popular recently, but date back to the days of Babylon. The sound of running water is soothing and water provides a focal point allowing native plants to provide wildlife food, shelter, and clean water for wildlife. Usually man-made, water gardens typically combine rocks, fountains, waterfalls, fish, and aquatic plants.

One important consideration for aquatic gardens is the invasive nature of some plants. Do you remember hearing about invasive, foreign species of plants (like Purple Loosestrife) taking over our wetlands? I know I have. I’ve also wondered if that is so terribly bad ... are the native plants of our wetlands really so much more valuable? So I went for a walk along the Marsh Boardwalk paying closer attention to those species growing in the pond itself. I knew these plants had been put there when the pond was first dug because they were both native and attractive to wildlife. Here are three of those plants and what I learned about them.

The Yellow Pond Lily or Bullhead Lily (*Nuphar lutens*) is the only water lily you will see on this shallow, little pond. Its distinctive small yellow blossoms with their thick petals, which are actually sepals, appear in June or July. The floating leaves are heart-shaped or round. The basal stems, called rhizomes, swell into starchy tubers that will multiply and from which new plants will grow. This common native of Canada and the northern United States is very important to wildlife – beaver, muskrat, and painted turtles feed on the tubers, while beaver eat the leaves. Wood ducks, mallards, and geese eat the seeds. Frogs, salamanders, and aquatic insects attach their egg masses to the under parts of leaves or to the underwater stems. Dragonflies, bees, and small frogs rest on the floating leaves. And beneath the surface, small fish and many kinds of aquatic insects find protection. Well, that’s useful!

Arrowhead or Wapato (*Sagittaria latifolia*), a member of the Water Plantain Family, is even more interesting. Its large arrowhead-shaped leaves rise out of the pond near a patch of reeds. Even when not in bloom you can recognize it by its very large leaves. The attractive white flowers, growing in whorls of three, come in late July to confirm the identification. In the mud beneath this plant are rhizomes. But these rhizomes are different. They produce small cream-colored tubers with a purple skin, which look and taste somewhat like potatoes, hence the name duck potatoes. Duck potatoes are edible and long have been harvested by both animals and humans. Because the species was once very common in aquatic locations all over the country, Native Americans used them as a staple part of their diet.

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Gardener’s Notebook and Kirkwood Gardens are sponsored by the Belknap Landscape Company, Inc.
www.belknaplandscape.com

NATURAL ADVENTURES

COLOR CODED MESSAGES

Wednesdays, June 4, July 2, August 6, September 3

9:30 - 10:30 a.m.

Ages 3-4

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 child at no additional cost.

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

SQUAM BIOBLITZ

Friday, June 6 - Saturday, June 7

3:00 p.m. - 3:00 p.m.

All ages

New this year, we are joining forces with the Squam Lakes Association and the Squam Lakes Conservation Society to launch a 24-hour bio-inventory of the Squam Range. Become a 'citizen scientist' and learn from experts as they identify as many different living things as possible in one 24-hour period! To take part, reserve your spot by contacting us at 603-968-7194 or info@nhnature.org. Or join a Science Center Naturalist for Ecotone Explorations or the Annual Breeding Bird Census.

ECOTONE EXPLORATIONS

Friday, June 6

3:30 - 5:00 p.m.

Saturday, June 7

1 - 2:30 p.m.

Meander the trails and property alongside a Naturalist looking for certain species found in New Hampshire fields, forests, and maybe even ponds. We'll arm ourselves with checklists, field guides, and magnifiers to experience a mini BioBlitz. You will learn more about the living things "in your backyard." Check in with the Squam BioBlitz beforehand or afterwards.

ANNUAL BREEDING BIRD CENSUS

Saturday, June 7

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

Join Senior Naturalist Dave Erler to help with a census of the Science Center's breeding bird population and learn to identify some of the area's resident birds. Early risers meet at 6:00 a.m. or join us at 8:00 a.m. to complete the census.

Cost: no charge to attend, but reservations required for programs.

HEALTHY CHILDREN, HEALTHY PLANET

Discussion Group and Café

Mondays, June 16, 30, July 14, 28, August 11, 25, Sept. 8

7:00 - 8:15 p.m.

Adults

In response to growing concerns about the effects of media, advertising, and technology on children, Squam Lakes Natural Science Center and Vermont Earth Institute have teamed up to sponsor Healthy Children, Healthy Planet. This community discussion course offers strategies for navigating the consumer culture bombarding youth and families for parents, teachers, social workers, and others concerned with youth. We will meet bi-weekly to discuss selected articles and consider personal choices related to society as a whole. Healthy, enjoyable food and beverages will fuel our discussion.

Cost: \$25 for series

ART MEETS NATURE

Art Series for Adults

Sundays, June 8, July 13, August 10, September 14

1:00 - 4:00 p.m.

Local artist Cynthia Robinson will lead these fun and engaging natural art sessions. No experience necessary. Register for one, two, or all four!

SPEND THE DAY WITH MONET

Sunday, June 8

Kirkwood Gardens will be our subject as we explore paint and color. With Monet's inspiration, we'll focus on combining colors and enjoying the light, shade, and shapes in the garden in Impressionistic style.

NATUREBOXES, JOSEPH CORNELL STYLE

Sunday, July 13

Joseph Cornell's boxed assemblages were three-dimensional scrapbooks, stories, and dreams filled with found objects, meant to be handled and inspire nostalgia. We'll assemble a treasure box landscape using natural materials (mosses, bark, acorns), words, photographs, and any special items you bring while also doing some exploring on Science Center trails.

DRAWING WITH VAN GOGH IN MIND

Sunday, August 10

We'll use pencil, pens, and ink to express the lines and shadows of the plants in Kirkwood Gardens. With van Gogh as our muse, we'll let go of perfection and create patterns, rhythm, and drama with our tools.

BUILD WITH NATURE LIKE ANDY GOLDSWORTHY

Sunday, September 14

Using natural materials, we'll work together to create a temporary work of art in nature. Using Goldsworthy and Science Center trails as inspiration, we'll focus on the qualities of our chosen natural materials and the design of our work as it relates to the site. Our work will be recorded through digital photography.

Cost per program: \$20/member; \$24/non-member

Cost for the series: \$70/member; \$90/non-member

GO AHEAD, MAKE MY DAY

Wednesday, July 2

5:00 - 7:00 p.m.

Ages 8 to Adult

Animal Care staff have been working hard to raise awareness about the benefits of enrichment for captive wildlife. By providing the animals with stimulating activities such as scents, paper bags filled with shredded paper, or prey items hidden about their enclosures, we can enrich their lives. Come join Animal Care staff to help create and build new and exciting animal enrichment items. You will even get a chance to put your enrichment creations to the test! Adult must accompany child.

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

*Reservations and advance payment required unless otherwise stated.
Programs are subject to cancellation if minimum enrollment is not met.*



NATURAL ADVENTURES



AN EVENING OF MOOSE VIEWING

Saturdays, July 5 and 26

5:00 - 10:30 p.m.

Adults

Join Iain MacLeod for a special evening-long visit to the New Hampshire North Country in search of Moose. On the way north we will stop for dinner at a local restaurant, where Iain will do a short presentation on Moose biology and ecology. After dinner we will visit local Moose hotspots to see these leviathans up-close as they emerge from the woods to feed on roadside mud.

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

EVENING BAT VIEWING

Tuesday, July 8

7:30 - 9:30 p.m.

Ages 8+

Join us for an evening dedicated to our nocturnal neighbors. We will begin indoors with an overview of general bat biology and get a chance to meet a live native bat up-close. We then head outdoors to visit the Science Center's bat houses and the new bat condo erected last summer to watch the evening departure of some 400 bats.

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

GARDEN TAI CHI

Fridays, July 11 - August 15

8:00 - 9:30 a.m.

Adults

Tai Chi is a Chinese martial art of self defense, now done in a modified style mainly as a health practice. Its forms combine relaxed, fluid, slow movements with a calm and alert mental state. By practicing Tai Chi movements, one can build endurance and enhance flexibility, balance, and coordination. Join us in lovely Kirkwood Gardens.

Cost for six weeks: \$36/member; \$48/non-member

GET MOVING! ANIMAL OLYMPICS AND YOU

Friday, July 11, Thursday, August 7

9:30 - 11:00 a.m.

Ages 7+

With the Summer Olympics just around the corner, many of us dream about what it would be like to participate. Did you know that New Hampshire has some amazing animal "competitors" that could out-compete with even the best human Olympians? How do you stack up to these animal athletes? In this friendly competition we'll jump, run, and lift with the best of them as we physically and mathematically compare our body's abilities with our animal neighbors. Although competition will be relaxed and we won't be competing for medals, we will have a tremendous amount of fun!

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

ECO ART I: CREATURES AND HABITATS

Saturday, July 12

10:00 a.m. - 12:00 p.m.

Ages 6-10

Become an Eco Art explorer and create art outside! Do you have a favorite creature or spot at the Science Center? Use the trails and animals here for ideas and inspiration for your art. Draw a creature and its habitat; then build nests and shelters for your chosen creature using sticks, bark, moss, and other natural materials.

Cost: \$9/member; \$11/non-member

NORTH COUNTRY WEEKEND AT THE BALSAMS

July 12-13

Adults

Join Iain MacLeod for a weekend in the Great North Woods. Trip includes pontoon boat tour of Lake Umbagog and the Magalloway River, evening Moose viewing around Errol, and a morning of birding for northern forest specialties, such as Black-backed Woodpecker. Of course, there is also the delight of Saturday dinner and Sunday breakfast and lunch at the Balsams Grant Resort.

Cost: \$550/person (includes overnight lodging, lunch and dinner on Saturday, breakfast and lunch on Sunday, van transportation, boat tour and leaders costs)

BAT HOUSE BUILDING WORKSHOP

Tuesday, July 15

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 your own neighborhoods.

*Cost: \$8/ member; \$10/ non-member
Additional cost to build bat house: \$25*

WISE ABOUT OWLS

Tuesday, July 22, Thursday, August 14

10:00 - 11:30 a.m.

Ages 6-10

"Wise as an owl" isn't really a compliment! Scientists think owls are not as smart as ravens and crows, but they are still fascinating birds to study. We'll become wise about owls through activities, crafts, story-telling, and visits with live birds.

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

SUMMER DELIGHTS IN THE NIGHT SKY

Friday, July 25 (cloud date Saturday, July 26)

8:30 - 10:00 p.m.

Ages 8+

Join Christa McAuliffe Planetarium's Astronomy Educator on a fascinating tour of the summer night sky. Following an informative presentation, we will take a telescopic look at notable stars, constellations, planets, and deep sky objects.

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

ECO ART II: WILD PLACES AND NATURAL MATERIALS

Saturday, July 26

9:30 a.m. - 3:30 p.m.

Ages 8-12

Spend a day filled with art and nature. Use the butterflies, turtles, wildflowers, and other Science Center creatures as inspirations for your art. Create several eco artworks during the day with natural materials, and also try drawing, collage, and painting. Bring a lunch and an eco art explorer's spirit!

Cost: \$20/member; \$24/non-member



NATURAL ADVENTURES



DOCUMENTARY FILM SCREENING: WHERE DO THE CHILDREN PLAY?

Sunday, July 27

7:00 p.m.

Adults

This film examines an issue of growing concern among pediatricians, mental health experts, educators, and environmentalists: More and more children are growing up today with little or no opportunity for unstructured play, especially outdoors. Sponsored by the Squam Lakes Natural Science Center with assistance from the U.S. Alliance for Childhood, a nonprofit research and advocacy group that works for the restoration of play in children's lives.

No charge to attend.

GARDEN TOUR

Saturday, August 2

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

Adults

Rain or shine

Tour three lovely, gardens – Farm and Garden, Artist's Garden, and Daylily Garden – at your own pace and in the order you choose. Visit our website at www.nhnature.org for a full description of the gardens. Driving directions will be provided upon registration and payment.

Cost: \$15/person

INCREDIBLE INSECTS

Tuesday, August 5

10:00 - 11:30 a.m.

Ages 5+

With over a million kinds of insects in the world, there are bound to be some exciting ones right under our noses! We'll go in search of insects in some strange spots and discover the interesting lives insects lead. We'll also meet an animal that is an excellent insect consumer.

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

UNDERSTANDING OUR NORTHERN APPALACHIAN ECO REGION

Thursday, August 7

7:00 p.m.

Adults

Join us for this lecture co-sponsored with Plymouth State University Center for Rural Partnerships when Rob Baldwin will discuss new research on the Northern Appalachian/Acadian Eco-Region of the United States and Canada. As part of the presentation, Dr. Baldwin will introduce newly developed online mapping tools that demonstrate the value of taking an eco-regional approach to conservation and environmental studies.

No charge to attend.

FERN WALK

Tuesday, August 12

10:00 a.m. - 12:00 p.m.

Among the oldest vascular plants on the planet, ferns have survived over 300 million years and continue to flourish in tropical and temperate regions of the world. Learn to identify common ferns native to this area and find out why they are important to the natural communities they belong to. This will be a fairly easy 1/2-mile walk along the Ecotone Trail.

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

KIRKWOOD GARDENS EVENING LECTURE EAT YOUR LANDSCAPE

Thursday, August 14

6:30 p.m.

Adults

Most yards are landscaped with trees, shrubs, and flowers. While beautiful, they aren't very practical. Why not substitute some of those plants with an edible version? What about growing a cherry tree instead of a redbud, a blueberry instead of forsythia, or a raspberry hedge instead of barberries? Charlie Nardozi, horticulturist with the National Gardening Association, will talk about growing vegetables, fruits, and herbs in your landscape to provide food, beauty, and energy conservation. Even a small yard can grow food plants that will provide you with healthy produce, while still looking gorgeous.

No charge to attend. Donations welcome!

NATIONAL FOREST FIELD TRIP

August 23

1:00 - 3:00 p.m.

Ages 8 to Adult

Visit the Discovery Trail on the Kancamagus Highway to explore cultural heritage and environmental stewardship in the White Mountain National Forest. Think of the trek as a treasure hunt as we search for signs of wildlife in the soil and in the trees, hidden evidence of old logging practices, and a few other surprises.

Cost: \$10/member; \$12/non-member

SCIENCE CENTER LAKE CRUISES

EXPLORE SQUAM

May 24 - June 13 • Daily at 1:00 p.m.

June 14 - October 19 • 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. Hear a bit of Squam's human history through stories of those who have enjoyed this area for more than 5,000 years, from Native Americans to modern moviemakers. Enjoy the pristine beauty of Squam Lake.

NATURE OF THE LAKES

July 1 - October 16

Tuesdays, Wednesdays and 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 surround landscape. Come away with an enhanced appreciation and understanding of the lake and the wildlife that call it home.

All cruises are 90 minutes

Adults - \$20

Youth (ages 3-15) - \$14

Senior (ages 65+) - \$18

2 and under - free

Additional \$2 member discount

*Reservations and advance payment
required unless otherwise stated.*



SPECIAL EVENTS



KIRKWOOD GARDENS DAY

Saturday, June 14

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 Stones by Lois Stratton, Wooden bowls by Robin Dustin,
 - Bird carvings by John Harris, Birch bark frames by Bob McLean

Sponsored by: Belknap Landscape Company, Inc.
603-528-2798 www.belknaplandscape.com

Wednesday, July 16




ANIMAL ENRICHMENT DAY: COME PLAY THE ANIMAL WAY!

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 Animal Enrichment Day! Join staff and volunteers for a 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. No reservations are needed.

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

DRAGONFLY QUIZ

1. True or False? Dragonflies are predators as nymphs (immature) and as adults.
2. Which is NOT a dragonfly?
 - A. Band-winged Meadowhawk 
 - B. Robber fly 
 - C. Dragonhunter 
3. Which life stage is generally longer for dragonflies? Nymph or adult?
4. How many legs does a dragonfly have?
5. If you see a swarm of dragonflies in a field in August, they are ...
 - A. Feeding
 - B. Mating
 - C. Preparing to migrate

answers are below...

Answers to Dragonfly Quiz: 1. True 2. B 3. Nymph 4. Six (like all insects) 5. A

Wednesday, July 16

THE LORD GOD BIRD

7:00 p.m.

It's the Holy Grail of ornithology. If America had a bird of paradise this would be it, and its history is the story of American conservation. — George Plimpton

In February 2004, conservationists rejoiced when they heard that the supposedly extinct Ivory-billed woodpecker had been sighted in the swamps of Arkansas. More excitement followed in April of that year when images thought to be the Ivory-billed were caught on tape. The rarest of rare birds, the Ivory-bill is so spectacular that according to legend those who see it spontaneously cry out, "Lord God! What was that?" But some scientists remain skeptical. They believe that these most magnificent birds are gone forever. While for the majority of Americans this sighting came as a wholly unexpected piece of good news from the conservation front, to the inner circle of birders this was the latest installment in a very old, legendary tale of hope and survival. Once common throughout the southeast United States, the bird had vanished over the past century as its forest habitat was devastated, reappearing periodically to reawaken hope for threatened species and environments everywhere.

This 90-minute film tells the story of the Ivory-bill not merely as a quaint piece of natural history, but as a story of faith and doubt, despair and hope regarding our own relationship with the environment. Covering the tension between skeptics who regard the bird as fantasy as well as those with determined faith in its existence, the documentary also explores the grass-roots conservation of the Arkansas outdoorsmen who most recently sighted the bird. Acclaimed documentary filmmaker George Butler explores the existence of the Ivory-billed, as well as the remarkable people surrounding the controversy, in *The Lord God Bird*.

The Squam Lakes Natural Science Center is delighted to present George Butler's *The Lord God Bird*. Directed by George Butler, written by Caroline Alexander, produced by George Butler and Robert Nixon and co-produced by Elisabeth Haviland James in association with the Cornell Lab of Ornithology and in partnership with National Geographic Films.

The film will be shown at Boyd Science Center, Room 144 Plymouth State University Highland Street, Plymouth.

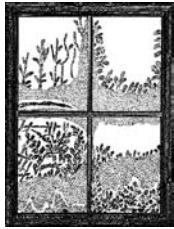
The film is about the tension between the people who love the bird and believe it exists and the coolly objective ornithologists who say it can not possibly exist – it is extinct. Any way you look at the story it has got interesting angles. — George Butler

Cost: \$20/member; \$25/non-member; \$10/PSU student

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www.nhnature.org



OPENING A WINDOW TO THE NATURAL WORLD

By Nancy and James Ainsworth

Over the years the Squam Lakes Natural Science Center has become a touchstone for us during our vacation at Squam Lake. We are drawn to the Center's peace and beauty, enjoy walking the trails and visiting favorite exhibits, but most of all have come to



appreciate the vision the Center has. Whether it be the eco-friendly bathrooms, enrichment ideas for the animals, or the variety of fun and educational programs and tours for all age groups, we have seen what dedication and hard work makes happen. We see personal commitment by staff and volunteers alike when it is their familiar faces greeting us year after year. We notice changes as we walk around, and know that the Center is dynamic, not static. It is always striving to improve.

It is in this spirit of appreciation for all that the Center has done and will continue to do in its mission, and our wish that future generations be able to experience what we enjoy today that we have included the Science Center in our estate plan.

We are grateful for these memorial and honorary gifts received from January 1 through March 31, 2008.

In memory of Susan J. Chandler

Mr. and Mrs. Daniel Chandler

Cynthia and Harvey Creem

Judith Dearborn

Mr. and Mrs. James Dalley, Jr.

Mr. and Mrs. David Evans

Mr. and Mrs. Calvin Opitz

Rikki Ramsden

In memory of Gilbert Merrill

Rose Anne Merrill

In memory of Greg Smith

Mr. and Mrs. Ronald Geigle

NATURALIST'S CORNER Continued from page 5

Populations of the Pickerel frog appear to be holding steady, but unfortunately, the Northern Leopard frog has declined dramatically in our local area and is now considered a species of concern. If you know of a population of Northern Leopard frogs in the Squam watershed, I would very much like to document it. Or, if you are interested in documenting amphibians and reptiles on your own, the New Hampshire Fish & Game Department has a volunteer Reptile and Amphibian Reporting Program (RAARP). To find out more about RAARP, listen to recorded frog calls, or find out more about other amphibians in our area, check the New Hampshire Fish & Game website at www.wildlife.nh.us.

And if you're into catching frogs this Year of the Frog, please handle them with care. Make sure your hands are wet, hold them as little as possible, and be sure to release them where you found them. They may seem insignificant, but frogs may very well be one of the best indicators of the health of natural communities.

NOTICE TO MEMBERS OF THE CORPORATION

2008 Annual Meeting

to elect officers and trustees

will be held at the

Squam Lakes Natural Science Center,

Holderness, NH

Saturday, August 9, 2008 at 5:00 p.m.

GARDENER'S NOTEBOOK Continued from page 5

Muskrats also gathered them to store in their nests as a winter food (and for the knowing human to harvest!)

A third plant of interest is the very common Pickerel Weed (*Pontederia cordata*). It also grows from rhizomes lying in the mud beneath the water of the pond. Its height will be one to two feet above the water, which is less than that of the Arrowhead. It too has arrowhead-shaped leaves with long stems that reach above the water. However, these leaves are much smaller than those of Arrowhead and the blossoms, which cluster in spikes extending above the water, are violet-blue rather than white. Muskrat, deer, and moose browse on the leaves, frogs and some insects lay their eggs on the stems, and insects and fish, and even small aquatic mammals will hide beneath them. Bees and butterflies are attracted to the nectar of the flowers, while later muskrats and ducks feed on the seeds.

All three of these species are emergent aquatic perennials meaning they grow best at the margin of a sunny fresh water pond in water no more than a foot in depth. If you have such a location on your property, why not create your own aquatic garden to attract wildlife of many kinds?

TRAIL'S END

WELCOME SUMMER

Winter is over – I think. At least Squam Lake unfroze about April 23 and the Science Center opened on schedule May 1. As I write this at the beginning of May there is still snow on the ground in some places, but we survived. Nonetheless the winter ravages do bring three things to mind.

On the animal front the winter took a toll – a bobcat, the coyote, a fox, and a skunk all died of old age. All were ambassador animals that educated and entertained young children both on the trail and on field trips. What was distinctive about all of them was they were brought to us for protection as orphans, injured, or in some way impaired for ‘living in the wild.’ That is true of essentially all our animals; we do not capture and sequester animals that would thrive in the wilds of New Hampshire or New England. Our replacement fox, for example is blind; he disguises it, but look carefully next time you are on the trail. Meantime, if anyone knows of a bobcat or a coyote needing a home, let Dave Erler know; he’s already found a new skunk!

Our physical plant was also affected by the over ten feet of snow that fell. Some of you may have noticed that the west wing of the Red Barn (used at one time for summer day camp) near Kirkwood Gardens collapsed under the weight of snow. A large beech tree fell on the fence of the bear exhibit, which prevented it opening on time. The water line to the Schreiber fountain was broken so the latter could not be turned on. And so it goes on. What this reminds us of is the need to be constantly putting funds aside to help maintain our physical plant in tip-top condition. Luckily your Board of Trustees, under Bob Snelling’s leadership, and with tactful prodding from John McRae, took steps a couple of years ago to build up the Capital Reserve Fund and develop a multi-year roster of physical plant maintenance needs so that we do not have to scramble as much when things break down. We are fortunate to have such a dedicated Facilities Director as Jim Eckert; working closely with a diligent and involved Buildings and Grounds Committee chaired by John McRae and members such as George Carr, Helen Mathieson, Carol Thompson, and Bruce Whitmore, and non-trustee Mark Goldstone.

Finally, the advent of spring reinforces the fact that we are a seasonal operation whose outwardly busy time is the May-October period, but we live off the ‘fat’ built up from November through April. As I wrote in my November column, much goes on in the winter to prepare for greeting everyone come May 1. Remember that as you enjoy, with your children and grandchildren, all the wonderful education and entertainment the Science Center has to offer in the summer months. It’s not only at ‘Annual Fund time’ that the Science Center needs your support.

*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.*

DRAGON WATCHING *continued from page 1*

Dragonflies as adults are fascinating to watch and are sometimes called the bird-watchers’ insect! Binoculars do help get a detailed look. Dragonflies can be distinguished from their slimmer, delicate relatives, damselflies, by the fact that dragonflies at rest hold their wings flat out to the side rather than folded together over their backs or slightly spread. In New Hampshire, with 160 different dragonfly species as possibilities, it is wise to become acquainted with some of the more common families. Let’s look at two! The Skimmer Family has numerous local common species, many with colored wing patterns. One member to search for is the Common Whitetail, *Libellula lydia*. Males have a chalky white abdomen and a wide dark band across the middle of their wings. Check for them perched on logs or rocks, basking in the sun. They also defend their breeding territories along ponds by chasing other males or by patrolling their space. A second family to investigate is the Darner Family with long, often colorful, abdomens, mainly clear wings and large eyes. One of the easiest darners to spot is the Common Green Darner, *Anax junius*. The male’s eyes and thorax are bright green in contrast to a blue abdomen topped with a black stripe while females differ in having reddish abdomens and brown eyes. Avid predators, darners will often swarm in large groups over a meadow, sweeping back and forth, maneuvering like acrobats to catch mosquitoes, flies, butterflies and other insects in their bristly legs, bent almost like a basket to help trap prey.

Have you ever seen dragonflies flying in tandem (two attached together)? Yes, you are observing mating behavior! Prior to mating, males transfer sperm to the second segment of their ventral abdomen. When mating, the male attaches the claspers at the end of his abdomen onto the rear of the female’s head, followed by the female bringing her abdomen forward in contact with the male’s second abdominal segment so that sperm can be shifted to the female. The eggs are actually fertilized as they are being laid and you will see some dragonflies dipping their abdomen on the water’s surface as they deposit eggs. Other dragonflies may lay eggs in different locations including on submerged plants or on emergent vegetation. Once hatched, the tiny nymphs begin the predatory life anew.

Even as summer wanes, dragonflies have an “encore” for us! Common Green Darners are one of the dragonfly species that are migratory. On those sunny days with a light northwest wind, these dragonflies start heading south at about the same time as the Broad-winged Hawks and monarch butterflies. Like the monarchs, this generation of dragonflies does not return but will mate and lay eggs in the south and another generation will fly north. Many details of their migration are mysteries still to be solved.

A dragonfly’s world is waiting! Why not invite a child or two to go dragon watching with you? They may wonder whether you are out of touch with the real world but a successful trip starts just outside the door!

Autumn Festival **SATURDAY SEPTEMBER 27**

Make a day of it! Enjoy live animal presentations and crafts for children at this enjoyable family festival. Programs by wildlife author, expert and enthusiast Warner Shedd about myths and misconceptions concerning wild animals. and by New Hampshire wildlife painter, freelance writer and naturalist Rosemary Conroy. Lunch available for purchase. No reservations are required. No charge for members. Non-members: \$13/adults, \$11/seniors (65+), \$9/youth (ages 3-15), 2 and under free.

Autumn Festival is sponsored by Community Guaranty Savings Bank of Plymouth

The Howling Coyote Gift Shop



New inventory this year, including solar-powered robot kits and pure New Hampshire maple syrup and candies

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Online at
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