



FOLLOWING BUMBLEBEES

By Margaret Gillespie, Illustration by Cheryl Johnson



Imagine my surprise when I discovered that bumblebees had nested in a hole at the base of a second story porch right next to my apartment entrance. To be more precise, this meant that they buzzed right past my head as we all retired inside at dusk! It was easy to get used to – after all, bumblebees, ladybird beetles, and butterflies are the insects almost universally liked by humans, and I am a dedicated insect fan. The following year I was disappointed when none took up residence in the same spot, but I soon discovered a more challenging nest location! Eager to get natural fertilizer on my garden, I dug my shovel deep into the compost pile and out came bumblebees! Fortunately this was a very different experience from doing the equivalent to a wasp nest, and the bumblebees settled down quickly once I backed away. What stayed with me was the intense desire to learn more about how bumblebees live and work.

Do bumblebees bumble? “Bumble” describes their somewhat clumsy way of flying or could also come from the humming sound they make. This buzzing noise logically would be from the beating

of their wings, but bumblebees with motionless wings still buzz! Apparently the vibrations from flight muscles in the thorax produce the buzz, and in cool weather, this activity is necessary for warming the bumblebee adequately for flight. Speaking of warmth, bumblebees are covered with soft fluffy pile often in black and yellow warning bands. They win the bee prize for cold weather flight, active at 50 degrees Fahrenheit and have even been recorded flying at 32 degrees. Do you think you could outrun one of these bumbling insects? Try zigzags at 10 miles per hour – the bumblebee will come out the winner!

Take a close look at a bumblebee – they are experts at collecting and transporting nectar and pollen. As a bumblebee visits a flower, its long tongue emerges to sip nectar which is then stored in its honeystomach, a storage compartment in the abdomen. The honeystomach is not part of the digestive system although some nectar can be transferred to give the bumblebee needed energy. Pollen, a source of protein, can be taken directly from the flower or groomed from the insect’s fuzzy body after a flower dusting. In either case, pollen is packed into a “pollen basket,” officially called the corbicula. This structure is a concave shiny surface on each rear leg which will be yellow and bulging when full of pollen. Want to tell a male from a female bumblebee? The easiest way is to check for a pollen basket – only the queen and female workers have them.

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FORGING TRAILS

BLUE HERON PRESCHOOL

The Science Center is opening a Nature Preschool in September 2010. The Blue Heron Preschool – a nature-based Montessori early learning center – will provide nature exploration and education using Montessori methods for young children of the Lakes Region in order to increase early environmental awareness and appreciation. This will be the first Montessori Nature Preschool in northern New England.

We have enlisted the assistance of Laura Mammarelli, who has been a Montessori school teacher for 15 years and will serve as our school Director. The school will be located in the classrooms of the lower level of the Trailhead Gallery.

The school is a realization of a specific goal identified in our *Forging New Trails* strategic plan “. . . to provide early childhood education and explore and develop new initiatives to extend that commitment to encompass even younger children. To that end, we will evaluate the feasibility of establishing a Nature Preschool, by ourselves or with a partner organization . . .”

Current literature (Richard Louv’s *Last Child in the Woods*, David Sobel’s *Beyond Ecophobia*, Robert Michael Pyle’s *The Thunder Tree*) supports a thesis that children today are growing into environmentally illiterate adults because of nature deprivation. Children are simply not spending time outside

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FORGING TRAILS continued from page 1

exploring, playing, and investigating. In the recently published report *Children's Nature Deficit: What We Know – and Don't Know* Cheryl Charles and Richard Louv highlighted recent studies that support the importance of early exposure to natural science education.

Forty years ago in her book *The Sense of Wonder*, Rachel Carson wrote: "I sincerely believe that for the child, and for the parent seeking to guide him, it is not half so important to know as to feel. If facts are the seeds that later produce knowledge and wisdom, then the emotions and the impressions of the senses are the fertile soil in which the seeds must grow. The years of early childhood are the time to prepare the soil." . . . "It is more important to pave the way for the child to want to know than to put him on a diet of facts he is not ready to assimilate."

Carson's belief has recently been embraced by the Environmental Education field which has long touted the model of establishing awareness and knowledge which then leads to action and change. Indicators are now that knowledge is not the key to caring for the world around us or establishing a conservation ethic but rather frequent, unstructured outdoor explorations where joy and discovery lead to memorable experiences. This new model is further supported by evidence suggesting that when these experiences occur in the company of a supportive, caring mentor the results are magnified. Blue Heron Preschool will provide the framework in which children receive the basics of early literacy and mathematics preparation all the while immersed daily in the natural world around them with the nurturing presence of experienced teachers and naturalists.

The Science Center is uniquely positioned to combine early learning and natural science-based outdoor experiences in innovative and life changing ways. We are starting out small; a pilot project, but our hope is that the Preschool will grow and expand into a permanent part of what we do and will serve as a model for early learning centers.

For more information about the Blue Heron Preschool, contact Education Program Director Amy Yeakel at 968-7194 x14 or amy.yeakel@nhnature.org or visit the Preschool page on our website.

Forging Trails is written by Executive Director Iain MacLeod.

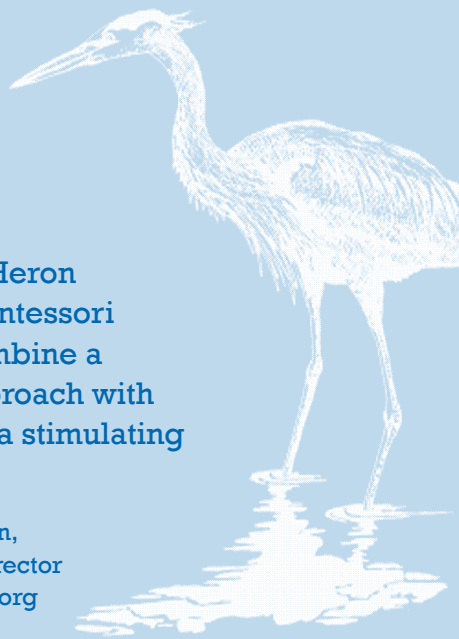
You may contact Iain at 603-968-7194 x 23 or iain.macleod@nhnature.org.

BLUE HERON PRESCHOOL

NOW ACCEPTING APPLICATIONS

Opening in September, Blue Heron Preschool, a nature-based Montessori early learning center, will combine a child-focused Montessori approach with daily outdoor experiences in a stimulating learning atmosphere.

For an application or more information, please contact Education Program Director Amy Yeakel at amy.yeakel@nhnature.org or 603-968-7194 x 14.



SQUAM LAKES NATURAL SCIENCE CENTER

PO Box 173, Holderness, NH 03245
Phone 603-968-7194 Fax 603-968-2229
e-mail: info@nhnature.org
web site: www.nhnature.org

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

Tracks & Trails is a regular publication of Squam Lakes Natural Science Center distributed to all members. Comments are welcomed by newsletter editor Janet Robertson at 603-968-7194 x 12 or janet.robertson@nhnature.org.

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TRUSTEE PROFILE

JOHN FERNANDES



Tell us about your background, hobbies, and interests.

The first half of my career I taught in a large high school in the Greater Boston area. I got into research on language acquisition for profoundly hearing impaired adolescents and computer-assisted instruction as a professional interest, which led to a sabbatical at Boston University where I did research in the teaching of writing and computer-assisted writing instruction for college freshmen. Later, I began my second career in grants and development and developed a prototype office dedicated to bringing grant revenue and other resources to my school district. Eventually, I became a board member of the Association of Fundraising Professionals (Boston Chapter) and a presenter on grants for public education for the Massachusetts Association of School Superintendents. Since retiring, I've been consulting in this area for nonprofits and schools.

For a number of summers, I worked in day camping, starting as a counselor and eventually becoming camp director. There were several of us in camping who wanted to see more environmentally sensitive programming, so we formed the Massachusetts Camp Directors Association as a vehicle for sharing ways camps could encourage their campers to learn about the natural environment through adventures in our woods and fields.

Some of our favorite times are when we bring our five grandchildren to the Science Center. They absolutely love it! My wife, Fran, and I enjoy tennis here and in Arizona where we vacation each spring.

While there, we hike into the desert as often as possible. We also belong to the Silver Streaks senior ski club at Waterville Valley and are avid skiers, both alpine and Nordic. Our home is on the south shore of Little Squam, from which I launch my boat to go in search of salmon, bass, and trout. We started kayaking last year and look forward to doing more on Squam and nearby ponds this year.

What inspired you to become more involved at the Science Center?

We have been vacationing on the Squam Lakes since the late 70s but only moved here full time after we retired in 2003. Once we saw what the Science Center was doing, there was no question about becoming members and active supporters. That transitioned into getting involved in ways we thought would best use our skills. My background was a natural for fundraising and educational programming. Fran's education and interest in science led her to volunteer for the lake ecology program.

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

I think we have the elements in place to ensure the future success of the Science Center: a dynamic executive, an outstanding staff, a dedicated board, and, most of all, a membership of people who truly understand and support our mission. In my role as a member of the Board's Development Committee, I have had the pleasure of calling donors to thank them for their contributions to the Annual Fund. During the conversation, I usually ask for comments on what they like about the Science Center and what could be better.

Almost universally, the response is "you are doing a great job, we love it and our children and grandchildren love it." This is both encouraging and also a reminder that we have to continue to improve what we do through fresh programming, exhibits, and outreach in order to merit such responses in the years ahead.

Do you have a favorite childhood memory that involves nature? Why do you think it's important for children to have a strong connection to nature?

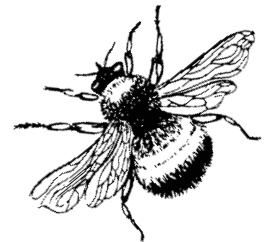
Although I grew up in a city neighborhood, I was fortunate to have a variety of wonderful encounters with the natural world through the Boy Scouts and summer vacations in farm country. I remember that every day in the woods or fields was marked by a "discovery." Turning over a rock to see what was living underneath or caring for the barnyard animals always resulted in seeing something that I hadn't noticed before. It was an exciting time and place.

The quality of my life would be diminished if I had not been given the chance to play and grow in the natural world as a youngster. Every child should have a chance to spend some time at the Science Center. A visit to the Science Center or participation in one of our programs can provide an awakening experience that will enable a child to grow in appreciation of the beauty of nature—and the lifelong pleasures it will produce.

John Fernandes has served on the Board of Trustees since 2006 and will become Chairman of the Development Committee in August. John is also on the Board of the Squam Lakes Association.

BUMBLEBEE QUIZ

1. You see a bumblebee with pollen baskets on its hind legs. Is this a male or a female bumblebee?
2. Which of these bumblebees can sting?
 - A. Queen
 - B. Female worker
 - C. Male
 - D. Both A and B
3. True or False? Both honeybee and bumblebee colonies overwinter in their nests.
4. What two adaptations do bumblebees have for functioning at low temperatures?
5. What special place can you visit at the Science Center to see bumblebees and their relatives at work?



1. Female
 2. D
 3. False
 4. Fuzzy pile insulates their bodies. Bumblebees can warm themselves by vibrating their flight muscles
 5. Kirkwood Gardens



NATURAL ADVENTURES



MINDS IN MOTION SERIES

Wednesdays: June 2, July 7, Aug. 4, Sept. 1

9:30 - 10:30 a.m. ■ Age 3 and under

The mind and body of a young child are constantly on the move. Foster your child's "natural curiosity" and explore motion from an animal's perspective – jump like a frog, swim like a fish, crawl like a caterpillar, and fly like a bird. Shared experiences you have with your child will build foundations for a lifetime.

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

BIRD ID SERIES

BOREAL FOREST BIRDS

Sunday, June 27

7 a.m. - 5 p.m. ■ Age 16 and up

Join Iain MacLeod for an in-depth workshop focusing on the boreal birds of northern New Hampshire's forests. We will meet at the Science Center and travel (by van) to Trudeau Road in Twin Mountain, Pondicherry Wildlife Refuge in Whitefield/Jefferson, and perhaps Cannon Mountain in search of spruce and fir specialties such as Black-backed Woodpeckers, Boreal Chickadee, Yellow-bellied Flycatcher, and northern forest-dwelling warblers.

Cost: \$30/member; \$40/non-member

SHOREBIRDS

Sunday, August 29

7 a.m. - 5 p.m. ■ Age 16 and up

This birding trip will focus on the dozens of species of sandpipers and plovers that pass through New England's coastal habitats on their southbound migration. The group will meet at the Science Center and travel (by van) to New Hampshire's seacoast and Massachusetts's Plum Island for a spectacular show that 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: \$30/member; \$40/non-member

RAPTOR MIGRATION

Saturday, September 11

7 a.m. - 5 p.m. ■ Age 16 and up

Every fall, thousands of migrating raptors – hawks, eagles, ospreys, falcons, and harriers – fly from their nesting areas in northern North America to their wintering ranges in the southern U.S. and Central and South America. Meet at the Science Center and travel together (by van) to the Pack Monadnock Raptor Migration Observatory in Peterborough where Iain will use in-the-field techniques to demonstrate the finer points of identifying raptors up-close and afar. Iain will also explain the dynamics of migration. Mid-September is the peak time for viewing groups of hundreds of Broad-winged Hawks on their way south, so if the winds are right, we could be in for a show. This is also when Ospreys, Bald Eagles, American Kestrels, Sharp-shinned Hawks, Cooper's Hawks, and Northern Harriers are on the move.

Cost: \$30/member; \$40/non-member

GARDEN PROGRAMS

GARDEN YOGA

Thursdays, July 8–August 12

5:30 - 6:30 p.m.

Enjoy a Thursday evening yoga session in Kirkwood Gardens and relax and unwind from a busy day while strengthening your body, mind, and spirit. The class is open to all levels, welcoming both beginners and seasoned yogis. Learn sun salutations, warrior poses, balance poses as well as restorative poses and meditation. Bring a mat or large towel and water. Rain or Shine!

Cost: \$48/member; \$60/non-member or each session \$12/person

HOW TO GROW YOUR OWN ORGANIC VEGETABLES

Saturday, July 10

9:30–11:30 a.m. ■ Adults

Our grandparents raised their food organically and so can we. Join University of New Hampshire Cooperative Extension Master Gardener Janet Towse to learn how to get started with an organic vegetable garden. Learn about soil, pests, fertilizer, and crop requirements so you can grow the best tasting vegetables you've ever eaten.

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

TOUR OF FOUR SANDWICH AREA GARDENS

Saturday, July 31

Adults ■ 9 a.m.–2 p.m.

Tour four very different gardens in Sandwich, at your own pace, in order of your own choosing: A Great Garden in a Small Package, Classic New England Garden, A Garden with Green Power, and Peaceful Garden. A full description is available at www.nhnature.org. Directions will be provided upon registration. Rain or Shine

Cost: \$20/person

EVALUATING YOUR GARDEN: TAKING STOCK, TAKING ACTION

Thursday, August 5

10 a.m.–12 p.m. ■ Adults

Join garden designer Doug Gagne, APLD ~ Professional Landscape Designer, of The Mixed Border Nursery and Gardens in Hollis, NH, for an informative outdoor session on garden design and redesign. Participants will learn how to evaluate an existing garden and make it more attractive through the seasons while requiring less maintenance. All gardeners are welcome, although this workshop is targeted at experienced gardeners. Bring photos of your garden, if you'd like, especially if weather is inclement.

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

Sponsored by Belknap Landscape Company, Gilford, NH

www.belknaplandscape.com

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



NATURAL ADVENTURES



COLDWATER FISHERIES MANAGEMENT IN N.H.'S LARGE LAKES

Tuesday, June 1
7 p.m. ■ Adults

Join us for a presentation on landlocked salmon, rainbow trout, and lake trout fisheries management by NH Fish and Game Fisheries Biologist, John Viar. Stocking strategies, historical perspectives, and the key role of forage fish will be discussed.

Cost: free

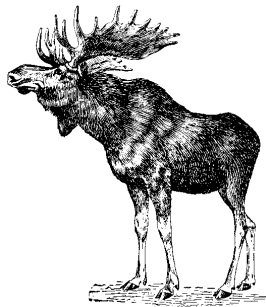
ANNUAL BREEDING BIRD CENSUS

Saturday, June 5

6 a.m. and 8 a.m. ■ Age 10 and up

The Science Center's annual breeding bird population census has been a tradition for over 30 years. Join Senior Naturalist Dave Erler and learn to identify some of the area's resident birds. Early risers meet us at 6 a.m. to help scan the skies or join us at 8 a.m. to complete the census.

Cost: free/member; \$4/non-member



NORTH COUNTRY MOOSE AND BEAR EXCURSION

Saturdays, June 5, 12, 19, 26
6-10:30 p.m. ■ Age 10 and up

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

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

STORYWALK™ KICKOFF

July 1

10 a.m.-12 p.m. ■ Families

Join us to kickoff the start of the StoryWalk™ with a program featuring live bats and fun for the whole family.

Cost: free



COYOTE CAPERS

Saturday, July 10

1-2:30 p.m.

Families, age 6 and up

Are "wily coyotes" really that clever? Why do they howl and where do they live? The eastern coyote is a relative newcomer to New Hampshire and so we will delve into some of the mysteries about them. Join us to learn about coyotes with plenty of activities, story-telling, and a visit with our two-year old coyote.

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

ABSOLUTELY, POSITIVELY WILD ABOUT MUD!

Tuesday, July 13, 9:30 a.m.-12 p.m.

Tuesday, August 3, 12-2:30 p.m.

Age 7-10

Come along on a mud trek as we investigate what mud is made of and experience its soft texture as we search for the creatures that live in it. We'll conduct interesting and fun mud experiments along the way, culminating in each participant creating and painting their own mud t-shirt. Join naturalist Eric D'Aleo for a muddy morning of excitement, discovery, and fun.

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

EVENING BAT VIEWING

Thursday, July 15

7-9 p.m. ■ Age 8 and up

This evening features an introduction to bat biology, an update on the status of bat populations, a chance to meet a live bat up close, and culminates in viewing the evening departure of the resident bats roosting in the Science Center's bat houses.

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

OVER AND UNDER

Wednesday, July 21, 1-2:30 p.m.

Wednesday, August 11, 1-2:30 p.m.

Families, Age 4 and up

There are so many interesting critters that we walk by and overlook every day. Come to the Science Center for this fun-filled program in which we will roll over logs, push back grass, and dip in to the water to search for the creatures that are just out of our usual line of sight.

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

BUSY BEAVERS

Saturday, July 24

1-2:30 p.m. ■ Families, Age 5 and up

We will all be "busy as beavers" discovering the special lives of these rodents through activities, story-telling, a craft, and of course, visiting with a live beaver! What do beavers do in summer and what do they eat? How can they stay underwater so long and where are the secret entrances to their homes? Let's explore how beavers design parts of their own habitat!

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

PONDS AND PUDDLES

Thursday, July 29, 10 a.m.-12 p.m.

Tuesday, August 10, 2-4 p.m.

Families, Age 4 and up

The lakes, ponds, streams and even puddles that surround us are teeming with many forms of life. Join us to explore and learn as we venture to our ponds to meet creatures big and small!

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

LET'S GO FISHING

Saturday, August 7

1-4 p.m. ■ Age 10-12

Are you headed to the lake this weekend and looking for a fun family activity? Why not grab a fishing pole, get some worms, and go fishing? If you don't know where to go, what equipment you need, or how to fish - the Let's Go Fishing Program, part of the New Hampshire Fish & Game Department's Aquatic Resources Education, is here to help. Join us as to learn the basic skills and equipment you need and the resources available to you on your journey to becoming an angler. Once you know the basics you'll get the chance to put your new skills to the test; we'll head out to a local pond and do some fishing! All equipment and materials are provided.

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



SUMMER WILDFLOWER WALK

Wednesday, August 18

10 a.m.-12 p.m. ■ Age 8 and up

August marks the transition between the mid summer and early autumn blooming plants. Find out how these plants got their names and how they're used by wildlife and humans. This walk is an easy stroll along the Center's trails winding through meadow and adjacent woodlands.

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



NATURE TOURS



LED BY IAIN MACLEOD

NORTH COUNTRY WEEKEND AT THE BALSAMS

July 17 and 18

Join Iain MacLeod for a weekend in the Great North Woods. The trip includes a 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 the Black-backed Woodpecker. Of course, there are also delightful meals at the Balsams Grant Resort. View an illustrated itinerary at www.nhnature.org/nature_tours.



Cost: \$550 per person (includes van transportation, pontoon boat ticket, lunch on Saturday and Sunday, Saturday dinner, Sunday breakfast, overnight accommodations, and leader fees). Does not include purchase of alcohol with meals or hotel gratuities.

NEWFOUNDLAND ADVENTURE

August 1 - 8

Executive Director Iain MacLeod will lead an exploration of Newfoundland and Southern Labrador. Experience the world's largest gathering of humpback whales, a fabulous diversity of marine wildlife, and giant landscapes. Wildlife highlights include murrets, puffins, razorbills, gannets, eagles, moose, and caribou. Guests will also enjoy eastern Newfoundland's museums, lighthouses, trails, wildflowers, songbirds, flavors, and local folks.



Cost: Iain is still working out final details, but expects the trip to be close to \$3,100 per person (not including flight to St John's). Price does not include evening meals.

All tours require a minimum of six participants and the maximum group size is 10. For details on any of these tours, contact Iain at 603-968-7194 x 23 or iain.macleod@nhnature.org.

SCIENCE CENTER LAKE CRUISES

EXPLORE SQUAM

May 22–June 30 ■ Daily at 1 p.m.
July 1–October 17
Daily at 11 a.m., 1 p.m., and 3 p.m.

EAGLE CRUISE

June 8–June 29 ■ Tuesdays at 3 p.m.

LOON CRUISE

June 18–August 20 ■ Fridays at 3 p.m.

NATURE OF THE LAKES

July 1–October 14
Tuesdays, Wednesdays,
and Thursdays at 4 p.m.

Reserve our canopied pontoon boats for your Church Island wedding, or charter a private cruise.

Contact
Operations Manager
Tom Klein
at 603-968-7194 x10 or
tom.klein@nhnature.org
for reservations.

WISH LIST

- Lockable file cabinet
- Electric tea kettle
- Grind and brew coffee maker
- Plastic 6 or 8-foot folding tables
- Electrical outlet and wall plate insulators
- Food processor for animal care
- Little Tyke or Playskool plastic toys for animal care
- Answering machine for staff residence
- New (energy star) refrigerator
- Used or new garden-related "treasures" for Kirkwood Gardens Day

SUSTAINABLE LIVING SERIES

NET ZERO HOUSE TOUR

Tuesday, July 6, 5 - 6:30 p.m.

As an optional introduction to the 7 p.m. presentation (below), Holderness home owner Jane Bindley has graciously opened her net zero energy home for a tour. Her home was renovated to attain a challenging objective – all energy consumed for heating, hot water, and electricity over a full year will be less than the energy generated by the home's solar electric and solar thermal systems. Very few net zero energy homes have been built and renovations to existing homes to make them net zero are rare. To see more about the Bindley home, visit www.garlandmill.com/holderness.htm

REMODELING YOUR HOME WITH SUSTAINABILITY IN MIND

Tuesday, July 6, 7 p.m.

Join Robert Tortorice, Building Performance Institute-certified, Certified Green Building Professional (and soon certified Home Energy Rating System rater) to learn how green home remodeling can also be a smart financial investment. Bob has over 30 years experience in residential and commercial construction. Find out about cost saving measures, federal tax credits, and utility rebate programs.

MASONRY HEATERS

Tuesday, July 20, 7 p.m.

Chris Springer of Iron Hammer Stoneworks in Danbury, NH will discuss the centuries old heating technology of masonry heaters. Commonly used in Europe, these heaters are very efficient and clean burning. Learn about the history, operation, benefits, types, and finishing options for masonry heaters.

SOLAR ENERGY – WHY NOW IS THE RIGHT TIME

Tuesday, August 3, 7 p.m.

James Gamble, owner of GreenSource Energy Solutions, will provide an introduction about how to harness solar energy to make electricity and hot water. The discussion will include an overview of the latest solar technologies, applicability of solar in New Hampshire, typical costs, financial incentives, and local examples.

This series is co-sponsored by New Hampshire Sustainable Energy Association



INTRODUCTION TO PERMACULTURE – A FRAMEWORK FOR GREATER FOOD AND ENERGY SECURITY

Tuesday, August 17, 7 p.m.

What is permaculture and why is it important to you? What could it mean for your property and community? How does it differ from other approaches to sustainability? This session is especially useful for homeowners, community organizers, design professionals, farmers, and gardeners. If you are working toward a sustainable future and want practical tools and applicable methodologies, then this session with Steve Whitman, Plymouth State University geography professor and senior planner with Jeffrey H. Taylor and Associates, is for you!

Cost: all the programs in this series are free, but please call to reserve your space. 603-968-7194

BOTANY AND CONSERVATION WORKSHOPS

FRAMEWORK TREES OF NEW ENGLAND

Wednesday, July 7, 6–8:30 p.m.

Sunday, July 11, 9 a.m.–3:30 p.m.

Saturday, July 17, 9 a.m.–3:30 p.m.

Adults

Join Chris Mattrick, Forest Botanist, White Mountain National Forest, for this three-part survey course. Trees are the dominant plant of New England, with forests covering most of the land area. We will address identification and natural history of individual species as well as forest ecology. Since understanding today's forests requires familiarity with their history, we will review the changing landscape from the Ice Age through European settlement. Participants will learn to identify native New England trees and their habitats, to recognize different aged stands (pioneer, second growth), and will become familiar with forest communities of the northeastern temperate region. We'll also consider how natural conditions and human disturbance factors affect forests. We will take field trips to see a variety of forest types.

Cost: \$176/member; \$204/non-member

NATIVE NEW ENGLAND SHRUBS

Wednesday, September 8, 6 - 9 p.m.

Sunday, September 12, 9 a.m. - 1:30 p.m.

Saturday, September 18, 9 a.m. - 1:30 p.m.

Wednesday, September 22, 6 - 9 p.m.

Adults

New England shrubs display a wide variation in size, shape, color, and characteristics of their bark, flowers, and fruits. This course taught by Chris Mattrick, Forest Botanist, White Mountain National Forest, introduces students to about 50 species growing in this region and will emphasize identification. Participants will also become familiar with family characteristics and historic uses through off-site field trips.

Cost: \$195/member; \$225/non-member

This series is co-sponsored by New England Wild Flower Society



SPECIAL EVENTS

KIRKWOOD GARDENS DAY

**Saturday
June 12, 2010**

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

**Gain inspiration
from Kirkwood Gardens and find
beautiful additions for your own**

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

**TO BENEFIT
THE KIRKWOOD GARDENS
established 1995**

Generously sponsored by:



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25 Country Club Road, Unit 302
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STORYWALK™

StoryWalk™ is an initiative combining a children's story with walking, was developed in 2007 by Anne Ferguson, in collaboration with the Vermont Bicycle & Pedestrian Coalition and the Kellogg-Hubbard Library. Ferguson conceived StoryWalk™ to inspire parents, teachers, and caregivers to take young children outside while encouraging reading and healthy outdoor activity. We are pleased to present a StoryWalk™ from July 1 through August 31 in partnership with Holderness Library and Holderness Recreation Department. Join us for two wonderful stories this summer – *Bat Loves the Night* in July and *Nuts to You* in August. Both storybooks will be for sale in the Howling Coyote Gift Shop. StoryWalk™ will be located behind the NH Fish & Game parking lot. There is no charge to visit StoryWalk™, which is generously sponsored by Innisfree Bookstores and Meredith Village Savings Bank. StoryWalk™ will kick off on July 1 at 10 a.m. with a program featuring live bats and activities for the whole family.

COME PLAY THE WILD ANIMAL WAY! Animal Enrichment Day

Wednesday, July 14 • 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. Live animal presentations and demonstrations will be held throughout the day. And, don't miss the special sale of art created by some resident animals. Sponsored by Tootsie Roll Company.

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

AUTUMN FESTIVAL Saturday, September 25

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

Enjoy live animal presentations and crafts for children at this enjoyable, family festival. Kids of all ages will enjoy the program **"By Wings and Fins and Padded Feet"** by award-winning author, storyteller, musician, and educator Michael Caduto (www.p-e-a-c-e.net). Michael will sign his books following the program. Volunteer docents will be on hand with live animals and demonstrations. Lunch available for purchase from Longhaul Farm.
**Cost: free/member; \$13/adults, \$9/youth,
age 2 and under free/non-member**

Autumn Festival
is sponsored by



Community Guaranty
Savings Bank

2010 ANNUAL MEETING AND SUMMER GALA DINNER

Celebrate the wonders of the natural world at **Wild Encounters** – this year's Annual Meeting and Summer Gala Dinner on Saturday, August 14, 2010.

The evening will begin with a quick Annual Meeting to elect Officers and Trustees, recognize employee service, and honor retiring board members. Next will be a series of close up encounters with Science Center ambassador animals accompanied by staff naturalists, followed by a natural history contest with prizes. Cash bar and hors d'oeuvres, piano tunes by David Conner, and dinner by the Common Man Family wrap up the event. Proceeds will support the Science Center's education programs. Watch for your invitation in July.

OFFICER AND TRUSTEE ELECTION SLATE

- The Board of Trustees is pleased to announce the slate of Officers nominated to serve a one-year term, commencing with election.

Chairman - Laurie Beeson, Holderness

Vice Chairman - Nancy Beck, Holderness

Treasurer - Bruce Whitmore, Holderness

Secretary - John Fernandes, Ashland

- The Board of Trustees is pleased to announce the slate of trustees for re-election to serve a three-year term, commencing with election.

Nancy Beck, Holderness

Laurie Beeson, Holderness

Andrea Eaton, Ashland

Alan English, Holderness and Summit, NJ

John Fernandes, Ashland

- The Board of Trustees is pleased to announce a slate of three new candidates for trustees nominated to serve a three-year term, commencing with election.

Margaret Mathieson Conner, CPA

Peggy has spent more than 30 years in the financial and institutional management field; the last 20 in independent primary, secondary, and post secondary education. She graduated from Bucknell University in Lewisburg, PA with a B.S.B.A. in Accounting & Management and was certified in the Commonwealth of PA



shortly thereafter. Peggy retired in 2009 from Chestnut Hill Academy in Philadelphia, a private boy's school with a \$12 million budget and \$33 million endowment. As Business Manager and Assistant Treasurer, Peggy managed all financial operations of the school as well as the construction and renovation of almost all of the buildings on campus, culminating with the design and construction of a LEED-certified Science & Technology building. She also oversaw the replacement of all administrative computer systems, investment advisory services, negotiated contracts for food services, cleaning services, and business and employees insurances. Peggy developed short and long term financial plans and models and participated in several strategic planning processes as well. Peggy's has volunteered as a Director for the Philadelphia Area Independent School Business Office Association, a member of the Bucknell University's National Alumnae Association board, and Ellis School Alumnae Advisor and Class Gift Chair. She is also a current trustee of the school and serves on the session of her church. Peggy and her husband David and daughter CC reside in Flourtown, PA and summers in Holderness with her mother, Helen Mathieson.

David F. Martin

Dave and his wife Joan purchased a cottage on Squam in 1984 after renting on various lakes in the region for the previous 15 years. In 2008 they completed construction of a more permanent home where they spend six months each year. Dave retired from KPMG in 2008 after a 39 year career with the firm. During his years as a partner with KPMG he



served a wide variety of public companies in four offices: Philadelphia, New York, Pittsburgh, and Minneapolis. He was a Professional Accounting Fellow at the Securities and Exchange Commission for two years in the early 1980s. During the last three years with KPMG, Dave was assigned to the Executive Office in New York where he led a team that analyzed enterprise risk and corporate governance matters. Over the years, Dave has volunteered and/or been elected to boards of a variety of not for profit institutions including libraries, churches, and civic organizations. Most recently he chaired the audit committee of the board of the Pennsylvania Economy League. During the summer of 2009 Dave became a Tour Boat Captain for the Science Center and joined the Finance Committee and the Governance Committee as a

Continued on page 10

ANNUAL MEETING

continued from page 9

non board member. Dave and Joan were born and raised in Swarthmore, PA and while they have moved several times they returned to the Philadelphia suburbs after various work assignments and consider the Philadelphia area to be home. They have two married sons living in the Philadelphia suburbs who have enjoyed Squam since they were very young and now are introducing their families to the wonders of Squam. Dave graduated from Lehigh University where he earned a B.S. in Accounting.

Susan McKimens

Susan was born and raised in San Francisco. She graduated from Marymount University, in Arlington, Virginia with



a B.S. in Business. Susan began her career in Washington, D.C. as an administrator of an apprenticeship program at the Printing Industry of Washington and co-managed an aviation insurance agency with her husband. Later, she moved to the Mt. Washington Valley in New Hampshire where she was Assistant Director of the Mt. Washington Valley Chamber of Commerce. She returned to D.C. in the 1980s and began an almost 20-year career in telecommunications during the deregulation of the telephone industry and computer explosion. She worked as project manager on a variety of federal contracts, which included upgrading and installing computer systems in the House and Senate offices and the U.S. Capitol building, installing new networks systems in the Defense Finance offices at military bases around the world, and installing call centers for the U.S. Postal Service. Susan also managed contracts for hiring and managing large staffs from implementation. In 1999, she retired to North Carolina from a career in business management with Litton/PRC in Washington, D.C. Susan relocated to Ashland in 2006. She enjoys travel, sailing, golf, and tennis. She has been involved in many volunteer activities, most recently as a mentor for the Circle Program, serving on the board of her condominium's POA, and as a docent for the Science Center.

BUMBLEBEES

continued from page 1

What are some tricks of the bumblebees' trade? Sometimes pollen is difficult to extract from plants like tomatoes and blueberries, but bumblebees are experts with a technique known as "buzz pollination" or sonication. By vibrating their flight muscles while holding onto the flower (and thus making a really loud buzz), bumblebees shake the flowers enough to release pollen. Bumblebees also scent mark flowers so they can tell which ones have been recently foraged. Some plants like lady's slippers depend upon bumblebees for pollination – these heavy, powerful insects may be the only ones strong enough to enter their flowers. Another way that bumblebees benefit flowers results from an electrostatic charge that builds up in a flying bumblebee. When the insect lands on a flower, pollen is attracted from the grounded flower to its fuzzy body. At the next flower, the pollen carried by the bumblebee is still charged and transfers to the most grounded part of the flower – yes, the stigma. Pollination happens!

As I write this article in early spring, queen bumblebees are searching for nesting sites. I hope one settles in an old rodent nest or hole or perhaps in

a grassy mound close to where I live so that I can keep track of the colony's progress. Once situated, the queen will forage for nectar and pollen and then begin to lay eggs. These fertilized eggs develop into female workers which take over housekeeping and foraging duties. By mid-summer the colony will be at its height which may be only 50 bees. As summer wanes, the colony enters its final stage when the queen lays unfertilized eggs that develop into males. She also lays fertilized eggs that receive extra food and care, resulting in new queens. Males soon leave the colony and find shelter at night in and under flowers. Look for their dew-covered, lethargic bodies in the early morning! By scent marking certain

areas, males attract the new queens. Once mated, males die while queens search for hibernating spots. These new queens are the only ones to survive the winter. Next spring they will be ready to start their own colonies.

Would you like to follow a bumblebee? First, listen for the buzz which leads you to a busy bumblebee on a flower. Is she carrying pollen? What kind of flowers does she prefer? How is she collecting the nectar and pollen? Are you getting too close? She may raise her central leg in your direction to let you know you are in her space. Then, zoom, off she buzzes, leaving you with the gift of having shared a few moments in the life of a bumblebee.

**THANKS
TO ELLEN AND
MELVIN GORDON
FOR FUNDING
THE RECENT
RENOVATIONS
AT THE GORDON
CHILDREN'S CENTER**



NEWSBRIEFS

- ◆ Longtime member, volunteer, and supporter **Ellen Bennett**, 80, passed away in April at her home "Overlook Farm" in Center Harbor, after a battle with cancer. Ellen was a strong supporter of Kirkwood Gardens, in particular, and devoted many volunteer hours there. Ellen's photo here shows her as fellow garden volunteers honored her in November to mark her 80th birthday, following the annual fall work day to put the gardens to bed for the winter.



- ◆ The 2010 New Hampshire Environmental Educators Conference was held here on March 10. Over 70 educators from across New Hampshire attended sessions on collaborative partnerships, community gardening, and students as scientists. The theme was "Locally Grown Learning: Education Using Your Community Resources" with Dr. Libby McCann of the Department of Environmental Studies, Antioch New England as keynote speaker. The conference included dinner sponsored by Uncommon Catering and ended with night excursions, including an owl prowl led by **Iain MacLeod**.
- ◆ In April, Animal Caretaker **Lauren Moulis** attended the Animal Behavior Management Alliance conference held in Pittsburgh, PA. In addition to workshops and presentations ranging from aggression management to training raptors using positive reinforcement, Lauren visited the Pittsburgh Zoo and PPG Aquarium and the National Aviary. Under the guidance of Ken Ramirez, VP of Animal Collections and Animal Training at Chicago's Shedd Aquarium, and Lee Nesler, Executive Director of the Western PA Humane Society, she visited the Humane Society and helped to train dogs to make them more adoptable.
- ◆ We are pleased to welcome a new Lake Cruise Tour Captain this season. **Bev Lapham** of Meredith will join the returning Lake Cruise staff. We also welcome back all of last year's

Admissions and Howling Coyote Gift Shop, Kirkwood Café, and Finance staff this year.

- ◆ Education Program Interns will soon be here. **Sarah Beebe** hails from the Sunflower State where she attends Kansas State University and will graduate in December with a B.A. in Park Management and Conservation with specializations in Law Enforcement and Interpretation. She has presented interpretive programs for the Sunset Zoo, Topeka Water Festival, and on behalf of the U.S. Fish and Wildlife Service. Other work experiences include serving as a Clerk for the U.S. Fish and Wildlife Service, as a junior zoo keeper and explorer at the Sunset Zoo, and running a pet sitting service. **Dan Kemp** has been associated with the Science Center since 2005 as a volunteer and docent; you might have seen him presenting at the trailside amphitheatre with the Broad-winged Hawk or Peregrine Falcon. Dan has a degree in history from Harvard, served with the U.S. Air Force as a Communications and Electronics Officer, and worked in the private sector as a computer programmer analyst, systems architect, project manager, and senior partner, founder and vice president of several computer and software businesses. Currently Dan is pursuing an M.S. in Environmental Studies at Antioch New England. **Laura Soder** completed her sophomore year at Delaware Valley College in Doylestown, Pennsylvania where she is working towards a B.S. in Conservation and Wildlife Management. Previously she interned at the Nixon County Park Nature Center and has been a teacher's assistant at the Hartford Glenn Environmental Education Center. Other experiences include traveling to Peru with the National Zoo's Eco Explorers, working as a kennel attendant, and coaching a children's soccer team.
- ◆ **Shannon Lowes** is the 2010 Communications Intern. Shannon is a Biomedical Photographic Communications major at the Rochester Institute of Technology, where she will graduate in 2011. Shannon grew up in New Hampshire and wants a career that combines photography and environmental science.

- ◆ Look for a new exhibit this summer focusing on New Hampshire geology and geologic time, which will be located near the Wetlands Walk boardwalk. Large boulders representing New Hampshire's major rock types were gathered from across the state and will be arranged to encourage exploration. Interpretive panels will explain metamorphic, igneous, and sedimentary rock and a "walk through time" will illustrate significant moments in Earth history. This exhibit is funded by a generous gift from trustee **John Gephart** and his wife **Monica Hargraves**, in memory of Monica's father Robert, who was a distinguished geologist. Another component of the new exhibit will be a granite bench recognizing the enormous financial support over many years by the **Edwin S. Webster Foundation**.
- ◆ Squam Lakes Natural Science Center continues to be active in a collaborative partnership, Sea to Lake, Summit to Sky Initiative, with Seacoast Science Center, Mount Washington Observatory, and McAuliffe-Shepard Discovery Center. Funding in support of this distance learning and outreach project is from the New Hampshire Charitable Foundation. This spring, the collaborative prototyped an innovative, framework-aligned science curriculum with seventh graders at Timberlane Middle School. With additional funding, we hope to grow this program state-wide.
- ◆ In March, **Marty and Joyce Briner** of Elkins, NH, made a gift of a truly unique and special collection of hand-carved and painted birds, consisting of 236 pieces. We plan to create a space where the entire collection can be displayed, but for now the carvings are safely stored.
- ◆ Clean Up Day, on April 24, brought together 122 volunteers and staff to prepare the trails and grounds for the season. Jobs included raking trails, cleaning exhibits, staining buildings, and more. Several community groups participated: Beckett House, Rumney; Cub Scout Troop #56, Plymouth and Rumney; Daisy Scouts, Gilford; Junior and Senior Friends Program; NH Hugh

NATURALIST'S CORNER

THE WORLD OF POLLINATORS

By *Beth Moore*

One of my favorite things to do in New Hampshire throughout the year is to go for walks and witness the amazing diversity that surrounds us. One example of this is the variety of flowers that grow throughout the forests, fields, and wetlands. As I stop to appreciate these flowers I can't help but think about the various creatures that helped them bloom. Although some plants are pollinated by wind and other methods, most are pollinated by animals. Research indicates that animals assist in pollination of over eighty percent of wild plants and seventy-five percent of crops. Whether it is by birds, insects, or mammals, many plants are dependent on animals for the transfer of pollen from the stamen (male organ) to the stigma (female organ), which then begins the cycles of fertilization and reproduction.

Specific plants have also evolved flowers that appeal to particular animals. Hummingbirds, for example, are attracted to the color red. Columbine, with its beautiful red flower, not only attracts ruby-throated hummingbirds but also produces carbohydrate-filled nectar deep in the flower, forcing the hummingbird to reach its long proboscis (tongue) down into the plant to access it. During the process, the head of the hummingbird often comes in contact with the pollen, which it then inadvertently deposits on the next flower it visits. Queen Anne's lace, on the other hand, has nectar located where it is easily accessible to animals such as wasps, ants, beetles, and other animals with small proboscises.

Aside from color or location of the nectar, many plants have structures that help in the pollination process. For example, large petals can be used as landing pads by insects. Some flowers use lines or patterns that draw the animal's attention. The snapdragon illustrates this well.

When an insect lands on the lower petal, its weight causes the stamen of the flower to bend down and transfer pollen onto the insect's back. This pollen is later deposited on the stigma of another snapdragon flower. To humans, the common buttercup appears as a uniform yellow color, but to bees the center of the flower appears darker due to the presence of structures that reflect ultraviolet light.

Flowers also use aroma as an attraction. The strong, sweet smell of honeysuckle plants attracts nocturnal moths that detect the scent with their antennae. Large-flowered trillium relies on its rotten smell to attract flies. Skunk cabbage (its blooms are often one of the first signs of spring) also uses a rotting odor to attract some of its pollinators. This plant surprisingly also relies on other insects like bees that are desperately seeking a food source upon their winter awakening.

The flowers on several species of Solomon's seal hang towards the ground so there is less risk of having the pollen washed away by rain. Insects, including certain species of bees, can easily fly low to the ground to gather the nectar, in the process rubbing their heads on the pollen and thus beginning the pollination process. Wild ginger relies on several techniques to assure pollination. This early bloomer attracts flies that seek both food and shelter after the spring thaw. Probably drawn to the flower because its color resembles carrion, the flies eat (and ultimately distribute) the pollen. Its cuplike flower also provides shelter from harsh spring winds and rain.

Different flowers bloom in different seasons, so the results of pollination can be appreciated throughout the year. In early spring watch for skunk cabbage pushing its way up after a spring thaw. By mid May, hobblebush, Canada mayflower, and buttercups start making their appearance. During summer look for black-eyed Susans, forget-me-nots, and clovers, and as fall sets in keep an eye out for turtleheads, asters, and jewelweed. As you appreciate these flowers, remember to also keep an eye out for the pollinators. Their hard work is often responsible for adding a little more color to the world.

NEWSBRIEFS

Continued from page 11

O'Brian Youth Leadership; Plymouth State University Volunteers; and University of Michigan alumni. We thank 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; Shaw's Supermarket, Gilford; Stonyfield Farm Yogurt; Tootsie Roll and several volunteers for in-kind donations to provide lunch.

- ◆ New Hampshire Day on May 1 was generously sponsored by the Dead River Company with additional support from the New Hampshire Electric Co-op Foundation. Representatives from Dead River Company were on hand all day showing an energy efficiency display to over 1,500 visitors on a sunny, but cool day.
- ◆ There will be a series of special days this year, including Mother's, Father's, and Grandparent's Days with discounts, Black Bear Day on May 16 featuring a program by author and bear biologist **Ben Kilham** at 2:00 p.m., Get Outdoors Day on June 12 with

discounted admissions for children, Fisher Day on June 26, and Coyote Day on August 21. Don't forget that five daily Up Close to Animals presentations will resume July 1 through August 31 at the amphitheater; River Otter enrichment is every Monday, Wednesday, and Friday at 11:30 a.m.; and Turtle Talks are every Tuesday in July and August at 10:30 a.m. Visit our website, www.nhnature.org for details.

- ◆ We are partnering with the McAuliffe-Shepard Discovery Center in Concord again this year. Science Center members will enjoy one free visit to

Continued on page 15

GARDENER'S NOTEBOOK



ROSA RUGOSA

By Volunteer Joan Mayerson



Rosa rugosa's common name is wrinkled rose; both refer to the wrinkled appearance of its thick, dark green leaf. It is also known as beach, saltspray, or Japanese rose. This handsome, rugged shrub may grow to six feet if not pruned and is found in Kirkwood Gardens. The bloom, usually pink, is large, and fragrant. The stamens produce a great amount of pollen, which attracts bumblebees as they roll around in the center of the blooms gathering pollen to take back to

their nests. This rose first blooms in May but some varieties bloom repeatedly over the summer. In the wild, *Rosa rugosa* grows well along roadsides and sand dunes in any soil, even the poorest. They don't mind salt or cold New Hampshire winters, which is why they were chosen for our Zone 4 (marginally 5) garden. So, think of them as being "hardy" (a boon to rose-loving gardeners in this area). They can be planted almost anywhere in a garden as long as there is sun and the soil is well-drained.

As with most roses, mildew, rust, or blackspot can be troublesome, so look for varieties that are disease resistant. In Kirkwood Gardens, you will find four resistant cultivars. They are among the original plantings and all have fared well. *Rosa rugosa* 'Alba,' a white variety, forms a hedge in the upper garden. It is a repeat bloomer. *Rosa rugosa* 'Frau Dagmar Hastrop,' in the lower garden, is a low mounded shrub that blooms continuously throughout the season; the bloom is a silver-pink. *Rosa rugosa* 'Henry Hudson,' also in the lower garden, has semi-double white blooms. And *Rosa rugosa* 'Monte Rosa,' in the lower garden, has semi-double reddish-pink blooms with pale green leaves.

If mildew, rust, or blackspot does become a problem, try planting in full sun, in well-drained soil, in a spot where it won't become crowded. Water so leaves will not become wet during sunny, dry periods (either early or late in the day). In the fall, the flowers produce rose hips - large, fleshy, red or orange, cherry tomato-shaped seedpods. These hips, rich in vitamin C, can be used fresh, dried, or preserved as herbal remedies, teas, jams, and jellies. They were a part of the Native American's diet. Animals, birds and rodents love them too! Look on the internet for recipes - there are many.

Rosa rugosa is not native to North America. It originated in East Asia - in Japan, China, and Korea. In 1796 collectors sent the first specimens to Europe, but it was not until the mid 1800s that it became popular as an ornamental garden plant. By the early 1900s *Rosa rugosa* had escaped from coastal gardens and was growing in abundance on the coastal dunes of Europe where, in some countries, it is now listed as invasive; this has yet to happen here in North America.

Unfortunately, as with everything, there are a few drawbacks. The first is suckering, for these roses put out underground stems that pop up here and there to produce new shrubs. You can cut them off with a spade if they're heading in an unwanted direction but if you're like me, you may forget, and next thing you know they are growing in the grass or amidst a favorite groundcover. They also have very prickly stems so you need to wear gloves if you're pruning. And finally, there are Japanese Beetles, which like them just as much as the bumblebees do, but which eat the buds, flowers, and leaves, and then stay around to sleep. The best answer for this is to go out with a small pail of soapy water, preferably early in the day before they start moving around. Catch them unaware and knock them into your pail.

Make a visit to Kirkwood Gardens when the roses are in bloom and look for the bumblebees gathering pollen. Then, in July, come again on a Thursday morning when the garden volunteers are at work - you may see them with their containers of soapy water hunting down those Japanese Beetles!

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

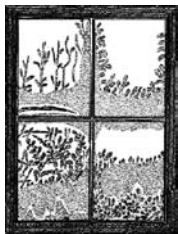
GREEN FACT

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

When you see a lovely green grass lawn, you might not think of air pollution and climate change. But if you use a gas-powered lawn mower maybe you should consider trading it for an electric mower or a reel mower powered by muscle power. According to the Environmental Protection Agency, gas mowers are responsible for nearly five percent of our nation's total air pollution. Over 800 million gallons of gasoline are used mowing lawns every year in the U.S. SafeLawns.org says: "Small gasoline engines, the ones associated with lawn mowers, weed whackers and hedge trimmers, are some of the worst offenders in terms of air pollution and so-called greenhouse gases that warm the atmosphere."

For more information, see:

http://safelawns.org/tips/Grass_off_Gas.pdf
<http://www.epa.gov/otaq/consumer/19-yard.pdf>



OPENING A WINDOW TO THE NATURAL WORLD

WHY SHOULD I PLAN MY ESTATE?

Do you wonder why the Science Center often talks to our members and donors about writing a will? It is because most Americans do not have wills. If you are one of them, here are a few considerations that may encourage you to do some estate planning. The benefits of having a will include:

- You can take care of your family, loved ones, and favorite causes beyond your lifetime.
- You determine what happens to your estate.
- You may avoid estate taxes.
- You gain peace of mind.

An estate plan is simply a list of your assets and a plan for what you want to happen to those assets. Here are some things to take into account when you plan your estate:

- What people are important to you?
- Who depends on you now and will need help in the future?
- What personal items do you especially value?
- What charities and causes are important to you?
- What other assets do you own?
- Who do you want to handle your estate?
- Where do you want to keep your will?
- Where will you leave critical information, such as bank account numbers, passwords, and other details so that a trusted relative or friend can find them?
- What decisions have you made regarding end-of-life care?
- Who do you want to make decisions for you if you are unable to make them yourself?

Those who complete an estate plan often find it to be quicker and easier than they imagined. And those who do include charitable giving in their plans gain a sense of satisfaction and happiness. While no one knows what the future holds, estate planning is one way to create a secure future for you and your loved ones and to leave a lasting legacy. Please consider making a lasting contribution to environmental education by writing a will and remembering Squam Lakes Natural Science Center in it.

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.

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

In memory of Shirley Chick
Nancy and Bill Dailey

In memory of Robert and Madeleine Cloutier
Jill and John Hare

In memory of Cynthia Lathrop
Jeffrey Lathrop
Palmer & Pike Conway Dahl
Insurance Agency

In memory of Elmer M. Morrison
Val and John Scannell

In memory of Brianna Paul
Dave Berman
David Paul
Melinda Paul

In memory of Betty Schoonmaker
Natalie Parsons
Janet and Gary Robertson
Susan and Tom Stepp
Joe Thompson
Bonnie and Bill Webb

*In memory of Greg Smith-
in honor of his 22nd birthday*
Frances Chalmers and Gail Smith

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

TRAIL'S END

NEARER TO NATURE

In my last two columns I have drawn your attention to the work of the staff and the trustee committees, not to mention the invaluable contributions of you, members, donors, and volunteers, in determining “what the Science Center can do better.” Much of this reminds me of the proverbial duck - frantic paddling beneath the surface while all is calm on the surface. You should see tangible evidence of one of the three initiatives I specified in my winter 2009 Trail’s End, a “walk through time,” as you visit the Science Center this summer (at least to judge from the rocks being moved around now!). A second one, the underwater Squam exhibit, is what brought the duck analogy to mind - lots of planning and staff work is taking place, but you won’t see much tangible evidence of progress before the summer of 2011, if then. Did you know how much mess a beaver makes? Can we show one underwater - can you even see one through their clouds and mud?

But, as you can see from Executive Director Iain MacLeod’s column, *Forging Trails*, on page one, we are making real and visible headway on a third front, the nature preschool. As his article on the Blue Heron Preschool points out, we are starting off small (and, we cannot launch it until we have all the state permits - which may even be in hand by the time you read this) and using existing facilities, so can always pull in our horns if need be. BUT, we don’t expect to have to. Thanks to Lead Teacher Laura Mammarelli, Education Program Director Amy Yeakel, Iain, the Education Committee, and many other “champions” for getting this initiative off to such a promising start. The preschool promises to change the Science Center for the better, but at this stage it is still an experiment and the Trustees at this stage are rightly “cautiously optimistic.”

This is my last *Trail’s End* as your Chairman (I think!). By the time you read the next one (the fall 2010 issue of *Track & Trails*) you will have elected a new Chairperson. I have been very lucky in having Iain as the “laboring oar” throughout my three-year term - as indeed have you - he has made my life very easy. My thanks to him, his magnificent staff, the Trustees, the Committees (and their Chairs), and all the myriad of volunteers. One thing that I am particularly proud of is that, starting this year, 2010, the Governance Committee (most ably chaired by Carol Thompson), with the support of the full Board of Trustees, and voted on by you, our members, in 2009, has introduced term limits for Trustees. This means that, since a Trustee must, for the most part, stand down after three three-year terms (for a total of nine years), you will always have fresh blood, not to mention ideas, on your Board of Trustees (currently limited to 24 voting members); it does, of course, mean more work for the Governance Committee!

On a final note, since I am writing this in April, do you realize that the first Earth Day was celebrated on April 22, 1970? By that time the Squam Lakes Natural Science Center (or, Squam Lakes Science Center, as it was then called), had already been in existence for over three years. Ahead of the game as always.

*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.*

NEWSBRIEFS

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the Discovery Center in September. For information about the Discovery Center, visit www.starhop.com or call 603-271-7827. This offer is not valid on special event days and planetarium tickets are not included.

- ◆ **Riley Nolan**, a senior at the University of New Hampshire, is conducting research on cyanobacteria toxins in fish tissue with help from Animal Care staff who collected small samples of the fish fed to our River Otters from fish donated by the Meredith Rotary Great Ice Fishing Derby. Cyanobacteria are frequently present in lake phytoplankton populations where increased nutrient levels may allow

large blooms of cyanobacteria to occur. This is a project by Dr. James Haney and the University of New Hampshire Center for Freshwater Biology.

- ◆ This winter one of our Bald Eagles passed away. She was at least 23 years old, having arrived here as an adult in 1992. A new female Bald Eagle was received in April from the Peace River Wildlife Center in Punta Gorda, Florida. She will be on exhibit this season but since she is an immature (approximately two years old) she does not yet display the typical white head seen in adult Bald Eagles.

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