



WHAT'S IN A NAME?

By Margaret Gillespie, Illustration by Cheryl Johnson

Do you have a favorite nickname? My dad had nicknames for two grandchildren — Queen and Captain — and they cherish these names and the stories behind them. One famous animal with several nicknames resides right here in New England. It even has a distinct day, February 2, named in its honor. Have you guessed we are talking about the groundhog? Or is it really the woodchuck? Let's dig a little deeper into this animal's many aliases.

We'll start with this rodent's scientific name, *Marmota monax*. *Monax* comes from a Native American word meaning "digger." These creatures, with their short, powerful legs, sharp claws and coarse fur, are natural excavators. They can dig about five feet of tunnel in a day! Now let's descend below the earth's surface — into the ground — to investigate one of this creature's most common names, "groundhog." Groundhogs excavate extensive burrow systems, often on the edges of fields — 50 feet horizontally and close to five feet deep with multiple entrances. These diggers use both front and hind legs to remove and shove soil, sometimes pushing earth ahead of them, other times kicking it out behind them. At



Groundhog

least one entrance is graced with a mound of fresh earth. Additional entrances are only camouflaged holes, perfect as escape hatches from predators.

Groundhogs maintain several chambers within the burrow, each with a specific function. One is a nesting chamber lined with leaves, where young groundhogs live. Another is the groundhog version of our environmentally-friendly composting toilets. Waste accumulates until the chamber is deemed full. Then the groundhogs seal it off and dig another one to replace it.

Groundhogs often use a different burrow for winter hibernation — just into the neighboring woods where frost does not freeze the ground as deeply. The hibernating chamber is far down within the system, softened with leaves and dry grasses. Before retiring, groundhogs close the chamber with dirt although there is still some air exchange. Even in deepest winter, you can frequently spy some snow melt over the entrance of an occupied den.

Spotting the groundhogs themselves is more challenging than finding their burrows. Groundhogs, with coats of brown and gray, not only

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FORGING TRAILS

YOU MADE IT A RECORD YEAR ON THE TRAILS

Thanks to your visits, 2013 was a milestone year. Late in October we welcomed the 50,000th trail visitor for the year — the first time in our history we have had that many general trail admissions in a season. That total does not include school students, program attendees, and lake cruise passengers, who accounted for another 33,000.

We are thrilled to share this wonderful place with so many people and are already making plans to attract just as many next year. A new Coyote Exhibit is currently under construction and will officially open in spring 2014 — anyone joining our Wild Winter Walks will get an exciting preview. We have had a coyote as part of our program animal collection for many years, but never on permanent exhibit. Our current program coyote — an adult male — has been with us for five years now. This spring, New Hampshire Fish and Game staff brought us a tiny helpless coyote pup that had been found near its dead mother on a road in Belmont. The little female pup hadn't even opened its eyes when it arrived. So began several

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FORGING TRAILS continued from page 1



weeks of bottle feeding and constant care. State regulations ban the release of an imprinted coyote, so we now had two coyotes . . . what to do?

A particular set of circumstances led us to the conclusion that our adult male coyote would make an excellent exhibit animal – sometimes coyotes and other canids don't exhibit well. He had briefly spent time in our Red Fox Exhibit a couple years ago while the new foxes cleared quarantine. He loved it, as did the visitors who saw him. We also concluded that the new little female would make an excellent program coyote with regular training. A successful program coyote must be

comfortable and relaxed on a leash in multiple audience settings. Although nowhere near to having the trainability of domestic dogs or their proclivity to domesticity, with careful handling, started at an early age, a coyote can become an excellent program ambassador for its species. Many visitors this summer got to see our new youngster "learning her trade."

The new Coyote Exhibit is located across from the amphitheater on a nice wooded site with shade and many boulders. As I write, the foundation for the shift building (sleeping quarters) is complete, the fence posts are in the ground, and the frame of the visitor viewing area is complete. Our hope is that the coyote will be in his new digs by mid-December. He looks forward to seeing you next season.

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

- ◆ Your support helped to fund professional development for many staff members this fall:

Executive Director Iain MacLeod and Education Program Director Amy Yeakel attended the Association of Nature Center Administrators Summit in August, held at the Environmental Nature Center in Newport Beach, California. Summits are structured to bring nature and environmental learning center leaders together for professional networking and training.

Animal Care Associate Aaron Snyder attended the American Association of Zookeepers conference in North Carolina in September. The mission of the American Association of Zoo Keepers is to advance excellence in the animal keeping profession, foster effective communication beneficial to animal care, support deserving conservation projects, and promote the preservation of natural resources and animal life.

Margaret Gillespie attended an interpretative writing workshop, "How to

Create Stories that Make a Difference," held at the Science Center in September. Inspiring teacher Judy Fort Brenneman of Greenfire Creative, LLC, in Fort Collins, Colorado, challenged the group with exercises like "verb volts" and "electric lemons," along with opportunities to write outside comfort zones.

Operations Director Liz Rowe attended a workshop about the Affordable Care Act in September presented by New Hampshire Center for Nonprofits. Liz also attended a meeting of the North Country Human Resource Association about employment law updates.

Lauren Moulis attended the week-long Advancing Bear Care Conference in October in New Jersey. Bear keepers, rehabilitators, and sanctuary workers from over 20 countries attended to share the most recent knowledge in bear care. Topics included general husbandry, training, research findings, and bear health and behavior.

SQUAM LAKES NATURAL SCIENCE CENTER

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

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

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STAFF PROFILE

LAUREN MOULIS



How did I first get involved with Squam Lakes Natural Science Center? My first memories are from a school field trip when I was in second grade. I vividly remember running down the boardwalk so I could be the first one to see the turtles in the pond, but that was far from my first time here. The truth is that this place has been part of me my entire life. Hanging in my locker at work is a photograph of me as a baby strapped to my father's back

at the old Life Underground exhibit. Since my family has a second home in Ashland we would make trips to the Science Center every couple of years to see the animals and watch the naturalists give talks. The moment I decided that one day I wanted to work here was while watching Dave Erler give a talk with a pileated woodpecker. I remember thinking that if one person could be so passionate about a bird that this must be a special place to work.

As I grew up and debated what I wanted to do with my life I forgot about the Center and my dream of working here until I came back to Plymouth for college. I knew I wanted to volunteer my time somewhere, preferably somewhere with animals. At that time my choices were the Humane Society

or here. Not too difficult a choice for me; I knew my will was too weak to not adopt every animal at the Humane Society, so I chose volunteering here. There was no such thing as animal care volunteers at the time but I was assured that eventually there would be. After volunteering for mailings and other small projects for a few months, by February 2005 there was the first training for animal care volunteers. After orientation and testing that occurred then, those that passed were allowed to have the formal hands-on training. I knew at that point I was hooked.

I continued to volunteer in animal care for the next four years of college. When it was time to graduate and move on it was hard to say goodbye. Turned out it wasn't a long goodbye; after a few weeks away I was asked to come back temporarily while another caretaker was on medical leave. I jumped at the chance, leaving a full time job in Maine. During that time there was a big staff changeover and my temporary job turned into full time year round employment. I could not have been more thrilled.

After five years I have watched people come and go, but there is still the kid in me that can't believe that I am working at a facility that has been a part of me for so long. The most surprising thing to me has not been that I learned so much from the amazing animals I worked with because I knew that each animal would change my life for the better, but that the people I work with feel like the family that I came here with many years ago. I am happy to call this place my home away from home.

Animal Care Associate Lauren Moulis received a B.S in Environmental Biology from Plymouth State University.

NEWSBRIEFS continued from page 2

Amy Yeakel, Education Program Director, attended the summit for the NH Environmental Literacy Plan focused on teacher professional development in October. She also attended the New England Environmental Education Capacity Building Consortium supported by the North American Association for Environmental Education. Amy also attended the New Hampshire Science Teachers Conference in November in Meredith where she presented a talk about the benefits of outdoor education with her colleague Perrin Chick, Seacoast Science Center Education Director.

In November, Development and Communications Director Janet Robertson attended the "Journeys in Philanthropy" conference presented by the Association of Fundraising Professionals of Northern New England in Portland, Maine.

Marketing and Visitor Services Manager Amanda Gillen attended the Coös County Business Expo and Conference (formerly the Northern New Hampshire Tourism Conference) in November in Gorham.

- ◆ Community Guaranty Saving Bank of Plymouth generously sponsored Festival of Flight in September. This enjoyable family festival showcased the wonders of flight and migration. Activities included a hawk watch, live animal programs, crafts for children, a special presentation about the Karner Blue Butterfly Restoration Project, and what would have been tethered balloon rides donated by RE/MAX if the weather had permitted. Longhaul Farm offered lunch for sale.
- ◆ More than 340 children and adults attended this year's Halloween Hoot 'N Howl on a warm evening on October 19. The creative live skits about nature, often with a humorous twist, were along a special trail lit by jack-o-lanterns carved by Moultonborough Girls Scout

Troops 10062, 12269, 10093, 10896, and 10592. After the tour, guests enjoyed games, snacks, candy, and hot drinks donated by: Dunkin Donuts, Plymouth; Golden Pond Country Store, Holderness; Hannaford Supermarket, Meredith; Moulton Farm, Meredith; Shaw's, Gilford; and Tootsie Roll Industries. Thank you also to our wonderful volunteers for their help and baked goods.

- ◆ The trail season ended on November 2, a warm, sunny day. More than 200 people visited and about half attended the free program "The Social Black Bear" presented by renowned bear behavior expert Ben Kilham.
- ◆ We are excited to sponsor a new program called "The Harriers – New Hampshire's Young Birder's Club" (YBC). For full details about this statewide club, visit nhyoungbirders.org. You can see upcoming YBC field trips on page 7.

GARDENER'S NOTEBOOK



WHAT LENGTHS WILL GARDENERS GO TO?

By Eric D'Aleo

I'm always amazed to what lengths gardeners will go to work outside even in the face of oncoming winter. My neighbor is a typical example, out in the yard on cold early winter days doing a "job" that he forgot or getting a jump on tasks for next spring. Usually, by Halloween the majority of my gardens are left to their own devices although I still find myself wandering the yard after cutting wood or when I return from an afternoon walk with the dog.

Aside from some cold hardy vegetables that overwinter in our green house, at this time of year I'm usually done and considering what repairs or projects need to be undertaken in the garden next year. However, last year with the unseasonably warm fall weather, we were able to leave the vegetables in the ground longer than in previous years. This was good news, because as most gardeners know, no matter how carefully you plan in the spring and how meticulously you keep up with harvest, it seems that one or two crops produce an overabundance. That was our case with carrots, but as I love the taste of carrots this was not a problem. We decided early in the fall to only harvest the carrots we could eat and leave the rest in the ground as long as possible. By doing this the carrots would remain fresh but would also "sweeten" as the green tops continued to grow and producing more sugar stored in the root, helping the plant to survive cold temperatures.

As fall progressed we enjoyed reaping the benefits of our decision. At Thanksgiving there was fresh celery from the greenhouse and carrots from the garden, but we should have taken the hint when in mid-December the weather started to turn cold. With the onset of the first series of hard frosts my concern prompted my wife and me to investigate the carrots under their thin row cover next to the greenhouse. We were happy to discover the ground was still soft and the carrots appeared healthy. So, we thought that we still had time. If there had been snow on the ground we would have been able to put off harvesting the carrots until Christmas, but as the weather got colder the ground froze deeper. Then one cold windy morning in late December we had to harvest our carrots with a shovel, the steel head of an ice chopper, and a five pound sledge. I sat down and chiseled the ground with the sledge and ice chopper while my wife placed the carrots in a five gallon bucket. I couldn't help but think of my neighbor who I often see gardening in this type of weather. Then I realized I had entered the ranks of those who often view the weather as a challenge or an inconvenience, rather than a reason to stop gardening completely.

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

FROM THE HERON'S NEST

By Laura Mammarelli



Several Blue Heron children are enjoying the extended day program, new this year. They stay for a quiet time, afternoon snack, and a special activity. These children cut up apples, then strained the cooked apples through the food mill to make applesauce, which they served at the first Family Friday in October. Parents, grandparents, and friends agreed, the applesauce was delicious!

Blue Heron School, a nature-based Montessori school for children ages three to six, operates Monday through Friday, 8:30 a.m. to 1:00 p.m. or 8:30 a.m. to 3:30 p.m., September through June. For information, please contact Laura Mammarelli at 603-968-7194 x 40 or blueheron@nhnature.org.

A GREAT GIFT FOR ANYONE!



BENEFITS INCLUDE:

- Free trail admission
- Discounted rates on lake cruises and programs
- 10% Discount at the Howling Coyote Gift Shop
- AZA and ANCA reciprocal admission discounts, and much more!

NATURALIST'S CORNER

HOW OLD IS SHE?

By Dave Erler

One of the most common questions at our live animal presentations is, "How old is the animal?" That is followed by, "How long can they live?" We usually try to clarify the latter, asking our own questions. "Do you mean, what is the average age or the maximum age?" and, "In the wild or in captivity?" Good questions, but there are big differences in each case.

In general, smaller species have shorter life spans than larger ones. An average wild white-footed mouse lives 6 months, but with luck can live 2 to 3 years. A wild moose may live 10 to 12 years, but on rare occasions up to 20. Most small songbirds, such as the Black-capped Chickadee, have an average life span of 1 to 2 years, while a Bald Eagle is 20 years. Of course there are exceptions. Little Brown Bats, which weigh barely a quarter of an ounce, typically live 10 years and have been known to reach 35 years (hibernating half of their lives). Animals with effective defenses against predation live much longer than similar size animals that don't. For example, North American porcupines live twice as long as an average raccoon. While a porcupine lives 8 to 10 years in the wild, only 5% of raccoons live more than 4 years. Raccoons compensate by having a much higher birthrate, typically giving birth to 4 to 5 cubs while porcupines give birth to a single porcupette.

When we consider average lifespans of wild animals, we have to also qualify whether we are talking about those animals from maturity to death, or from birth to death. Sixty to seventy percent of most wild species die before they reach maturity. Why is youthful mortality so high? Initially very young animals are totally vulnerable to predators and unable to escape or defend themselves. Even those that survive to become independent are inexperienced and often have to compete with older dominant adults or are forced to live in suboptimal habitat. Those factors in turn often lead to starvation, disease, and ultimately predation. In captivity most animals can live twice as long as their wild counterparts since the common causes of mortality are greatly reduced.



What is the oldest animal at Squam Lakes Natural Science Center? If you don't count some of our human staff, the current record holder is a 39-year-old Great Horned Owl. She arrived in 1974 after having been confiscated by authorities from someone who had illegally kidnapped her as a nestling. It was clear upon arrival that she suffered from the effects of a poor diet, resulting in total blindness in one eye and partial blindness in the other. Having been raised in captivity she was also imprinted on humans. As a result of imprinting, she is extremely vocal and aggressive in defending her space from any "outside" human presence. Both disabilities would prevent her from surviving in the wild. As unfortunate as it is for her to have missed the chance to live in the wild, she has served her species as an animal ambassador all these years in two capacities. From 1974 to 1990 she was an education program bird in school programs and other public presentations. From 1991 to 2009 she was a star attraction at the Raptor Exhibit, often flying up to the observation window and hooting (defending her territory). As her vision declined to nearly total blindness she retired from her exhibit status, but she has returned to her status as a program animal. Although she has slowed considerably in last few years, she is still a feisty old bird. With luck we will be celebrating her fortieth birthday next March.

SCOTLAND NATURE TOURS

Shetland and Orkney Islands
June 13–26, 2014



NEARLY FULL—SIGN UP NOW!

Complete details at:
www.nhnature.org/programs/nature_tours.php

GROUNDHOG QUIZ



- True or False?** Groundhogs store food for the winter in a chamber of their burrow.
- True or False?** If the ground is snow-covered on February 2, groundhogs use their sharp claws to dig their way to the surface.
- Which name is NOT used for groundhogs?**
A. ground rat B. whistle pig C. woodchuck
- Which animal is a closer relative of groundhogs?**
Pig or beaver?
- True or False?** Groundhogs weigh, on average, a third more in fall than they do in spring.

Groundhog—Answers: 1. False 2. False 3. A 4. Beaver (Both are rodents) 5. True

NATURAL ADVENTURES

WINTER BIRD BANDING OPEN HOUSE

Saturday, January 4
9:00 a.m. to 12:00 p.m.
All ages

For over three decades wild birds visiting the Science Center's winter feeding station have been captured and banded on the first Saturday in the New Year. Take this opportunity to observe the process, get a close look at the birds, and a chance to hold and release a bird back into the wild. Join us for all or part of the morning.

Cost: **FREE/member; \$5/non-member**

WHO'S THERE?

Sunday, January 12
1:00 to 2:30 p.m.

Adults and children ages 7 and up

Who's there in winter? Where have all the animals gone? Learn about animal strategies for dealing with winter focusing on migration and hibernation – the options used by the animals you don't see in winter. This fun-filled program includes a visit with a live animal and outdoor activities.

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

WINTER BALD EAGLES

Sunday, January 19
9:00 a.m. to 1:00 p.m.

Adults and children ages 14 and up

Iain MacLeod leads a half-day tour around the Lakes Region looking for Bald Eagles. All the adults in the twelve or so pairs of eagles that nest in the Lakes Region stick around for winter and can be viewed – if you know where to look – all winter long. Iain regularly checks on several of these birds and knows the best locations to see them. We'll see waterfowl and other birds and wildlife, too.

Cost: **\$15/member; \$22/non-member**

GROUNDHOG DAY CELEBRATION

Saturday, February 1
10:00 to 1:30 a.m.

Adults and children ages 5 and up

What really happens on February 2? Join us to solve puzzles about groundhogs. How are groundhogs and woodchucks related? Where do they go and why do they disappear in winter? Discover answers through games, crafts, storytelling, outdoor activities, and a visit with a live groundhog.

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

WHERE ARE OUR OSPREYS?

Saturday, February 8
1:00 to 2:00 p.m.

Adults and children ages 8 and up

Join Iain MacLeod for the latest news on the satellite-tracked Ospreys we are following as part of Project OspreyTrack. Where are they wintering? Hear the stories of their migrations and view maps to see what they are up to. In addition to the birds tagged in New Hampshire, we can check on more than a dozen other tagged Ospreys. Learn about the amazing technology that allows tracking of these birds. Meet a live Osprey up-close.

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

SNOW AND ICE

Saturday, February 22
10:00 to 11:30 a.m.

Children ages 5 to 8

What happens to a water balloon in winter? How much water is there in snow? What happens to bubbles when it's cold out? Discover the answers for yourself in a morning of snow and ice experimentation. The morning ends with meeting a live animal that endures cold temperatures to survive through winter. Adult must accompany child.

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

WINTER BIRD BANDING

Wednesday, February 19
Wednesday, February 26
10:00 a.m. to 12:00 p.m.

All ages

How and why do some birds stay in New Hampshire for the winter while others head south? Join us to find out and get a close-up look at the live birds that are captured, banded, and released at our winter feeding station.

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

SNOWSHOE EXPLORATION

Friday, February 28
1:00 to 3:00 p.m.

Adults and children ages 6 and up

During school vacation week you can learn how animals cope with winter. Spend some time on snowshoes for a series of outdoor activities during this magical time of year. Following our time outside we'll go indoors to meet a live animal who experiences challenges during the winter season.

Snowshoes are available at no extra cost, or bring your own.

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

SURVIVING WINTER

Saturday, March 1
1:00 to 2:30 p.m.

Adults and children ages 10 and up

Discover how animals survive the harsh conditions of the New England Winter. Enjoy an indoor presentation featuring live animals showing their ideal adaptations for dealing with winter. Be prepared for the weather, as we will spend time outside exploring and learning how some animal adaptations are used by people.

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

WILD WINTER WALKS

GUIDED TOURS OF THE LIVE ANIMAL TRAIL

Adults and children ages 6+

Do you wonder what happens to the animals at the Science Center during winter? Most of them stay in the same place, just as they would in the wild. A staff naturalist will guide your walk on the live animal exhibit trail and discuss how native animals are well-adapted for winter in New Hampshire. Be ready to snowshoe and see beautiful wild animals in their winter fur coats. Snowshoes are available at no extra cost or bring your own.

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

Sunday • January 5
1:00 to 3:00 p.m.

Saturday • January 11
10:00 a.m. to 12:00 p.m.

Saturday • January 18
10:00 a.m. to 12:00 p.m.

Sunday • January 26
1:00 to 3:00 p.m.

Sunday • February 9
1:00 to 3:00 p.m.

Sunday • February 16
1:00 to 3:00 p.m.

Sunday • February 23
1:00 to 3:00 p.m.

Saturday • March 1
10:00 a.m. to 12:00 p.m.

Sunday • March 2
1:00 to 3:00 p.m.

Saturday • March 8
10:00 a.m. to 12:00 p.m.

Sunday • March 9
1:00 to 3:00 p.m.

Saturday • March 15
10:00 a.m. to 12:00 p.m.

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

SUMMER VOLUNTEER TRAINING OPPORTUNITIES

First Guides

Ages 14 to 17

June 23, 25 • 9:30 a.m. to 4:30 p.m.

June 27 • 9:30 a.m. to 1:30 p.m.

First Guides are teen volunteers who demonstrate natural artifacts on the live animal trail, accompanied by adult volunteer docent mentors. First Guides may assist with Guided Discoveries courses for children.

Cost: \$50 (financial aid available)

Docent Training

Ages 18 and up

June 16, 17, 18 and 19 • 4:00 to 8:00 p.m.

June 21 • 9:00 a.m. to 1:00 p.m.

Volunteer docents are trained to interact with guests on the live animal trail, providing information about animals, exhibits, and trails. Docents may help with animal training or serve as mentors to First Guides teen volunteers. Docents also travel to offsite programs assisting staff naturalists or to local fairs and events as Science Center representatives.

Cost: \$50 (financial aid available)

For more information or to register for First Guide or Docent Training, contact Carol Raymond, Volunteer Coordinator at 603-968-7194 x22 or carol.raymond@nhnature.org.

NEW HAMPSHIRE YOUNG BIRDERS CLUB WINTER EVENTS



Christmas Bird Count

Saturday • December 14, 2013 • 8:00 a.m. to 4:00 p.m. • Families

Be a part of one of the oldest bird census projects in the country. For over 100 years, citizen scientists have helped to monitor bird populations by recording every winged thing seen on a particular day in December. The Harriers, New Hampshire's Young Birders Club, will be in charge of a section near Peterborough. Meet in front of the Town Hall in Hancock. We'll adjourn at 2:00 for hot cocoa, food, and meet a 12-year-old Red-tailed Hawk, and watch him in flight. If you can't come all day, come for the afternoon festivities, at 2:00, at the Harris Center.

Winter Trek for Tracks

Saturday • January 25 • 9:00 a.m. to 12:30 p.m. • Families

The winter woods are perfect terrain for following the comings and goings of many mammals, and some birds as well. As long as the snow's not too deep, we'll climb Goodhue Hill, part of New Hampshire Audubon's Willard Pond Sanctuary in Hancock. Bobcat, deer, moose, otters, squirrels, and porcupines are only a few of the tracks we may follow. Ruffed Grouse, woodpeckers, maybe a hawk or two, and multiple species of finch could show themselves too. Dress warmly – we will return to the Audubon cabin just after noon for lunch and hot cocoa. Meet at the Willard Pond parking lot at the end of Willard Pond Road at 9:00 a.m.

Snowy Owls and Salt Marshes

Saturday • February 15 • 9:00 a.m. to 1:00 p.m. • Families

There won't be plums to be found on Plum Island in February, but how about a Snowy Owl or two? These incredible birds come in limited numbers from their nesting grounds on the open tundra, and spend their winters here where it must feel (relatively) nice and balmy! This is one of the few owls active by day: we'll search for them along the dunes and in the salt marshes, stopping to watch waterfowl on the inland side and on the ocean. Meet at the first parking lot past the entrance to Parker River National Wildlife Refuge, in Newbury, Massachusetts, at 9:00 a.m. Dress warmly!

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

PROGRAMS FOR HOMESCHOOL STUDENTS

"ALL ABOUT" SERIES

Ages 4 to 6
10:00 to 11:30 a.m.



December 5 Hawks
January 9 Skunks
February 6 Groundhogs
March 6 Owls
April 3 Turtles



Join us with your homeschooled child to learn all about New Hampshire wildlife. Each session considers a different group of living things through activities, hands-on experiences, and a meeting with a live animal.



GET HAPI!

Ages 7 to 10
10:00 to 11:30 a.m.

December 5 Nocturnal Animals
and their Adaptations
January 9 Interrelationships
February 6 Populations
March 6 Habitats
April 3 Ecosystems

The primary interpretive focus of the Science Center's programs and exhibits is community ecology, which has four major concepts: Habitats, Adaptations, Populations, and Interrelationships (HAPI). Join us with your child to investigate these topics in depth.

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

One adult must attend with children for free.

Each additional adult pays child fee.

*Program offerings are aligned
with the New Hampshire Science Framework.*

VOLUNTEER UPDATE

VOLUNTEER RECOGNITION DINNER AND PARSONS AWARD

Squam Lakes Natural Science Center is fortunate to work with an incredible team of volunteers who are passionate about the Science Center, interested in continuing their own learning experiences, happy to share what they know, and extraordinarily generous with their time. In 2012, the volunteer team gave over 8,900 hours of service.

Volunteers, trustees, and staff attended the annual Volunteer Recognition Dinner on August 14, at the Common Man Inn in Plymouth. Cross Insurance Agency and Patty Stewart & Associates generously sponsored the evening. Various awards honoring volunteers were presented at the dinner, including the Parsons Award. The Board of Trustees created the Parsons Award in 1996 to honor longtime volunteers Natalie and Don Parsons. The winner of the annual award represents the spirit of volunteerism for her fellow volunteers. Board Chair Dave Martin presented the Parsons Award to Nance Ruhm. There were 43 other volunteers eligible for the Parsons Award: Kay Anderson, Tiffany Andrews, Jim Barry, Meta Barton, Chris Bird, Dawn Bourret, Dot Chekas, Michael Costigan, Ellen Edersheim, Judy Ellis, Karen Firmin, Carol Foley, Chelsea Friend, Eileen Gosselin, Dennis Hager, Mary Kahn, Eva Karcher, Dan Kemp, Susan Kemp, Barb Laverack, Pat Lincoln, Don Margeson, Dom Marocco, Irene Marocco, Joan Martin, Peggy Martin, Missy Mason, Elaine Melquist, Connie Morrison, Denise Moulis, Marianne O'Loughlin, Ron Piro, Judy Sniffen, Pam Stearns, Carol Stewart, Rob Stewart, Shirley Stockwell, Jan Welch, Betsy Whitmore, Marc White, and Beverly Wood.



Parsons Award recipient Nance Ruhm volunteers for a variety of roles: as a Lake Education Assistant for school classes, a docent, a First Guides mentor, a greeter, helping with special events and projects such as animal observations, mailings, and more. She participates in volunteer meetings and training sessions.

The Volunteer Appreciation Display, “Volunteers Complete the Picture,” in the Trailhead Gallery was created in 2004 and is updated annually. Volunteers who achieved the 200-hour level in 2012 were: Meta Barton, Dawn Bourret, Janice Elgin, Eric Ellingson, Susan Jayne, Don Margeson, Dave Martin, Missy Mason, and Elaine Melquist. Judy Ellis, Fred Jackson, Susan McKimms, Denise Moulis, and Larry Tingley advanced to the 500-hour category and Lea Stewart moved to the 1,000-hour level.

The President’s Volunteer Service Awards is a national program honoring Americans who inspire others to volunteer through their commitment and example. Iain MacLeod presented the Bronze Service Award, for volunteers giving 100 to 249 hours in 2012, to: Nancy Beck, Nancy-Jane Duncan, Pat James, Eva Karcher, Dan Kemp, David Martin, Susan McKimms, Nance Ruhm, Judy Sniffen, Carol Stewart, and Lea Stewart.

Volunteers Jim Barry, Judy Ellis, and Denise Moulis received the Silver Service Award for donating between 250 to 499 hours in 2012. The President’s Call to Service Award for contributing over 4,000 hours of service in her lifetime was presented to Natalie Parsons.

VOLUNTEER AWARD

CAROL RAYMOND RECEIVES NH ASSOCIATION OF VOLUNTEER ADMINISTRATORS AWARD

Volunteer Coordinator Carol Raymond received the 2013 Judith Lonergan Award from the New Hampshire Association of Volunteer Administrators (NHAVA) in October. The Judith Lonergan Award honors outstanding achievement in volunteer administration. It is named for Judith Lonergan, who retired in 1998 after 25 years in volunteer administration at the state, national, and international levels. NHAVA is a professional organization, which supports and strengthens the profession of volunteer administration through education, networking, and recognition.

Carol has managed Science Center volunteers since 2007. She coordinates the efforts of docents, animal caretakers, gardeners, office aides, educational assistants, and maintenance volunteers. In addition, Carol arranges training days, monthly volunteer luncheons, roundtable discussions, and other special events. Carol also developed the First Guides program for teens and youth, which was funded by a grant from the New Hampshire Charitable Foundation. Carol consistently goes above and beyond the basic requirements of her position. She works to improve the volunteer program through evaluations and gives back to the community by meeting with other professionals to share her expertise.

Congratulations to Carol for receiving this honor for her exceptional work!

We are grateful for these memorial and honorary gifts received from July 1 through September 30, 2013:

IN HONOR OF THEIR WEDDING GUESTS
Caitlin and Peter Coe

IN HONOR OF BRIAN EATON
Kim Black

IN HONOR OF TOM AND MARGY GARESCHE
Alan and Nancy McNabb

IN MEMORY OF HOPE DRURY GODDARD
Marjorie Lee Sundlun

IN HONOR OF HARRIET, PETER, JON, AND CYNTHIA HARRIS
David and Margaret Langfitt

IN HONOR OF TASHIA MORGRIDGE
Sandy and Ted Joseph

IN MEMORY OF CLARE MOWBRAY
Anonymous

IN MEMORY OF DONALD PARSONS
Nancy Parsons and Jim McDermott
Charlie Drago and Donna Parsons
Susan Parsons and Natalie Parsons

IN MEMORY OF BARBARA RIDGELY
Stirling Tomkins, Jr.
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WISH LIST

CD player for Blue Heron School

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iPads or similar tablet computers

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Milk Crates

Green fleece blankets
for cruises

BUSINESSES INVEST IN EDUCATION

COMMUNITY SUPPORT IS STRONG

Many businesses across the state provide support through memberships, sponsorships, and in-kind contributions of goods and services. These strong corporate investments help to make the Science Center's education programs possible.

2013 Business Members

Cormack Construction Management, Holderness Harbor/Asquam Marina, Loon Mountain Recreation, Pike Industries, Stewart's Ambulance Services, Rockywold-Deephaven Camps, and Watts Water Technologies.

2013 Business Sponsors

Auto Spa Plymouth, Bank of New Hampshire, Belknap Landscape Company, Common Man Restaurant, Community Guaranty Savings Bank, Cross Insurance Agency, Dead River Company, Donovan Tree Experts, Lincoln Financial Group, Meredith Village Savings Bank, New Hampshire Electric Co-op Foundation, Pemigewasset Choral Society, Public Service of New Hampshire, RE/MAX Bayside, Rockywold-Deephaven Camps, Squam Boat Livery, Squam Lakes Automotive Services, Patty Stewart & Associates, Christopher P. Williams Architect, and Yoga Studio 8.

2013 Business In-kind Donors

Adornments Unique Jewelry & Accessories, Ale House Inn, Ancient Willow Massage, Ray Anderson, Asquam Marina of Holderness Harbor, The Auto Spa, Axiom Cleaning Services, The Barnstormers Theater, Belknap Landscape Company, Ben & Jerry's, Martha Billings Stained Glass, Birdie's Range, Bob's Shurfine Market, The Bookmonger and Toad Hall Toys, Cabot Cooperative Creamery, Cackleberries Garden & Gift Shop, Lori Card, Charles River Laboratories, Coca-Cola Bottling Company of Northern NE, Common Man Restaurant, Cottage Place on Squam Lake, The Country Carriage, Coyote Grill, Curt's Caterers, Currier Museum of Art, Designing Women Interiors, The Dessert Table, Dirty Worm Greenhouse and Nursery, Donovan Tree Experts, Dreams & Visions Giftshop, Chef Franz Dubach, Dunkin Donuts Plymouth, Bonnie Edwards Photographic Portraits, Ehlers Management Group, Emma's Perennials, EVP Marketing & Media, Funspot, Golden Pond Country Store, Granite State Greenhouse, Great Bay Discovery Center, Hampshire Hospitality Holdings, Hannaford Supermarket, Hart's Turkey Farm Restaurant, Steve Hayden Arts Collaborative, Dawn Heiderer Design Inspiration, E.M. Heath Supermarket, Leone Hinzman, Inn at Newfound Lake, Innisfree Bookshop, Isles of Shoals Steamship Company, Rod Ladman Window Design, Lady of the Lake, Lakes Region Tent & Event, Lakeside Deli and Grille, Liz Lapham Basket Studio, The Lantern, Lavinia's, Longview Farm, Manchester Millyard Museum, McAuliffe Shepard Discovery Center, MegaPrint, Montshire Museum of Science, Mosenthal Spine and Sport, Moulton Farm, Museum of New Hampshire History, The Music Hall, New Directions Upholstery, Newfound Audubon Center at Paradise Point, New Hampshire Music Festival, Ninth State Fitness, Oglethorpe Fine Arts and Crafts, Pebble's Farm, Petal Pushers Nursery, Plymouth Animal Hospital, Plymouth Lions Club, Precision Lumber, Rand Hardware, Remick Country Doctor Museum and Farm, Riverside Dairy Joy, Seacoast Repertory Theater, Seacoast Science Center, Shaw's Supermarket, Six Burner Bistro, Spider Web Gardens, Squam Lakes Association, Squam Lake Inn, Estelle Smith, Stonyfield Farm Organics, Storyland, Printmaker Steve Thornley, Tish's Nail Care Boutique, Tootsie Roll Industries, True Colors Print & Design, Tree Solutions LLC, The Valley Inn, Van Berkum Nursery, Venture Print, VINS, Walter's Basin Restaurant, Sarah Warren Tapestries, Waterville Valley Resort, Wayside Farm, Eric Webster, West Shore Marine, White Mountain Athletic Club, Wholly Tara, Winnepesaukee Forge, Winnepesaukee Playhouse, Freddie Wilkinson, Woodstock Inn, Station and Brewery, Yikes! Gallery, and Yoga Studio 8.

GROUNDHOG *continued from page 1*

resemble earth tones but their nose, eyes and short, rounded ears align along the top of the skull. Like a periscope, they can peek just the top of their heads above the burrow to evaluate the safety of their surroundings. We humans would have to poke most of our head above ground to get the same perspective.

What about the “hog” in groundhog? It’s amazing what a summer food orgy can do! Groundhogs are herbivores that devour vast quantities of clover, grasses, dandelions as well as gardeners’ cherished vegetables. Packing on fat, they finish the summer weighing a third more than when they emerged in spring.

By fall, decreasing daylight signals groundhogs to enter their dormant period. For their fat reserve to last the winter, groundhogs undergo amazing metabolic changes. Heart rate descends from a rapid 100 beats per minute to a meager 15. Body temperature plummets from 96 degrees Fahrenheit to just above freezing (39 degrees to 47 degrees). Breathing rate is transformed from 12 to 20 breaths per minute to barely perceptible at one breath every four to five minutes! Curled on their sides, groundhogs neither eat nor defecate until the sun sufficiently warms the earth sometime in March.

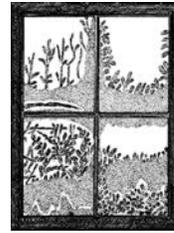
“Woodchuck” is the other common name for this well-grounded rodent. “How much wood could a woodchuck chuck, if a woodchuck could chuck wood?” “If” is the key word. Meadow plants are basic fare, but woodchucks also munch leaves, twigs, and fruits such as apples. Although woodchucks possess strong incisors that keep growing throughout their lifetime, they are not up to “chucking wood.”

The word “woodchuck” resembles its Native American (Algonquin) name, “wuchak.” Settlers may have made the transition to “woodchuck,” or the name might have originated with pioneers who observed woodchucks in the forest bordering their fields and called them “little chuck (pig) of the woods.”

One of my favorite names for this creature is “whistle pig.” When alarmed, groundhogs utter a shrill whistle followed by soft “chirring.” Unlike our whistle, this sound originates in their vocal chords! When I hear it, I halt in surprise. Predators like foxes, coyotes and red-tailed hawks undoubtedly pause as well. By the time we recover, the whistle pig is secure in its burrow.

Where does February’s Groundhog Day fit into the picture of this creature’s winter inertia? Using animals in weather prediction was a strong tradition in Europe where Germans gauged the length of the winter by observing when insect-eating hedgehogs emerged. Upon migrating to Pennsylvania where no hedgehogs reside, German settlers elevated the groundhog to its new weather responsibilities.

The first Groundhog Day event was in 1886 in Punxsutawney, Pennsylvania. In the custom that endures today, if the groundhog sees its shadow, six more weeks of winter are pending. No shadow indicates an early spring. There is some logic embedded in this folklore. A sunny day produces shadows but also often accompanies cold winter



OPENING A WINDOW TO THE NATURAL WORLD

YOUR GIFT TO THE ANNUAL FUND IS NEEDED CONSIDER THESE OPTIONS FOR GIVING

You may be a member, a volunteer, an Annual Fund donor, a local business, a trail visitor, or a program participant. However you are a part of Squam Lakes Natural Science Center, thank you for your help to support this special place. You can feel good knowing that you make a difference by giving to the 2013 Annual Fund at whatever amount you can. No gift is too small...or too large!

Regardless of your reasons for making a donation, your gift to the Annual Fund will help to care for and feed our 80-plus ambassador animals, to maintain our buildings, trails, and exhibits, to provide educational programs, and to make it possible for us to continue to provide opportunities for more people to learn about New Hampshire’s natural world. Our Annual Fund goal this year is \$318,500. Your donation is vital.

There are many ways you can make a contribution:

- Respond to the letter you recently received to send a donation
- Make a contribution through our website at www.nhnature.org/support/annual_fund.php
- Consider the convenient recurring gift option on our website – it’s an easy way for you to make a larger gift by spreading it over the year through monthly or quarterly donations
- Make a gift and submit a matching gift request to your employer
- Give from your IRA – if you are 70 ½ or older, you can save on taxes through a tax-free IRA distribution to a qualified charitable organization such as the Science Center
- Celebrate a special occasion or honor a friend or family member with an honorary gift

If you have not received a request in the mail, you can make a gift by visiting our website, www.nhnature.org/support/annual_fund.php, or by calling the office at 603-968-7194. Thank you for your consideration!

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

**Renew your membership online at
www.nhnature.org/membership**

Continued on page 11

TRAIL'S END

HIBERNATION?

Ahhhh, the trails closed on November 2. It must be time for hibernation at the Science Center. Hardly! There is much going on behind the scenes during the “off” season.

As I write, we are in the midst of our Annual Fund donor campaign. You likely have received a request for a donation – we hope you will help us out. While we have had a very successful season in terms of the number of visitors through the gate, it is your gifts to our Annual Fund that allow us to keep admission costs low enough to permit so many visitors to enjoy the trails.

We are currently in the process of preparing our budget for next calendar year. As we close the books on this year, we carefully review our expenses and look for ways to continue to be efficient with the dollars we have. Part of this process includes a review of all the exhibits for structural soundness as well as educational content so that our exhibits remain both safe and fresh.

Meanwhile, there are still activities both at the Center and at various other locations. Our naturalists take live animals to schools throughout the school year. Every weekday the excited sounds of children attending the Blue Heron School echo across the campus. We have various speaking engagements at local organizations to spread the word about the Science Center. And on many weekends during the winter the trails are open for special events – if you haven't visited the trails in the winter, you should give it a try. Many of the animals look their best in their full winter coats – and they tend

to be quite active – except for the bears, which are actually in their winter sleep!

As many of you may have observed, we are currently constructing a new wood burning boiler building that will heat most of the campus. This boiler is expected to come online early in 2014 and will be the center of a new exhibit that will open in the spring. Preparation for opening this exhibit and a new Coyote Exhibit requires much attention over the next few months.

Part of that preparation includes how we communicate to our audience about these new exhibits. Additionally, there is planning and strategizing about what special events the Center will host in 2014. All of these events are carefully thought through so they operate smoothly in the eyes of the attendees. Much energy is devoted to figuring out how to reach the public to tell them about the Science Center, the new exhibits, and the special events.

In addition to all of this activity, our Board of Trustees meets twice during the cooler months – in November and in January. Board meetings take much preparation on the part of both staff and trustees. While we have had a very successful 2013 season, the board and staff are using the quieter months to review, plan, and build on that success for 2014.

While the trails are closed to the public for the better part of six months, the Science Center hardly hibernates!

*Trail's End is written by David Martin, Chairman of the SLNSC Board of Trustees.
You may contact David at dave.martin@nhnature.org.*

NATURALIST'S LEGACY SOCIETY

Please let us know if you have named Squam Lakes Natural Science Center in your will or other estate plans. Naturalist's Legacy Society members are invited to donor recognition events and recognized in the Annual Report. Your participation may inspire others to follow your lead.

Contact Development and Communications Director Janet Robertson at 603-968-7194 x 12 or janet.robertson@nhnature.org for more information.

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weather. Cloudy days are associated with possibilities of rain and melting. By any stretch of the imagination, February 2nd is too early for groundhogs to be stirring in New England. In fact, in the 1800s, local farmers had the saying, “Groundhog Day – half your hay.” They calculated that they were really in mid-winter and would need a good store of hay before the cows could be out on green grass. It's best to focus on the official start of spring on the Vernal Equinox, around March 21.

Whichever name you prefer, be sure to tip your hat to the groundhog on its special day. Whether you are hoping for a longer winter or an abbreviated one, take in a breath of fresh air and see what nature is offering. I highly recommend playing a quick round of “Shadow Tag.” In this game, you stay in the action as long as the “it” person fails to step on your shadow. Happy Groundhog Day!

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