



PREDATORY PLANTS

By Margaret Gillespie



Pitcher Plant

Venus flytrap? Sure, we've heard how these plants clamp down on unsuspecting insects drawn to the scent of nectar. Exotic Venus flytraps are closer than you may think, being native to boggy wetlands in North and South Carolina. But, carnivorous plants right here in New England? Why yes! Let's meet three uncannily clever plants, which capture insects in ingenious ways.

First is the extraordinary pitcher plant, *Sarracenia purpurea*. In acidic, stagnant bogs where pitcher plants live, nutrients are in short supply. The leaves of this carnivorous plant take the

concept of multitasking to a completely new level. Curled and joined into the shape of a pitcher, the plant's green leaves are photosynthesizing machines. At the same time, these leaves form a trap for unsuspecting insects. Nectar concentrated at the lip of the pitcher draws insects in for a sweet sip. An easy misstep on this slick surface and the insect falls into the open pitcher. The cards are stacked against it. First there are downward pointing hairs, followed by a smooth, slippery surface riding just above rainwater accumulated in the bottom. Opportunities to climb or fly out are dismal. The insect's misfortune turns into a nutritional boost for the pitcher plant. Aided by digestive juices it secretes into the water to break down the insect prey, the pitcher plant grows more robustly with extra protein. Pitcher plants can survive but not thrive without a carnivorous diet in nutrient poor, acidic bogs. It seems logical that this soupy blend in the pitcher would be devoid of life. Not so. The tiny water pools inside pitcher plants are complex and recognized as phytotelmata, meaning "plant ponds." Within these miniscule ponds live a variety of organisms

making up a tiny ecosystem – mosquito and midge larvae, mites and rotifers, bacteria and protozoans to name a few. Some consume bodies of fallen victims leaving nutritional fragments the pitcher plants can absorb too. Some eat others. All produce waste to benefit the pitcher plant.

Another bog resident, the sundew, is also in the luring vocation. Its small size, three to four inches across, belies its power. A sundew's leaves have that flower appeal, with attractively scented, sticky tentacle-like hairs stretching upward. Once an unsuspecting insect lands, that creature is engaged in the fight of its life. The adhering quality of the plant's "glue" is formidable. Adjacent, shorter hairs

grow toward the prey, adding their clinging grasp. All the while the plant is stimulated by the struggle to exude even more adhesive. The final coup? An anesthetic produced in glands at the ends of shorter hairs slowly subdues the prey, preparing it for ingestion a few hours later.



Sundew

Ready for some fast action plant drama? Enter the bladderwort. I would agree that, on first impression, its name might benefit from an exciting makeover. "Wort" comes from Old English, meaning plant. The "bladder" section of its name is intriguing as it relates directly to the bladderwort's dramatic carnivorous habits. Most of the bladderworts we can easily observe are aquatic, although some species live in soggy soil. By peering into a pond, you may spot trailing, rootless stems floating on or just below the surface, adorned with tiny leaves and bladder-like sacs. Look closely – the bladders or utricles are a fifth of an inch or smaller. Using a trigger mechanism, this plant draws tiny organisms like zooplankton and mosquito larvae into its trap. For the prey, the plant's action is swift, accurate, and

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POLLINATOR PARTY TUESDAY, JULY 11

9:30 a.m. to 5:00 p.m.
(last trail admission at 3:30 p.m.)
Celebrate the life and work of
bees and butterflies, and
caterpillars, too!
See page 7 for details.



FORGING TRAILS

BALD EAGLE POPULATION SUCCESS STORY



It wasn't so long ago that "our" Bald Eagle nest here on Squam was one of only a handful in the state. When the nest was found in 2003 on Little Loon Island it was the first known in the Lakes Region in at least 50 years. Little did we know that just 14 years later there would be more than 60 pairs scattered throughout every watershed in New Hampshire.

The documented history of Bald Eagles in New Hampshire indicates they were widespread summer residents on our larger lakes throughout the state in the early 1800s. The

deforestation of the southern half of the state to create sheep pasture reached a peak in the mid-1800s, reduced nesting habitat for eagles. Mature white pines (favored by eagles) were specifically targeted for masts for the British navy. Wide scale sheep farming would not have been compatible with a healthy eagle population as they were regarded as predators of lambs and eliminated. Eagles were shot and their nests plundered. They did not receive any protection until well into the twentieth century.

Declining water quality also affected eagles as pollutants from mills and other manufacturing industries were pumped into rivers causing huge fish die offs. Overfishing on the coast and damming of rivers reduced natural spawning runs of anadromous fish. Thus, eagles lost both food resources and nesting sites. The last documented nest prior to the modern era, was in 1949 at Lake Umbagog. The widespread use of DDT in the 1950s and 60s was the death knell for eagles in many parts of North America. It took major conservation efforts, including active reintroductions in many states, in the 1980s to bring them back.

A variety of factors combined to make a dramatic resurgence possible. Thanks to the Clean Water Act and other environmental protection measures, our rivers and lakes are clean and productive. Fish stocking and management provides plenty of food and, perhaps most importantly, the age and canopy height of white pines, which now dominate our New Hampshire forests, provides an almost unlimited number of nesting trees for eagles. I don't think it's a stretch to say that there is barely a lake, pond, or one-mile stretch of river in the state that doesn't have at least one white pine an eagle can nest in.

Chris Martin, Senior Raptor Biologist at New Hampshire Audubon, oversees the monitoring of the state's population and reports we are now witnessing a doubling of the population every five years. In his 2016 Bald Eagle Breeding Season report he shared the following, "In 2016, we confirmed a record-high total of 56 TERRITORIAL PAIRS of Bald Eagles in New Hampshire . . . more than double the 27 pairs we found five years ago . . . we confirmed a record-high 51 YOUNG FLEDGED. This is up 19% from the 43 fledglings in 2015 and more than double the 25 fledglings produced five years ago."

Chick productivity is very high and our Squam nest has produced 24 chicks in 11 successful years. Chris Martin reports that, "A grand total of 368 young Bald Eagles have fledged from New Hampshire nests since the species began nesting here once again nearly 30 years ago. More than 25% of those fledglings (94) have been produced in the past two breeding seasons alone!"

2017 is certainly continuing this trend. In the Lakes Region, where I monitor a number of nests, we know of three new pairs this year (not counted in the 2016 totals) bringing our local population to at least 14 nesting pairs.

Similar population growth is seen in neighboring states and up and down the east coast, so we can all celebrate an amazing resurgence of our national symbol.

Addendum: After writing this (in mid-March), our Squam eagle pair had an unsuccessful breeding season. Their nest was blown out in the March nor'easter. The pair built a small replacement nest in the same tree. By March 28, the female was seen incubating at least one egg. The nest was abandoned by April 14, indicating they had failed. Whether the foul weather in early April was to blame or the hurriedly-built nest wasn't secure enough remains a mystery. Bald Eagles have a narrow window for initiating nesting, so this year's setbacks mean their nesting season is done for this year. The pair will remain around the lake for the summer and be back again to breed next year.

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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. Its 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 members and contributors. Comments are welcomed by newsletter editors Janet Robertson and Amanda Gillen.

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TRUSTEE PROFILE

HARRIET HARRIS



Call it fate or just predetermined – Harriet Harris was more than likely going to join the Science Center Board! Marrying into the large Webster family, she was introduced to Squam Lake through her husband, Peter Harris, in the late 1970s. Her love for the lake, its serenity, and its beauty has never diminished.

It was early in her marriage, while residing in Dover, Massachusetts, that an opportunity to serve on the New England Aquarium Board first satisfied her taste for the non-profit animal world. When asked by the Aquarium's Executive Director if she thought a satellite operation

might work in Rhode Island, she said yes and went to work not only co-founding, but also raising sufficient funds to get an Exploration Center and Aquarium started in the city of Newport. The Aquarium was an instant success and is still running today under its new stewardship, Save the Bay.

As their three children grew up in Dover in the mid-1990s, Harriet and Peter took them to Squam for weekends. It was around that time she felt farm animals would be a welcome addition to Burleigh Farm, which had ceased being a dairy in the early 1960s. Harriet selected an animal the kids could handle, but was also safe and provided a haven for farm chores and early responsibilities. The species selected was sheep!

Harriet and Peter bought their first two sheep from a farmer in Maine in 1990. They were not exactly farmers but with help from people like Gordon Potter, farm manager, they managed to increase their flock to 32 over several years. Unfortunately on the July 4 weekend of 1997, a marauding bear came onto the farm and slaughtered many of the sheep.

Harriet remained unfazed and decided a guard animal must be purchased to ward off not only bears, but coyotes, and bobcats. She did her homework and discovered that a llama offered the best protection. Under the ruse of a 40th birthday present for Peter, she took him to the University of New Hampshire where a white llama under the name of Frosty was acquired.

Again, with many "learning experiences" along the way, Frosty joined the already established flock of Oxford sheep. The good news is that he did his job well. Under his faithful watch, not one sheep was ever lost again to a predator.

Eventually, with the kids out of college and additional time being spent at Squam, Harriet got more involved with the Science Center, initially as volunteer in fundraising activities. When the Science Center asked her to join the board, she immediately agreed. Her main interest has always been the animals but she also understood that their habitat and exhibits are what really make the Science Center special. Today she is on the Buildings and Grounds Committee and deeply treasures her time spent ensuring that the Science Center remains a vibrant and fun learning environment for families all over New England.

Harriet reminisced, "I love the Science Center. My husband, Peter served on the Board in the early 1990s and we volunteered on a regular basis, especially at the Memorial Day pancake breakfasts. I have watched the Science Center grow and it is hardly recognizable from just 25 years ago. Now we frequently take guests and grandchildren. Just this past January, we were out there snowshoeing around the trail marveling at the animals' winter coats and banding birds!"

NEWSBRIEFS

- The Science Center is fortunate to attract loyal, longtime staff members – among them is recently retired Development Assistant Susan Stepp. Her main task was to process memberships, which she did for more than 10 years, retiring in April. Previously she worked as Bookkeeper and before that was an Animal Caretaker. Susan carried out her work behind the scenes, always calm, considerate, and thoughtful. All the while, she also volunteered and we are glad she plans to continue in that role. Thank you Susan!
- We welcomed two new employees to the staff this winter. Development Officer Kim Beardwood Smith holds a BA in English from St. Lawrence University and a MBA from Plymouth State University. She spent her formative years in Vermont where she developed a passion for the outdoors through hiking and skiing. Kim started in non-profit development at the Loon Center and has a background in marketing, advertising, and business development. Visitor Services Manager Sarah Wall received a BS in Environmental Science from Humboldt State University in Arcata, California. She grew up in rural Virginia exploring the eastern hardwood forest and developing a love for plants. Sarah's non-profit career began at New Hampshire Audubon where she held various roles over 10 years, all focused on customer service, retail management, and special events.
- Summer brings other new faces. Three program interns arrive in May to aid with education programs, animal care, and children's programs. We welcome their help and they learn about working at an environmental education center. Emily Gagne studies at the University of Maine majoring in Biology. She hopes to teach and do research in Mammalogy. Emily has also worked as a summer camp counselor and as a wildlife rehabilitation volunteer in Thailand. Collin Hildreth grew up in the Lakes Region often visiting the Science Center growing up. He's been a volunteer docent and attends the University of Colorado at Colorado Springs where he is pursuing a degree in Zoology or Wildlife Biology. He is an avid skier and plays intramural soccer, volleyball, and basketball. Nicole Sullivan is from Exeter. She is a student at Unity College in Maine where she majors in Captive Wildlife Care and Education. Nicole is active with Girl Scouts, volunteered with the Blue Ocean Society on whale watches and at touch tanks, and has worked at York's Wild Kingdom as an animal caretaker.
- Marketing Intern Oriana Raymond is a junior from Sanbornton pursuing a degree in Interdisciplinary Studies with a concentration in Business and Marketing at Plymouth State University. Oriana is an active member of Tau Omega, a volunteer service oriented sorority, and Girl Scouts. She participated in the Science Center's First Guides teen volunteer program

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NATURALIST'S CORNER

UNEXPECTED SUMMER VISITORS

By Eric D'Aleo

There's an animal in my backyard. Is it sick? Should I be concerned for the safety of my children or pets? These are questions we receive often throughout the spring and summer. A variety of different animal species may "visit" your home over the summer, including fox, skunk, raccoon, and opossum. Today most people do not have regular exposure to wildlife like people did in the past and are unsure of what to expect from an unexpected visitor. For others their experience with wild animals may only be with birds and squirrels at feeders. Many people may be unaware of seasonal or daily changes that occur in wild animals' behavior.



Larger wildlife is most active when we are not, either at dawn, dusk, or at night. If you see a fox or other animal during daylight hours, get a good look at the animal and observe its behavior. Is it passing through the property on its way to a different location? Is it sniffing around any buildings on your property? Is it aware of its surroundings? Is the animal lethargic or in a stupor?

If the animal is passing through at the same time each day, your property may be part of a route it travels to get to a seasonal food source. I had this experience last August with a porcupine visiting an early fruiting apple tree nearby. It walked across my yard at the same time each evening for about a week before moving on to another food source. Sometimes an animal may actively search for food on your property. When blueberries come into season crows and humans are not the only animals attracted to them. People occasionally encounter a black bear eating blueberries growing near their home.

Red fox may also search through tall grass in a nearby field for rodents during the middle of the day. If the animal is aware of its surroundings and actively hunting, chances are good that this is an adult trying to feed its young. As fox kits grow they need more food, which causes parents to hunt throughout the day. This may continue for several weeks until the kits are able to accompany their parents on hunting forays. What should you do? Resist the idea to place food outside for the young or the parents. This leads animals to associate humans with food, which is a cause for many human-wildlife conflicts. If you have poultry or other small animals vulnerable to predation, make sure they are secure. Last summer I observed a red fox taking an egg back to the den for its kits. Sadly for a local homeowner, several days later the fox arrived with an entire chicken. Just like people who find lost money on a sidewalk, once animals associate an area with food, they will come back repeatedly to see if there is more.



Although the visitation by wildlife may be disquieting to some people, the majority of visits are harmless and provide a wonderful opportunity to observe our normally reclusive wild neighbors.



FROM THE HERON'S NEST

By Laura Mammarelli

The school year is full of traditions and rituals, and one of our very favorite at Blue Heron School is learning about bird banding with Senior Naturalist Dave Erler. After seeing how birds are caught in traps, weighed, measured, and banded, each child has the opportunity to hold and release a wild bird. It is an experience that never loses its wonder.



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 to June. For more information please visit www.nhnature.org/programs/blue_heron_school.php or contact Laura Mammarelli, Blue Heron School Director, at 603-968-7194 x 40 or blueheron@nhnature.org.

The Holderness Inn at Kirkwood Gardens

Squam Lakes Artisans Gallery

Open daily 10:00 a.m. to 5:00 p.m.

Kirkwood Cafe

Open daily June 26 to September 4 11:00 a.m. to 3:00 p.m.

SUMMER 2017 GUIDED DISCOVERIES

Week-long outdoor natural adventure camps for children ages 4 to 14. Registration is now open! See details and register at nhnature.org.



KIRKWOOD GARDENS PLANT SPOTLIGHT

By Brenda Erler

Golden Marguerite *Anthemis tinctoria 'Kelwayi'*

Culture: Prefers full sun and average, well-drained soil. Tolerates poor, dry soil. Deadhead spent blossoms to prolong bloom period. Cut flower stalks back after bloom period to promote bushy growth. Will self-seed.

Bloom: June to September

Height: 2 to 3 feet

This erect clump-forming perennial produces numerous yellow daisy-like flowers over the ferny foliage. Good cut flowers. This is an easy plant that produces long-lasting color and is a good choice for areas with poor soil.

Kirkwood location:

Lower garden to the left of Nancy's Girl sculpture as you look at the old apple tree.



Dwarf Weigela *Weigela florida 'Midnight Wine'*

Culture: Best grown in average, medium moisture, well-drained soil in full sun. Will tolerate some shade but shows its best color in full sun. Prune after flowering to keep its shape.

Bloom: April to June

Height: 18 to 24 inches

This low-growing shrub has lovely pink blossoms that attract hummingbirds. It forms a good groundcover or edging and holds its dark purple foliage color through late fall. Useful for small spaces.

Kirkwood location:

Upper garden in the bed next to Route 3.



www.iowaoutdoorproducts.com



Plant Spotlight and Kirkwood Gardens are sponsored by Belknap Landscape Company, Inc. www.belknaplandscape.com

Art Inspired by Nature Series

Artist Helen Nicolay – From Lincoln's World to Holderness

Abraham Lincoln's personal secretary, John Nicolay and his artist daughter, Helen, built their summer home in Holderness, called Tannenruh, on Shepard Hill in 1895. This year, area organizations are celebrating Helen's artwork. The Holderness Historical Society (holdernesshistoricalsociety.org) and Holderness Free Library (holdernesslibrary.org) will host an event at Tannenruh, showcasing Helen's art on Saturday, July 15. Squam Lakes Natural Science Center (nhnature.org) will feature a lecture and demonstration of 19th century plein air painting techniques as well as workshops for both children and adults this summer. An exhibit of Helen's work with complimentary programs will be held at the Holderness School (holderness.org) this fall.

John Milton Hay was also Lincoln's secretary. He and John Nicolay were friends and wrote a biography of Lincoln together. Hay's mansion, The Fells, at Lake Sunapee in Newbury (thefells.org), will show some of Helen Nicolay's artwork and hold a lecture series about Nicolay and Hays this summer.

See program details on pages 6 to 8.

MEMBER BONUS BENEFITS:

JULY: Science Center members may visit The Fells Historic Estate and Gardens (thefells.org) in Newbury, once at no charge.

SEPTEMBER: Science Center members are invited for one free visit to the McAuliffe-Shepard Discovery Center (starhop.com) in Concord.

Be sure to take your membership card with you when you go.

Check websites for information about hours and directions.



NEWSBRIEFS *continued from page 3*

and is a Science Center docent. She "grew up" at the Science Center – since her mother Carol is Volunteer Manager here.

- Two interns will assist our Guided Discoveries programs for children. Kelsey Buckley is from Gilford. She is a junior majoring in Environmental Science with a Biology concentration at Wheaton College with a minor in Animal Behavior and Journalism. Kelsey also interned at the New England Coastal Wildlife Association in Middleboro, Massachusetts and volunteers at New Hampshire Humane Society. Molly Cleveland lives in Lebanon, Maine. She is a junior pursuing a degree in Educational Studies with a concentration in science at York County Community College in Wells, Maine. Molly worked at New Hampshire's Seacoast Science Center as a STEM naturalist for the past three years.
- Volunteer Manager Carol Raymond enlisted several groups from across the state who gave time to prepare the grounds for the season. Employees from Hypertherm, J. Jill Group, and Stonyfield Farm; Plymouth Regional High School National Honors Society; Plymouth State University volunteers and Tau Omega sorority all pitched in to help. Many local businesses helped us to feed the workers: Bob's Shurfine Market, Ashland; Hannaford Supermarkets, Plymouth and Meredith; E.M. Heath Supermarket, Center Harbor and Holderness; Lakes Region Coca-Cola Bottling Company, Belmont.
- Dead River Company and New Hampshire Electric Co-op Foundation generously supported New Hampshire Day on May 6. Dead River Company representatives shared energy efficient ideas with visitors. New Hampshire Electric Cooperative provided free admission to Co-op Members.

CALENDAR OF PROGRAMS & EVENTS

Advance registration is required by noon the day before the program. If minimum enrollment is not met, programs may be cancelled. Walk-ins may be accommodated if space is available.

JUNE

<p>JUNE 6 TUESDAY 7:00 to 8:00 p.m. For adults</p>	<p>Summer Lecture Series: The Squam Lakes Conservation Society and the Squam Uplands Initiative Speaker: Roger Larochelle, Executive Director Squam Lakes Conservation Society The Squam Lakes region is a source of inspiration for thousands. But the beauty of Squam's landscape is not limited to its iconic lakes. Its mountain peaks have been admired for generations, its tributaries sustain the beauty and health of the land, its trails lead hikers to breathtaking scenery, and it holds a significant share of the region's managed forests and the watershed's largest block of unfragmented habitat. This area is called the Squam Uplands and many are working together to protect it. Roger will discuss the importance of the highlands in the Squam Watershed. The Squam Uplands Initiative establishes a framework to protect large tracts above 900 feet, an area larger than the eight lakes in the Squam watershed. The Uplands contain the headwaters of Squam's tributaries, trail viewpoints, most of our working forests, and the watershed's most unfragmented habitat. Hear the case for protection of these lands and strategies for their permanent protection. <i>Cost: No charge but reservations are required.</i></p>
<p>JUNE 10 SATURDAY For adults and families with children ages 12 and up</p>	<p>Annual Breeding Bird Census Session 1: 5:30 to 8:00 a.m. • Session 2: 8:00 to 9:00 a.m. For over three decades Senior Naturalist Dave Erler has conducted a census in early June of bird species that nest on the Science Center campus. The census is done primarily by ear, listening for territorial songs of male birds, indicating probable nesting. This is a great opportunity to hone your bird song identification skills. Session 1 involves canvassing two forested zones, including Mt. Fayal. Session 2 covers fields, exhibit areas, and Kirkwood Gardens. Binoculars are available or bring your own. <i>Cost: No charge but reservations are required.</i></p>
<p>JUNE 23 FRIDAY 7:00 to 8:00 p.m. For adults</p>	<p>Summer Lecture Series: The Bee's Needs - Diversity and Sustainability of Native Pollinators Speaker: Dr. Sandra Rehan, Assistant Professor University of New Hampshire Join us to celebrate National Pollinator Week. Globally, there are more than 20,000 described species of bees, 4,000 of which are native to North America. It is estimated there are over 200 different bee species in New England. Bees pollinate more than 250,000 species of flowering plants. Everyone loves honey produced by honey bees; however, bees are more important and beneficial to humans because of their pollination services. We rely on pollinators for increased yields in agriculture, estimated to be worth \$200 billion in food crop production each year. Maintaining diverse and healthy bee communities is essential to sustain our ecosystems. Dr. Sandra Rehan from the UNH Bee Lab will speak about bees in New England with detailed information on bee diversity and ecology, flower preference, and flower ecology. She will also share methods for living symbiotically with our native pollinators. <i>Cost: No charge but reservations are required.</i></p>
<p>JUNE 28 WEDNESDAY 11:00 a.m. to 12:00 p.m. For ages 2 and 3</p>	<p>Nature Play Time Join us for some unstructured play in nature with your little one! We will set the stage for fun so you and your tot can laugh and explore the natural world together. We will play with water, buckets, and scoops one week and in the forest walking on log balance beams and making stick forts the next. Come once or come every session. Program will be held outdoors; please dress for the weather. Adults get to play too! An adult must participate with children at no additional cost. <i>Cost: \$5/member child; \$7/non-member child</i></p>
<p>JUNE 30 FRIDAY 10:00 to 11:30 a.m. For all ages</p>	<p>StoryWalk™ Opening Celebration StoryWalk™ features <i>Beau Beaver Goes to Town</i> by Frances Bloxam. In this tale, when a beaver family's lodge becomes overcrowded, it's time for the young beavers to live on their own. While Beau Beaver's siblings settle easily at a brook and a pond, Beau can't find a place to call home. He at last finds a ditch and sets to work on his beaver lodge. To his surprise, he causes a small crisis, since his building site turns out to be in the middle of town! Enjoy this fun outside family activity, rain or shine. Come to the opening celebration to enjoy family activities and refreshments. StoryWalk™ surrounds the Holderness Town Gazebo behind the Holderness Post Office at Curry Place. Presented in partnership with Holderness Library and Holderness Recreation Department and is open daily June 30 through September 4. Sponsored by:  <i>Cost: No charge and no reservations required.</i></p>

JULY

<p>JULY 5 WEDNESDAY 7:00 to 8:00 p.m. For adults</p>	<p>Summer Lecture Series: An Armchair Tour of Scotland Speaker: Iain MacLeod, Executive Director Squam Lakes Natural Science Center Every year Iain MacLeod leads a personal tour of his native Scotland. Iain has developed multiple itineraries that explore different regions of the Highlands and Islands. Each trip takes in the natural and cultural history of the area. Iain chooses fine "country house hotels" with excellent food and comfortable accommodations where the group can relax and enjoy the best of Scottish hospitality. This presentation shares trip highlights, including Iain's upcoming June trip to the Orkney and Shetland Islands. Perhaps he will whet your appetite for a future tour. <i>Cost: No charge but reservations are required.</i></p>
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JULY CONTINUED

<p>JULY 6 THURSDAY 10:00 to 11:30 a.m. For ages 8 to adult</p>	<p>Can You Hear Me Now? Sound is vital to animal survival and may mean the difference between life and death. Challenge your ability to hear like an owl, stalk like a mountain lion, and move through a landscape using only sound to navigate. Create a sound map based upon what you hear around you. Test how well you can distinguish between different sounds. You'll be surprised at what you hear! <i>Cost: \$8/member, \$10/non-member</i></p>
<p>JULY 11 TUESDAY 9:30 a.m. to 5:00 p.m. For all ages</p> <p>Sponsored by:</p> 	<p>Pollinator Party Buzz over to the Pollinator Party, a celebration of the life and work of bees and butterflies, and caterpillars too! Bees and other pollinators play a major role in American agriculture by pollinating fruits, vegetables, nuts, and seeds. Pollinator Party brings together bees, caterpillars, beekeepers, live music, and more. Visit with local beekeepers and learn how to raise your own bees. See the new bee houses in Kirkwood Gardens and find out about native bees. Make a wildflower seed bomb to start your own pollinator garden at home. Listen to live music by the New Hampshire Music Festival playing music from the "Three Bs" – Brahms, Beethoven, and Bach!</p> <ul style="list-style-type: none"> • 10:00 a.m. to 2:00 p.m. - Be a Beekeeper Discovery Table on the Bluestone Terrace • 10:00 a.m. to 2:00 p.m. - Make a wildflower seed bomb on the Bluestone Terrace • 10:00 a.m. to 4:00 p.m. - Lucy Golden Jewelry Demonstration and Sales • 10:30 a.m. to 3:30 p.m. - Native Bee Discovery Table in Kirkwood Gardens • 2:00 to 4:00 p.m. – New Hampshire Music Festival with the "Three Bs" <p><i>Cost: Above Pollinator Party activities are included with trail admission</i></p> <p>The Caterpillar Lab 10:00 a.m. to 2:00 p.m. Get up close and personal with live caterpillars! Join The Caterpillar Lab as they share their knowledge and love of these fascinating insects through displays of live native New England caterpillar species on branches of their native New England food plants. <i>Cost: \$5/member or \$18/member family; \$7/non-member or \$25/non-member family</i></p> <p>Caterpillar Walk and Talk by Sam Jaffe of The Caterpillar Lab 3:00 to 4:00 p.m. Join Sam Jaffe, founder of The Caterpillar Lab in Kirkwood Gardens for an easy walk and talk focused on finding and identifying wild caterpillars and butterflies. <i>Cost: \$10/member; \$12/non-member</i></p> 
<p>JULY 12 JULY 26 WEDNESDAYS</p>	<p>Nature Play Time 11:00 a.m. to 12:00 p.m. For ages 2 and 3 <i>See description June 28.</i></p>
<p>JULY 13 THURSDAY 9:00 to 11:30 a.m. For adults</p>	<p>Nearer to Nature Walk: Pettitt Forest in Ashland Explore the Pettitt Forest in Ashland with Naturalist Margaret Gillespie, author of the Science Center's book, <i>Nearer to Nature</i>, and Pete Helm, Stewardship Director at Squam Lakes Conservation Society. With special permission, we will visit this secluded gem, a privately owned and conserved 223 acre forest, which is part of a thousand acre unfragmented block of conserved land. It includes 27 acres of unusual upper elevation wetlands teaming with wildlife, including beavers. We'll search for wildlife sights and sounds along with unusual flora. <i>Cost: \$10/member; \$12/non-member</i></p>
<p>JULY 14 FRIDAY AND JULY 27 THURSDAY</p>	<p>Life Under Logs 10:00 a.m. to 12:00 p.m. For families with children ages 4 and up Fallen trees and rotting logs may not look like good places to live, but they provide habitat for an amazing array of small animals. During this family adventure we will explore the forest floor and find out what lives under logs. Learn how to provide habitat for small critters in your own backyard. <i>Cost: \$8/member, \$10/non-member</i></p>
<p>JULY 18 TUESDAY 9:30 to 11:00 a.m. For adults</p>	<p>Invasive Species Removal Work Days Join Master Gardener Liz Stevens to learn how to identify and remove invasive plant species. We will begin each session with a brief introduction to an invasive species and then go out onto the Science Center grounds to practice techniques for removing that species from an area. Learn skills you can apply to removing invasive species from your own property. Snacks and lemonade will be provided to wrap up the morning. Wear sturdy shoes and bring work gloves, water, insect repellent, and sunscreen. <i>Cost: No charge to attend but reservations are required.</i></p>
<p>JULY 22 SATURDAY 5:30 to 10:00 p.m.</p>	<p>Summer Splash Gala Island Dinner Dance Under the Tent <i>To celebrate our Lake Education programs!</i> <i>Cost: \$50 per person</i> <i>See full program details and purchase tickets online at nhnature.org/programs/gala.php or call 603-968-7194 x 11.</i></p> 

JULY CONTINUED

JULY 25 TUESDAY 9:30 a.m. to 5:00 p.m. For all ages	Christmas in July for the Critters It's a special day all about the animals. Learn how animal care staff provide a rich and stimulating environment for our animal ambassadors through daily enrichment activities. Throughout the day, Up Close to Animals presentations will focus on enrichment techniques and special interactive demonstrations will be held at multiple animal exhibits. Visit the Christmas in July tree to make the animals' wishes come true! Select an ornament featuring an enrichment toy and make a donation to allow the Science Center to purchase it. Docents will be on hand with touchable objects and to answer questions. Sponsored by: Plymouth Animal Hospital <i>Cost: Christmas in July activities are included with trail admission.</i> 
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AUGUST

AUGUST 1 AUGUST 22 TUESDAYS	Invasive Species Removal Work Days 9:30 to 11:00 a.m. For adults <i>See description July 18.</i>
AUGUST 2 WEDNESDAY 10:00 a.m. to 12:00 p.m.	Natural Shelter Building For families with children ages 8 and up Join us for an expedition into shelter building. We will venture out to learn different techniques and ways to construct shelters. The land around us will determine what's best to use to make our shelters. Will it be enough for us to survive the night if we had to? <i>Cost: \$8/member, \$10/non-member</i>
AUGUST 3 THURSDAY 10:00 a.m. to 12:00 p.m. For ages 8 +	Art Inspired by Nature: Write, Sketch, Paint - A Nature Journaling and Bird Drawing Workshop for Kids Presented by artist and author Sallie Wolf Wherever she goes, Sallie Wolf takes her journal, fountain pen, ink, and watercolors to record the world she sees. Her children's books grow from her journals. Sallie's latest book, <i>The Robin Makes a Laughing Sound: A Birder's Journal</i> , is filled with her sketches and watercolor paintings, questions, observations, and poems. Join her to make your own nature journal. <i>Cost: \$12/member; \$15/non-member</i>
AUGUST 8 TUESDAY 7:00 to 8:00 p.m. For adults	Art Inspired by Nature: Inspired by Nature - Techniques of the 19th Century White Mountain Painters Presented by artist Lauren Sansaricq As part of a Holderness-wide celebration of former Holderness resident Helen Nicolay, artist Lauren Sansaricq will discuss the approach taken by the Hudson River School artists of working from drawings and plein air sketches and how they saw and studied nature. Lauren will share her process as a landscape painter and how it relates to the Hudson River School. <i>Cost: No charge but reservations are required.</i>
AUGUST 9 AUGUST 23 WEDNESDAYS	Nature Play Time 11:00 a.m. to 12:00 p.m. For ages 2 and 3 <i>See description June 28.</i>
AUGUST 10 THURSDAY 10:00 a.m. to 3:00 p.m. For adults and youth ages 16+	Art Inspired by Nature: Plein Air Watercolor Painting Workshop at Kirkwood Gardens Presented by artist and educator Maryellen Sakura The spirit and practice of plein air painting is alive in New Hampshire. Beginners and experienced painters will use Kirkwood Gardens as inspiration to learn watercolor techniques and tools used by artist Helen Nicolay in the 19th century. <i>Cost: \$75/person members; \$85/person nonmembers.</i> <i>Material list provided upon registration. \$25 materials fee or supply your own.</i>
AUGUST 12 SATURDAY 8:30 to 10:00 a.m. For members	Annual Meeting for Members Enjoy a complimentary continental breakfast before the business meeting, which starts at 9:00 a.m. Business will include electing officers and trustees; honor retiring board members; recognizing employee service; and presenting the Horizon Award. All members are welcome and encouraged to attend. Election slate and biographies of nominees will be posted at nhnature.org/programs/annual_meeting.php .
AUGUST 18 FRIDAY	Can You Hear Me Now? 10:00 to 11:30 a.m. For ages 8 to adult <i>See description July 6.</i>
AUGUST 21 MONDAY 12:00 to 4:00 p.m. For all ages Buy your eclipse glasses at the Howling Coyote	Partial Eclipse Viewing and Total Eclipse Live-cast On Monday, August 21, 2017, all of North America will be treated to an eclipse of the sun. Anyone within the path of totality can see one of nature's most awe-inspiring sights - a total solar eclipse. This path, where the moon will completely cover the sun will stretch from Oregon to South Carolina. Here in New Hampshire, we will be able to see the partial solar eclipse, weather permitting, which will peak at 2:45 p.m. Staff from McAuliffe-Shepard Discovery Center will guide you in safely viewing this phenomenon using solar telescopes and eclipse glasses. Participate in hands-on activities and learn how and why eclipses happen. Watch a NASA live-cast of the total eclipse too. <i>Cost: Eclipse viewing activities are included with trail admission.</i>

SQUAM LAKE CRUISES

BUY CRUISE
TICKETS

Book your cruise online at nhnature.org!

Explore Squam

May 20 to June 30 - Daily at 1:00 p.m.
July 1 to August 31 - Daily at 11:00 a.m., 1:00 p.m., 3:00 p.m.
September 1 to October 9
Tuesday, Wednesday, Thursday at 11:00 a.m., 1:00 p.m.
Friday through Monday at 11:00 a.m., 1:00 p.m., 3:00 p.m.



This unforgettable guided tour has something to delight everyone. Learn about the natural history of the lake, the wildlife that makes Squam so special, and the people who have enjoyed these lakes for over 5,000 years. See the beautiful lake where *On Golden Pond* was filmed over 30 years ago. Watch for and observe Common Loons and Bald Eagles.

Loon Cruise

June 5 to August 28 - Mondays and Fridays at 3:00 p.m.



We are delighted to join forces with our friends and colleagues at the Loon Preservation Committee (LPC). Offered twice a week these cruises focus on Common Loon conservation, biology, and monitoring. A Science Center naturalist joins an LPC biologist who guides the tour and discusses the work LPC does across the state and on Squam to protect these extraordinary birds. This special cruise route is designed to maximize Loon observations.

Nature of the Lakes

July 4 to August 31 - Tuesday, Wednesday, Thursday at 4:00 p.m.
September 5 to October 5 - Tuesday, Wednesday, Thursday at 3:00 p.m.

Uncover the rich natural history of Squam Lake with an experienced naturalist educator. Observe Loons and Bald Eagles and their nesting sites along with other wildlife. Learn how animals survive and adapt to their aquatic world. Gain an appreciation and deeper understanding of Squam Lake from mountain ranges to island stories to quiet spots during this memorable lake experience.

Lake Explorers – A Family Cruise

July 11, 25, and August 8 - Tuesdays at 10:00 a.m. | For ages 5+

Experience the excitement of Squam Lake as active explorers. This family-style cruise gives children an opportunity to use binoculars, search for loons, collect microscopic life, watch live fish, participate in a scavenger hunt, and test their navigational abilities. Get on board for a cruise that could spark an interest to last a lifetime.

Squam Lake Cruise Rates:

Adult: \$27; Senior (65+): \$25; Youth (up to age 15): \$23

Not recommended for children under age 3. Members receive a \$4 discount per person. Discounts available for combination trail and cruise tickets.

Dinner and Sunset Cruise

Thursday, July 20 and 27

Dinner at 5:00 p.m.

Cruise departs at 6:30 p.m.

Start your evening with a delicious, fixed-price dinner at Walter's Basin Restaurant, followed by a sunset cruise on Squam Lake. This guided tour showcases Squam's beauty as dusk falls. The guide discusses the natural history, wildlife, and people of Squam Lake.

Cost: \$55.00 per person; not recommended for children

Squam Lake Charters

Treat your visiting family or friends to a truly memorable experience. Host your own cocktail party or other unique gathering on Squam Lake. Transport wedding guests to Church Island. Any of these are possible by chartering a private cruise customized to fit your plans. Five canopied pontoon boats and experienced tour guides are ready to help with your special outing. Operations Manager Sharon Warga will personally arrange your charter for any occasion or celebration. Contact Sharon at 603-968-7194 x10 or sharon.warga@nhnature.org for reservations.

All Squam Lake Cruises depart on Route 113 across from the Science Center parking lots. Park in designated lots and walk to Lake Education Headquarters using pathway. Squam Lake Cruises are 90 minutes in length aboard canopied pontoon boats. Binoculars are available for wildlife viewing at no additional cost.

Space is limited on Squam Lake Cruises. Make your reservation online at nhnature.org or call 603-968-7194 x 7.

ONGOING PROGRAMS:

- 👉 **River Otter Feeding** - Every Monday, Wednesday, and Friday at 11:30 a.m. at the River Otter Exhibit (May - October)
- 👉 **Mink Feeding** - Every Friday at 12:30 p.m. at the Water Matters Pavilion (July and August)
- 👉 **Turtle Talks** - Every Tuesday at 10:30 a.m. on the Bluestone Terrace of the Webster Education Building (July and August)
- 👉 **Up Close to Animals**
Daily at 11:00 a.m., 12:00 p.m., 1:00 p.m., 2:00 p.m., 3:00 p.m. at the Amphitheater (weather permitting) during July and August and on weekends through Columbus Day.
 - 👉 **Fish Feeding** - every Tuesday at 1:00 p.m. at the Water Matters Pavilion
 - 👉 **Coyote** - every Wednesday at 1:00 p.m. in the Webster Building Classroom 3
 - 👉 **Mountain Lion Training** - every Thursday at 12:00 p.m. at the Mountain Lion Exhibit
- 👉 **StoryWalk™** - Daily June 30 through September 4 at the Holderness Town Gazebo

Visit the Calendar at nhnature.org for the latest schedule, details, and program information.

OPENING A WINDOW TO THE NATURAL WORLD

FAQ About Estate Planning

What is a planned gift?

A planned gift is a gift made during your lifetime or planned as part of your estate to support an organization such as Squam Lakes Natural Science Center and its work. It may be cash or other assets, such as an insurance policy or retirement account that names the Science Center as a beneficiary. It can also be as simple as naming the Science Center as a Transfer on death beneficiary of a checking or savings account.

What if I am not sure how much money will be left for me to give?

You can name a percentage or a specific amount or whatever is left after your estate responsibilities are fulfilled.

What language should I use in my will?

To leave a charitable bequest in your will or trust, use direct language naming Squam Lakes Natural Science Center as a beneficiary and the assets you wish to give. For cash gifts,

this may be a specific dollar amount or a percentage of your assets. Also, a bequest may be added to an existing will through an amendment or codicil.

Here is one example for wording in a bequest: I give the sum of \$_____ or _____ percent of my estate for its unrestricted use to Squam Lakes Natural Science Center, a New Hampshire non-profit corporation with principal offices in Holderness, New Hampshire.

As always, it's best to consult your attorney or financial advisor regarding your estate plans. Any size gift, large or small, is important and greatly appreciated.

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



Naturalist's Legacy Society

Your planned estate gift will help Squam Lakes Natural Science Center to continue to achieve its mission to teach about the natural world for generations to come.



Learn more at http://www.nhnature.org/support/planned_giving.php

WISH LIST

Mobility scooters

For Animal Care: Dog crates, golf cart

For Kirkwood Gardens Day treasures sale:

Anything from used tools to garden art

For Facilities: Air compressor, ladders,

leaf blower, plow blade, shop tools,

string trimmer, trailer, walk behind sand

spreader, water tank, welder

These generous donors made tribute gifts, which were received between January 1 and March 31, 2017:

In memory of Alan T. English
Marguerette Smylie

In honor of Brenda Erler
Nancy and Bill Dailey

In memory of Louise Hennessy
Patricia Kelly

In honor of Bill Lee
Skip Corson

In memory of Russ Orton
Martha W. Chandler
George and Louise Hulme
Margot Johnson

Newbold and Nancy Le Roy
Eva Madden

Golda Schohan and Nils Skorve
Tara Walor

In memory of Barbara Ridgely
Peg Ridgely

In memory of Richard Sanderson
Anne Fosse

IN MEMORIAM: RUSSELL C. ORTON

Longtime supporter and former trustee, Russell C. Orton passed away in February 2017 at the age of 94. Russ served on the Board of Trustees from 1977 to 1989, and then became an Honorary Trustee in 2003. He was Secretary in 1978 and Treasurer from 1984 to 1987. He also showed up for work days with a rake or hammer to pitch in to do whatever needed to be done. A World War II Army veteran in the 351st Infantry Division, Russ fought in Italy and earned a Silver Star for valor in combat. Russ was the son of Harriet and Dr. Leon Orton of Ashland. In the 1970s Russ started a fund in memory of his mother, which paid for the first van, the Orton Mobile Science Lab, making it possible for naturalists to take live animal programs to schools. Later, Russ initiated another fund to build the Black Bear Exhibit in honor of his parents; he actively helped staff with planning it. A reserve fund in memory of his parents provides support for future repairs and renovations to the Black Bear Exhibit. Russ was active throughout his community and supported many other organizations. He will be missed and is remembered fondly. Russ is survived by his wife Mary, of Laconia, New Hampshire, and four children.



GREEN TIP: WELCOME SOLITARY BEES



Mason Bee
flickr/kitkaphotogirl

We all hope our gardens will thrive, producing vibrant flowers, tasty salads, and abundant veggies. Solitary bees can be a large part of our success. They are super pollinators, 100 times more efficient than honeybees. Dry pollen collects on the fuzzy bottom of the abdomen so some readily falls off on the next flowers they visit. Solitary queen bees do all the work raising their brood, with little time or need for defense.

There is no honey-filled hive to protect. Come meet some of these gentle solitary bees at Kirkwood Gardens this summer. Thanks to a Sponsor-A-Hive grant from the Honeybee Conservancy, we will host two native species, mason bees and leafcutter bees, in a nesting house. For more information visit <http://thehoneybeeconservancy.org/>.

TRAIL'S END

SEASONS



As I sit by the fire in mid-March during what will hopefully be the last major snowstorm of the winter, I am reminded of the importance of seasons. In Ecclesiastes 3:1, the writer says, "To everything there is a season, and a time for every purpose under heaven." And so it goes at Squam Lakes Natural Science Center. For those of us members and visitors who leave the trail in the fall of one year and return in the spring of the next, winter can be a time when our thoughts wander far away, even to warmer climates for some of us. But don't let the "Trail Closed" sign lead you to believe that our staff and board go into hibernation with the bears. The hum of activity on campus may be hidden by a blanket of white and lack of traffic on Route 113, but the pace and effort is no less than on the busiest day of August.

The animal care staff is tasked with the care and feeding of our animals, which requires different efforts during winter months. We also introduce new animals in some years, as we did this winter with herons for the aviary. Our education staff is busy guiding science

curricula for several local schools and teaching monthly home school programs. They also teach school groups, create new exhibit interpretations, and assist in the construction of new exhibits throughout the trail. In addition, facilities staff repair, repaint, and re-letter interpretive signs and basically do anything that needs to be ready for spring opening.

If you drove by the campus recently you saw our new entrance and exit gates, the beginnings of a parking lot extension, and new buildings on our new channel property. Buildings and grounds staff are responsible for these improvements, as well as keeping all buildings and exhibits in tip top shape. And, how do we share with you – our visitors – ways to enjoy the science education we provide? Our marketing staff has built an advertising plan for the summer and upgraded our point-of-sale system to offer lake cruise reservations online. All advertisements, brochures, publications, signage, and banners are planned and designed well before the May 1 trail opening.

We installed new virus software, new volunteer software, and updated some monitors and computers. New staff members have been hired and trained. Visitor Services Associates researched and placed orders for new products in Howling Coyote Gift Shop. The annual summer gala has been planned. Kirkwood Gardens Day is on the calendar and other special days such as Pollinator Party. Your board devoted significant time in the execution of our new strategic plan. Our 2016 operating financials have been finalized and the 2017 budget approved.

So much for the notion of a long, quiet, and slow winter. In order to describe the mood, work habits, and attitudes of our Science Center staff, I share with you the words of Albert Camus. He said, "In the depth of winter, I finally learned that within me there lay an invincible summer."

As we read this newsletter we know summer will soon arrive. But we also know that Squam Lakes Natural Science Center thrives because of winter.

Trail's End is written by Ken Evans, Chair of Squam Lakes Natural Science Center's Board of Trustees.
You may contact Ken at evanmead139@gmail.com.

PREDATORY PLANTS *continued from page 1*

unpredictable. Here's how the trap works. Each tiny, round sac is equipped with a sealed door at one end, baited with nectar. Much of the water inside the sac is pumped out by the bladder through its walls, thus creating a partial vacuum. A bristly structure by the door breaks the door's seal if disturbed by a passing organism. Once the seal is breached, the door opens, instantly sucking in water and creatures. When the sac fills, the door closes. Time elapsed for the capture? Less than a second. Digestive enzymes go to work on the prey while the trap again exudes water through its walls. The bladderwort can reset for business in a half hour or less.

Are you intrigued by the lifestyle of these carnivorous plants? To see pitcher plants and sundews in their native habitat, treat yourself with a trip to the nearest bog. These unique spots were often formed after glacial ice melted, leaving circular depressions with no inlet or outlet. Few nutrients are available, so carnivorous plants have the corner on the market in these ecosystems. Be prepared to share space with flitting dragonflies and swooping birds. Who knew carnivorous plants could be so inviting?

CARNIVOROUS PLANT QUIZ

1. True or False? Carnivorous plants must consume prey to survive.
2. Which do sundews use to capture prey?
A. Glue B. Suction C. Both A and B
3. Pitcher plants get nutrients from...
A. Capturing prey B. Photosynthesis C. Organisms living in the pitcher D. All of the above
4. The best environment to find sundews and pitcher plants in New England is...
A. Ponds B. Bogs C. Vernal pools
5. True or False? Bladderworts use suction in catching prey.

Answers:

1. False | 2. A | 3. D | 4. B | 5. True



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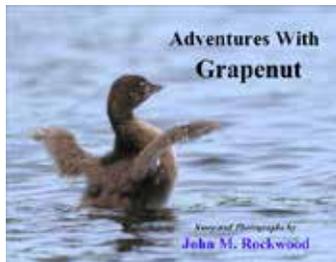
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THE HOWLING COYOTE GIFT SHOP

Adventures with Grapenut, by John Rockwood
\$19.99 (member price \$17.99)

Enjoy a special book
by local author and
photographer John
Rockwood as he records
the day-to-day life of a
loon pair as they raise
their chick. From the time
the chick is only four days
old to its exit from the
freshwater lake 4 months later.



**View and listen to an adaptation of the book at the
Celebrate Birds Exhibit on the live animal exhibit trail.**

All proceeds from sales at the Howling Coyote Gift Shop benefit
the mission of Squam Lakes Natural Science Center:
*to advance understanding of ecology by exploring New
Hampshire's natural world.*

VOLUNTEER OPPORTUNITIES

Docent Training (For adults)

June 19, 20, 21, 22 - 3:00 to 8:00 p.m.

First Guides Training (For ages 14 to 17)

June 28, 29, 30 - 10:00 a.m. to 4:00 p.m.

Visit nhnature.org/volunteers.php for details.

WHERE, OH WHERE?

The picture from the spring edition of *Tracks & Trails* was
taken on the live animal exhibit trail between the Mountain
Lion and White-tailed Deer Exhibits. The winner of the
Science Center hat is Matthew
Mostoller of Harvard, MA.

Do you know the location shown
in the photo on the right? Email
your answer to amanda.gillen@nhnature.org
and you could win a
Science Center hat!



July 5–August 5, 2017

New Hampshire Music Festival

Plymouth & Wolfeboro, NH

Weekly Orchestral & Chamber Concerts

Music in the Mountains & Arts Walks

FREE Family Concert - July 22

Make Music Plymouth - July 22

Classical Conversations

nhmf.org
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