




# Connections

JANUARY – APRIL 2014


A NEWSLETTER FOR THE MEMBERS OF MASS AUDUBON



Stony Brook Wildlife  
Sanctuary, Norfolk.

## *Lessons from Our Lands*

*see page 1*

 [massaudubon.org/connections](http://massaudubon.org/connections)



**Connections** is published three times each year in January, May, and September.

**Editorial Team:**

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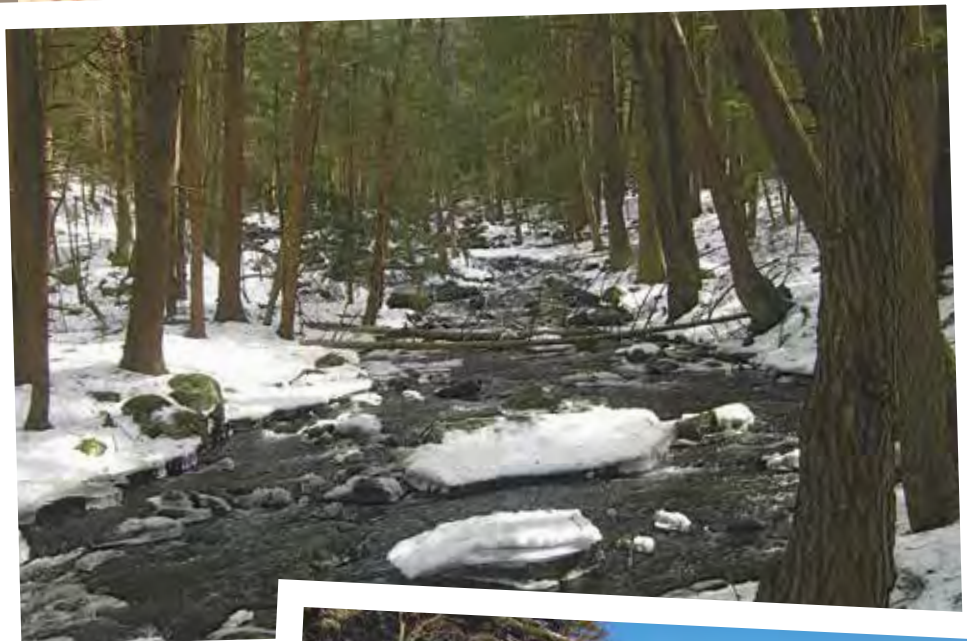
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Rutland Brook Wildlife Sanctuary, Petersham.



Ipswich River Wildlife Sanctuary, Topsfield.



# Lessons from Our Lands

## *The Rapid Ecological Assessment Project*

by Tom Lautzenheiser



When a piece of land comes into Mass Audubon's possession, it's an important step toward conserving the nature of that property—but in many ways it's only the beginning. That land may still face serious threats including:

- Sea-level rise, severe storms, and other effects of climate change
- Invasive pests, such as the emerald ash borer, a beetle that threatens ash trees
- Pollution and other types of environmental degradation

To address those threats, the other Regional Scientists and I recently completed detailed and individualized plans—called Rapid Ecological Assessments—for every wildlife sanctuary in our network. This five-year journey of discovery carried us from chilly streams in the Berkshire Hills, to urban oases, to shorebird- (and poison ivy-) covered coastal islands, in search of Mass Audubon's natural treasures and the best strategies for keeping them safe.

### **Making Plans**

The first step in the project was to gather information from our land: what natural assets—e.g., rare species or natural communities—do we have, and what threatens them? Then we figured out what steps we might take to protect those features. For many sanctuaries, Mass Audubon already had some data and management plans. For others, there was plenty waiting to be discovered.



Southeast, Cape, and Islands Regional Scientist Robert Buchsbaum counts salamander egg masses.





Broadmoor Wildlife Sanctuary, Natick.

In many ways, compiling these plans was like assembling a jigsaw puzzle with thousands of pieces. On one day, we might be searching for a rare plant last spotted decades ago; on another, we'd be turning over stones in cold streams to find salamanders. And it wasn't all about getting boots mucky. Some critical information, like the pattern of tree cover, was gathered from aerial photography obtained through the Massachusetts Office of Geographic Information. The puzzle could never have been completed without help from our conservation partners, including the Massachusetts Natural Heritage and Endangered Species Program.

### What We Found: Whammy Trees, Secret Forests, and Hidden Turtles

"One of the most rewarding aspects of this project was having an excuse to visit each of our properties," says Southeast, Cape, and Islands Regional Scientist Robert Buchsbaum. "We have so many large and small gems that are great habitats for wildlife."

In the less-developed **Central/Western Region**, where I'm the Regional Scientist,

## Need a Hand with Land Management?

Mass Audubon has developed considerable expertise through managing these diverse lands and we offer our skills to conservation partners through our Ecological Extension Service (EES). We use the latest technology to help with natural resource inventories and land management planning, wildlife research and habitat restoration, documentation for conservation restrictions, and more. For more information, visit [www.massaudubon.org/ees](http://www.massaudubon.org/ees).

our properties conserve nature on a landscape scale, and many provide habitat for wide-ranging mammals. For example, I found places where black bears have walked along the same paths for so long that individual impressions in the ground mark their footprints. Near these trails, there are "whammy trees" whose trunks are scratched and bitten by generations of territorial bears. Here, the best management style is mostly hands-off, with a few exceptions such as maintaining habitat for the eastern meadowlark and other declining grassland birds.

In the more populated **Greater Boston/North Shore Region**, the greatest challenge, according to Regional Scientist Lou Wagner, is "harmonizing ecological management goals with intensive human use in the form of visitors, program participants, and summer campers." Nature and people meet in surprising ways; for example, Lou found a spectacular native forest right alongside Route 128.

The **Southeast, Cape, and Islands Region** hosts many unusual habitats including sandplain grasslands and coastal plain ponds. Many of these environments depend on disturbances,

such as fire and natural flooding cycles, and management often includes actions that mimic or introduce these disturbances. One highlight for Robert was encountering a previously undocumented population of rare turtles at a South Shore wildlife sanctuary.

### Next Steps

Rapid Ecological Assessments are recipes for tackling present and future threats to our sanctuaries—and we're already taking action. One result has been the removal of an obsolete dam at Sackett Brook, at Canoe Meadows Wildlife Sanctuary in Pittsfield, to make room for threatened wood turtles (see *Connections*, Sept 2013). With clear water now flowing under newly planted streamside trees, the brook will stay cooler as the climate changes and temperatures climb.

Mass Audubon President Henry Tepper recognized the importance of the Rapid Ecological Assessments with the 2013 President's Award. It was a tremendous honor, but the project team is not resting on its laurels. We're already revisiting properties to gather new information, evaluate the successes and challenges of our actions, and update our plans to make sure that we truly are protecting the nature of Massachusetts. ▲

*Tom Lautzenheiser is Central/West Regional Scientist.*

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# Creating a Climate of Action

by Michael P. O'Connor

For most people concerned about global warming and the resulting changes in climate, questions abound: What is climate change and what does it mean for me (and my family)? Is the challenge too big? What can we do in response?

As a regional conservation leader, Mass Audubon appreciates the important role we can play in answering these questions and others, and helping members and visitors to our wildlife sanctuaries transform knowledge into action.

Under the guidance of new Mass Audubon President Henry Tepper, senior staff, and volunteer leadership, our organization has developed an ambitious—but practical and effective—Climate Change Program designed to support and inform our core strategies of land conservation, nature-based education, and environmental advocacy.

The program's chief elements include:

- **Leading by example.** For instance, we've reduced our organization-wide carbon footprint by 50 percent, and our facilities demonstrate cutting-edge sustainable design elements.
- **Applying our advocacy expertise** at community, statewide, and regional levels.
- **Revising our land protection and ecological management plans** to anticipate and adapt to climate changes, with a special focus on conserving climate-resilient landscapes.
- **Supporting climate change literacy** in the Commonwealth's science curricula and integrating it into our own education programs.

The four areas are diverse but complementary, and implicit in each is the need to develop language that helps members and visitors understand global warming—and Mass Audubon's commitment to addressing it.

As Climate Change Program Director Loring Schwarz noted, "Addressing



The electric charging station at Joppa Flats Education Center in Newburyport is powered by the center's rooftop solar panels.

climate change is a responsibility that we take very seriously. And a major part of that commitment is to make sure our educators are as equipped as possible—and comfortable—communicating about a subject that can be complicated and controversial."

One valuable avenue is to share experiences and knowledge with partners such as The Nature Conservancy (TNC), the New England Aquarium, and the National Network for Ocean and Climate Change Interpretation (NNOCCI). For instance, we've partnered with TNC in efforts to learn more about the impacts on the environment, including on rare species and coastal wetlands, while our education staff has benefited from trainings and conferences facilitated by Aquarium and NNOCCI experts.

Another knowledge gateway is sanctuary based, from conversations with curious visitors at our nature centers to field observations by educators and other staff about "missing" plants and birds or trails turned impassable by rising tides.

Given such a complex (and growing) flow of information, creating effective messages can sometimes seem as formidable as global warming itself. Amy Fleischer, Wellfleet Bay's Education Director/Public Programs

## Adding Up Our Climate Change Efforts

- 1 Electric vehicle charging station (at Joppa Flats Education Center, Newburyport)
- 7 Properties with interpretive green trails
- 9 Sanctuaries with rainwater collection systems
- 10 Toyota Prius hybrid (gas/electric) vehicles
- 11 Versions of "Green Stickers" Mass Audubon has placed at properties to signify sustainable/renewable practices, from composting to recycling to refilling water bottles
- 21 Properties with solar panel arrays
- 52 Overall percentage by which Mass Audubon has reduced its carbon footprint over the past decade
- 117 Programmable thermostats

Coordinator and a NNOCCI facilitator, stresses the importance of narratives in helping people understand climate change and place themselves in scenarios that inspire action.

"At our sanctuaries, our educators, volunteer naturalists, and scientists communicate with visitors primarily by telling stories about wildlife and habitats. Climate change has now become a major factor in these narratives," Fleischer said. "It explains why we see more of certain animals and less of others, and why our land and ocean are changing. We can use what we have learned to communicate in a way that will change public consciousness about this issue and inspire people to act within their communities." ▲

Michael P. O'Connor is Public Relations Manager.

[massaudubon.org/climate](https://massaudubon.org/climate)



Arthur Blackman was the catalyst for the creation of Rocky Hill Wildlife Sanctuary in Groton.

# Giving Thanks for the Land

by Dinah Rowbotham

*As darkness fell, I could see lights come on in the woods around Groton, roads with cars and car headlights on them, all except for one area. It was then time for me to tell a bedtime story to my youngest daughter... and I began to fantasize about this dark area that I'd never been in. And I really didn't ever want to go, because I enjoyed the fantasy of what might really be there, and she did too... and so I became very fond of my fantasies about this land. And then I heard about the owner wanting to sell it...*

And thus began the story of how Arthur Blackman found himself as the catalyst for the creation of Rocky Hill Wildlife Sanctuary in Groton. Surrounded by others who share his passion for land conservation, he spoke of his experience at the 2012 Giving Thanks for the Land: A Celebration of the People Who Make Land Conservation Possible event.

This annual November gathering honors those who have contributed to the success of land conservation in Massachusetts, including landowners who have conserved their land financial supporters of projects or the program, our partner organizations and government agencies, conservation-



Arthur Blackman talks about the creation of Rocky Hill Wildlife Sanctuary.

minded land professionals, and everyone who simply roots for Mass Audubon's conservation progress.

Stories are always at the heart of the event, and this past year was no different, when Roberta Soolman, Wenley Ferguson, and Jared Chase, the new Chair of Mass Audubon's Board of Directors, shared their connections to land conservation. As storytellers take the audience back to moments that inspired them to take

action, listeners can't help but recall the motivation for their own involvement in conservation and be inspired to continue investing their time, energy, or funds in conserving more land.

Every year's celebration produces stories that are just as riveting as the ones told at the very first event in 2008, when Henry Hall told an endearing story about a Wilson's warbler with a "winning personality" that wintered on his family's land adjacent to Mass Audubon's Nahant Thicket Wildlife Sanctuary. Henry, whose family protects its land with a conservation restriction, said, "Surely, he was not the first rare bird to land here and, through this conservation restriction, hopefully many more will find this to be a welcoming place."

Our land conservation community is bound together by a single commonality: we all yearn to protect a beloved place, be it a few acres near home or the vast landscape of Massachusetts. For us, there is no better way to embrace that commonality than through storytelling and simply Giving Thanks. ▲

*Dinah Rowbotham is Land Conservation Associate.*

[massaudubon.org/land](http://massaudubon.org/land)



# Growing Up Wildwood

by Amanda Duggan

Nestled along the shore of Hubbard Pond in Rindge, New Hampshire, little brown cabins sit quietly, blanketed in fresh snow. The buildings blend into their surroundings so well that Wildwood—Mass Audubon’s overnight camp—looks to be part of, well, the wild.

But Lydia Davis knows how busy those cabins can be. For many years, she spent her summers there as a camper. She later returned to Wildwood for the Leaders-In-Training (LIT) program, and then as a Junior Counselor. As Lydia learned and grew, Wildwood brought her new roles, challenges, and triumphs.

## The Camper Years

Lydia became a camper when she was 11. Every morning began with an Interest Group program of her choice, such as wildlife tracking, nature writing, and practicing wilderness survival skills. (She liked the survival skills program so much she chose it twice!) In the afternoon, she had the chance to explore new topics and recreational activities during Discovery Groups, while evening activities gave her time to make friends during camp social events.

Lydia had so much fun that she didn’t notice how much she was learning—“It happens without you realizing it,” she says.



We're already looking forward to camp!



Register for our overnight camp, Wildwood, and our 17 day camps across the state at:

[massaudubon.org/camps](http://massaudubon.org/camps)



Lydia Davis prepares for the high-ropes challenge course at Wildwood.

## A Leader-In-Training

When Lydia entered 10th grade, she became eligible for Wildwood’s Leaders-In-Training program. LIT participants gain leadership skills while practicing environmental stewardship through group service projects, such as tidying green spaces and waterways near camp. Lydia found her time as an LIT very gratifying, and these years were among her favorites. She’s excited that her younger brother, Isaac, will follow in her footsteps and become an LIT this summer.

## A Junior Counselor

Once she completed both years of the LIT program, Lydia became a Junior Counselor. As part of the Wildwood staff, she taught campers the skills and knowledge she’d gained over the years. Like any new teacher, she was nervous at first, fearful that she didn’t know

enough. “But once I started teaching, it all came back! I couldn’t believe how much I knew about nature.”

## A Lasting Impact

Lydia is confident that Wildwood has influenced her beyond her time there. “At camp,” she says, “you try new things literally every day, so now I’m much better at taking a risk.” With her Wildwood friends and lessons close to her heart, Lydia is prepared to take on any challenge.

Each year, thousands of campers like Lydia deepen their knowledge and love of nature at Wildwood and Mass Audubon day camps. Register today and give your camper an experience that will last a lifetime. ▲

*Amanda Duggan is Marketing and Development Assistant.*

[massaudubon.org/wildwood](http://massaudubon.org/wildwood)

## Fellowship Winner Studies Birds and Climate

**Barnstable**—Severe storms, eroded beaches, and other effects of climate change threaten the birds that live on our shores. As part of Mass Audubon's response to these challenges, our Coastal Waterbird Program (CWP) has awarded a fellowship to Jonathan Shuster, a

Field Notes



talented conservationist who will help CWP adapt to our changing climate.

The CWP Fellowship was created to give former field staff advanced experience in coastal bird management. Jonathan is an ideal candidate—he has worked

on our American oystercatcher and roseate tern projects with Wellfleet Bay, and with a variety of other conservation groups.

As a Fellow, Jonathan will split his work between the climate adaptation project and helping to manage CWP's fieldwork on 160 beaches. The result will be greater protection for our wildlife—both now and in the future. For more information, visit [massaudubon.org/cwp](http://massaudubon.org/cwp).

## Saving the American Chestnut

**Princeton**—A century ago, American chestnut trees were abundant in our forests. Their nuts were a critical food source for wildlife, and their wood was used extensively in houses, fences, furniture, and more. But in the early 20th century, this tree was struck by a devastating blight accidentally imported from Asia.

Thankfully, there's hope for this species. An organization called The American Chestnut Foundation is working to restore it to our eastern woods by developing blight-resistant trees. It's a complex process that involves crossing American chestnuts with Asian chestnuts so they gain the latter's natural immunity.



Wachusett Meadow Wildlife Sanctuary became a demonstration site for these efforts. Come see for yourself—at the start of South Meadow Trail, there's an interpretive sign that guides the way to a planting of young American chestnuts.

For more information, visit [massaudubon.org/wachusettmeadow](http://massaudubon.org/wachusettmeadow).

## What's New with Mass Audubon Tours

by Karen O'Neill

Each year, Mass Audubon carefully crafts approximately 16 international tours that raise awareness of the world's biodiversity. In partnership with local guides, our adventures blend nature and culture for an unforgettable experience. They also support conservation work here and abroad.

In the past 50 years, we've taken members and friends to more than 50 countries. One popular destination is **Panama**. Our February 2014 trip to this country includes a new twist: we'll spend five days in the Darién jungle, one of the most ecologically diverse regions of Central America. This relatively untouched lowland rainforest is a haven for rare species, such as the majestic Harpy Eagle, which hunts monkeys and sloths.

We're also adding new countries to our list. One example is the **Republic of Georgia**, which we'll visit for the first time from April 26 to May 10. Crowned by the mighty peaks of the Caucasus Mountains and squeezed into the isthmus between the Black and Caspian seas, this country links the Russian steppes and the deserts of the Middle East. It offers exceptionally high biodiversity in a small area and a rich cultural heritage.

Consider joining us on an upcoming adventure!

Karen O'Neill is Director of Mass Audubon Tours.



[massaudubon.org/travel](http://massaudubon.org/travel)



# EXPLORING THE NATURE OF MASSACHUSETTS

by Rosemary Mosco

## Green in Winter



### White Pine (*Pinus strobus*)

To identify a white pine, look for needles in clusters of five, with one for each letter in the word "white." Spot this tree near the visitor center at Broad Meadow Brook in Worcester; at the Museum of American Bird Art at Mass Audubon in Canton, and at Stony Brook in Norfolk.



### American Holly (*Ilex opaca*)

This handsome tree is much more common in the American southeast; in Massachusetts it lives mostly on the coastal plain. In the early- to mid-20th century, the horticulturist Wilfrid Wheeler preserved and propagated many varieties of this species on his land in Falmouth, which later became Ashumet Holly Wildlife Sanctuary. You can also see this iconic plant at Long Pasture in Barnstable.



### Christmas Fern (*Polystichum acrostichoides*)

The leaflets of this tough, leathery fern are shaped like Christmas stockings. It grows in clumps in moist forests, often on rocky slopes and in ravines. You'll find it at Habitat in Belmont, Pleasant Valley in Lenox, and Wachusett Meadow in Princeton.



### Mountain-laurel (*Kalmia latifolia*)

This shrub has waxy, oval-shaped leaves. All parts of the plant are poisonous to eat. Ipswich River in Topsfield hosts this plant, as does Broadmoor in Natick and North River in Marshfield.



### Wintergreen (*Gaultheria procumbens*)

The oval-shaped leaves of wintergreen have a strong minty odor when crushed—the flavor of the same name was originally derived from this plant and related species. Look for this little plant at Felix Neck in Edgartown, at Oak Knoll in Attleboro, and in the red pine forest at Drumlin Farm in Lincoln.

On cold winter days, if you find yourself longing for the lush foliage of spring and summer, take heart: there's still some green in the wilds of Massachusetts. Despite blizzards, fierce winds, and plunging temperatures, many of our plants hang on to their leaves throughout the cold months.

Staying green in winter has its benefits. As long as the weather is favorable, evergreen plants can continue to make food from sunlight. Furthermore, once spring finally arrives and most plants are hurriedly growing their leaves, those that stayed green are already in prime position to soak up the first warm rays. Some plants, like white pines and mountain-laurels, retain individual leaves across multiple years; this saves them the energy required to grow a whole new set each year.

In order to reap these rewards, however, evergreen plants must meet the considerable challenges of our harsh winters. Their strategies are varied. The familiar conical Christmas tree shape of many conifers, like spruces and firs, lets heavy snow slide off rather than pile up on branches. They also have densely packed, needle-like leaves that help block harsh winds.

If you've had your pipes freeze, you know the hazards of ice. When sharp ice crystals form inside plants, they can damage vital tissues. To protect themselves, Christmas ferns and other plants flood their leaves with sugar, which acts as a natural antifreeze. Also, the foliage of wintergreen, American holly, and other plants bears a waxy coating that prevents water loss.

Safeguarded by these and other adaptations, evergreen plants contribute a dash of color to the wilderness in winter.

Rosemary Mosco is Marketing Coordinator.

Birdhouse Sale

Mass Audubon  
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The entire month of February!

Members receive 20% off birdhouses, poles, and accessories.\*

\*Sale items excluded

The Audubon Shop, located at Drumlin Farm Wildlife Sanctuary  
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# By the Numbers: The Bottle Bill

by Christina McDermott

Have you ever taken your bottles and cans to be redeemed for a 5-cent deposit? Then, whether you realize it or not, you're familiar with the outcome of the passage of the Bottle Bill. It was put into law almost 30 years ago to encourage recycling of certain beverage containers, like soda and beer cans. The beverage industry has changed in the last three decades, yet the Bottle Bill has not been amended to adapt to the increase in single-use containers. That's why Mass Audubon supports *An Act Updating the Bottle Bill*. If passed, it would expand the deposit law to cover modern-day on-the-go liquids such as water, juice, and sports drinks.

Here are some reasons why Mass Audubon supports updating the Bottle Bill:

80% of beverage containers covered by the existing Bottle Bill are redeemed and recycled.

200-plus Massachusetts cities and towns have passed resolutions to show their support for the bill.

77% of voters say they support the updated bill according to a recent poll taken by MassINC.

20% of greenhouse gas emissions stem from beverage containers, when we factor in landfills and replacing used products with new ones made from virgin materials.

One billion bottles get thrown away instead of recycled every year that the bill doesn't pass. That's enough to fill up Fenway Park annually!

23% of non-deposit containers are recycled—the rest become litter, clog storm drains, or are thrown in the trash, and cities and towns end up paying for the cleanup and disposal.

\$7 million is the amount Massachusetts municipalities would save annually through an updated Bottle Bill.


Our partners at the Massachusetts Coalition to Update the Bottle Bill are also now leading a campaign to place it on the 2014 ballot. We support their ballot campaign and encourage our members to participate. Visit [www.massbottlebill.org](http://www.massbottlebill.org) to learn how to get involved!

*Christina McDermott is Assistant to the Director of Public Policy and Government Relations.*

[massaudubon.org/advocacy](http://massaudubon.org/advocacy)



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8 am-4 pm  
Bentley University, Waltham

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[massaudubon.org/birdersmeeting](http://massaudubon.org/birdersmeeting)  
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## WINTER PROGRAM SAMPLER

A snapshot of seasonal offerings at our wildlife sanctuaries.\*

Beautiful Birds	Make & Do	Tree Tales	Evening Explorations
<b>Wednesday Morning Birding</b> Wednesdays, 9:30 am-12:30 pm JOPPA FLATS, Newburyport 978-462-9998	<b>Watercolors in Nature</b> Tuesdays, 10 am-1 pm BROADMOOR, Natick 508-655-2296	<b>Phenology: The Timing of Seasonal Biological Activities</b> January 19, 2-3 pm STONY BROOK, Norfolk 508-528-3140	<b>Fullish Moon Hike for Families</b> January 17, 7-8:30 pm IPSWICH RIVER, Topsfield 978-887-9264
<b>Bird Banding Demonstration</b> February 8, March 1, & April 5, 10 am-noon PLEASANT VALLEY, Lenox 413-637-0320	<b>Prints! Prints! Prints!</b> January 26, 1-4 pm MUSEUM OF AMERICAN BIRD ART, Canton 781-821-8853	<b>Trees and Tracks</b> January 25, 10 am-noon ARCADIA, Easthampton and Northampton 413-584-3009	<b>Free Star Party</b> January 24, 7-10 pm MOOSE HILL, Sharon 781-784-5691
<b>Bluebird Nest Box Walk</b> February 22, 10 am-12 pm ALLENS POND, South Dartmouth 508-636-2437	<b>Build a Bird Feeder Family Workshop</b> February 1, 10-11 am or 12:30-1:30 pm NORTH RIVER, Marshfield 781-837-9400	<b>Naked Shrubs: Shrubs in Winter</b> January 25, 10 am-2 pm HABITAT, Belmont 617-489-5050	<b>Family Stargaze</b> February 1, 6-7 pm WELLFLEET BAY, Wellfleet 508-349-2615
<b>So You Think You Can Dance?</b> <b>Woodcock Walk</b> March 12, Sunset LONG PASTURE, Barnstable 508-362-7475	<b>Build a Bluebird House</b> March 1, 1:30-3 pm BROAD MEADOW BROOK, Worcester 508-753-6087	<b>Maple Sugaring</b> March 8 & 9, 10 am-4 pm BLUE HILLS TRAILSIDE MUSEUM, Milton 617-333-0690	<b>Moonlight Snowshoeing or Winter Hike for Adults</b> February 14, 7-9 pm WACHUSETT MEADOW, Princeton 978-464-2712
<b>Dance of the American Woodcock</b> April 6, 7-8:30 pm LAUGHING BROOK, Hampden 413-584-3009	<b>Bread and Bunnies</b> March 21, 3:30-5 pm DRUMLIN FARM, Lincoln 781-259-2200	<b>Bark, Buds, and Berries</b> April 14, 2-3:30 pm BOSTON NATURE CENTER, Mattapan 617-983-8500	<b>Vernal Pool Night Hike</b> April 25, 6:30-8 pm ATTLEBORO SPRINGS, Attleboro 508-223-3060
<b>Big Moon Owl Prowl</b> April 11, 7-8:30 pm FELIX NECK, Martha's Vineyard 508-627-4850	<b>Make &amp; Grow Greenhouses</b> April 12, 10:30-11:30 am OAK KNOLL, Attleboro 508-223-3060		

[massaudubon.org/programs](http://massaudubon.org/programs)

\*Preregistration may be required. Please contact the host wildlife sanctuary for details.





Visit Drumlin Farm's cozy sheep.

# Warm Up at a Wildlife Sanctuary Near You

by Heather Cooper

*Glistening snow, sunshine, crisp air—we're all for exploring the outdoors in winter. But we've also got plenty of indoor programs to help you stay toasty while learning and having fun all winter long. Read on to discover some of them and visit our online program catalog to sign up!*

## Cozy Creations

What's cozier than wool? Drumlin Farm sheep, snug in their barn! Meet our lambs and ewes before heading indoors to make warm, woolly creations at Drumlin's **Working with Wool** two-part series. You'll learn to card, spin, and dye raw fleece with natural ingredients before

Try some felting at Drumlin Farm Wildlife Sanctuary, Lincoln.



felting or knitting. We even have a new **Winter Wool Craft Series** for teens, and a fleecy festival—**Woolapalooza**—in March.

If you're dreaming of warmer weather but dreading mosquitoes, stop by **Pleasant Valley's Bat House Workshop** to build a home that will attract these insect predators come spring. Or head to North River for their **Build a Bird Feeder Family Workshop**, and construct feeders that entice chickadees, nuthatches, and orioles. A follow-up visit to Arcadia's **Bird Sounds: Songs and Calls** program will give you helpful tips for identifying the calls of backyard birds.

## Invigorating Exhibits

Grab some friends and flock to the Museum of American Bird Art for a new exhibit, **Silkscreens by Anne Senechal Faust**, to explore the vibrant world of our feathered friends. Or stop by the Boston Nature Center to see **Birds and Water**, a free exhibit featuring the work of local photographer Eduardo del Solar that includes prints of Peru, the Galápagos, and Costa Rica.

## Wild Workshops

Unravel the mystery of making honey and understand the latest issues with hives and Colony Collapse Disorder at North River's **What's the Buzz: A Year in the Life of the Honeybee**. Long-time bee keeper Dwight Donnelly will impart the wisdom of the honeybee and their insight into our own communities.

Cross-pollinate your knowledge at Ipswich River's **Environmental Gardening** workshop. You'll discover organic gardening methods and take home a completed design, plus a list of native plants that attract butterflies.

## Toasty Talks

Gather round as local author and conservationist Dianne Davis provides a firsthand account of bald eagle restoration in Massachusetts at Broad Meadow Brook's **Eagle One: Raising Eagles in the Quabbin**. Then, take a virtual birding excursion to balmy climes with a series of lectures at Joppa Flats, including **Crossing Bhutan: Land of the Dragons** and **Birding Jamaica**.



Build an oriole feeder at North River Wildlife Sanctuary, Marshfield.

## Comfort Food

Spice things up with authentic dishes from Burma and Mexico at Broadmoor's **Travel and Taste** series. We'll take you on a photo tour and share flavors from different cultures in the comfort of our brand-new nature center.

Prefer to do the cooking yourself? The staff at Drumlin Farm will show you how to make cheeses, including paneer and mozzarella, at **Simple Cheesemaking**—not to mention delicious country oat bread at **On the Rise**. You'll leave with samples and recipes to create these treats in your own cozy kitchen. ▲

Heather Cooper is Marketing Manager.

# A New Site to See by Hillary Truslow

If you've been to our website recently, you may have noticed a pretty significant change. On November 13, we flipped the switch on the new and improved [massaudubon.org](http://massaudubon.org). And this wasn't just a simple redesign. To ensure that we provide the best experience possible for a very diverse group of users, we did a complete, top-to-bottom rebuild. Highlights of the new site include:

- A brighter, bolder, mobile-friendly

design with larger images, photo slideshows, and fun graphic elements

- A smart search tool so you can easily find what you're looking for
- The option to find a wildlife sanctuary by location or zip code via Google maps
- The ability to view upcoming programs in a calendar or a list
- More intuitive and dynamic navigation
- Bigger text that can be adjusted

with the click of a button (look for the three As in the upper right corner)

So, go ahead and take a look around. And since we know that there's always room for improvement, we'd love to hear what you think. You can send feedback to [mass\\_audubon@massaudubon.org](mailto:mass_audubon@massaudubon.org). Happy browsing!

*Hillary Truslow is Assistant Director of Marketing and Communications.*

[▶ massaudubon.org](http://massaudubon.org)

## Volunteer Spotlight: Allan Greenberg

*by Emily Simmer*

Mass Audubon member since 1970, Scituate resident Allan Greenberg has been volunteering at our South Shore Sanctuaries (North River and Daniel Webster in Marshfield and North Hill Marsh in Duxbury) for 20 years.

### A Multitude of Tasks

There are not many tasks that Allan hasn't taken on. You can often find him driving the hayride tractors, helping Property Manager David Ludlow with woodworking and boardwalk construction, staffing the front desk on Fridays, and assisting with programs.

### Crafting Farm Day

Allan also coordinates the crafter component of Daniel Webster's Farm Day celebration every October—a monumental undertaking. He researches and recruits a varied selection of crafters, manages registrations, coordinates logistics and setup, and even surveys the participants so he can be sure to provide the best possible experience.



South Shore Sanctuaries volunteer Allan Greenberg.

### A Personal Touch

Allan goes the extra mile to ensure that people have memorable experiences with Mass Audubon. South Shore Sanctuaries Receptionist Sharon Seeg recalls a woman who wanted to celebrate a milestone birthday with a hayride at Daniel Webster Wildlife Sanctuary. Allan drove the tractor for the hayride, and he surprised guests with a personalized version of the sanctuary's bird checklist created just for the event.

### Adding Up

All told, Allan has given nearly 3,000 hours to Mass Audubon—the equivalent of 125 straight days! In addition to his volunteer and membership support, Allan also donates annually to the North River Nature Camp scholarship fund.

### Why Volunteer?

Allan is a retired college teacher and administrator. He taught courses with an environmental component, and he sees his volunteerism as a natural extension of this work. "I chose to volunteer at Mass Audubon as another way to translate a commitment to positive environmental action," Allan says. Equally important was "the opportunity to work with a wonderful group of dedicated individuals: the staff members at South Shore Sanctuaries." ▲

*Emily Simmer is Office Manager for Mass Audubon's South Shore Sanctuaries.*

[▶ massaudubon.org/volunteer](http://massaudubon.org/volunteer)



# SNOWSHOES

## ALL ABOUT SNOWSHOES

When the snow is deep, there's nothing like a pair of snowshoes to help you explore the outdoors.



For thousands of years, people have been strapping wood, leather, and other materials to their feet so that they can walk in deep snow. Today, many snowshoes are built of modern material like plastic. No matter what they're made of, all snowshoes work the same way: **they spread your weight across a larger area so that more of that soft, fluffy snow is holding you up with every step.**



## ANIMAL SNOWSHOES

Many kinds of animals have natural "snowshoes" that help them get around in deep snow.

Maybe the most famous example is a creature that has the word "snowshoe" in its name. Can you guess which one? That's right—the **snowshoe hare** gets its name from its big, fluffy hindfeet. This mammal stays active all winter, hopping about and eating buds and twigs.

Another example is the **ruffed grouse**. This bird grows little projections on its feet, called pectinations, which help it stand on ice and snow.



Reunite the matching hat and mittens!



## SNOWSHOEING AT MASS AUDUBON

So long as there's snow (fingers crossed!), there's plenty to do at Mass Audubon for snowshoe fans. Depending on the sanctuary, you may be able to hit the trails with your own snowshoes, rent a pair, or take a guided hike.

[massaudubon.org/snowshoe](https://massaudubon.org/snowshoe)

ready, set,  
**Go Outside!**

There's more online!

[www.massaudubon.org/go](https://www.massaudubon.org/go)

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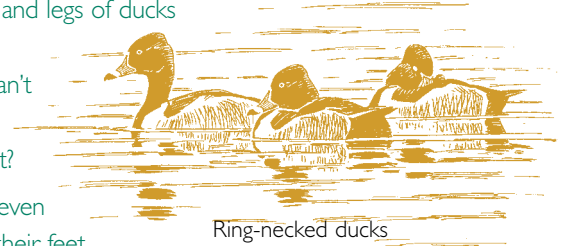


# The Natural Inquirer

by Robert Buchsbaum

## Q. Why don't a duck's feet freeze in winter?

A. Have you ever wondered why the feet and legs of ducks and other waterbirds don't succumb to frostbite in winter? Humans certainly can't stand on ice for hours, or swim and sleep in icy water. So how do birds do it?



Ring-necked ducks

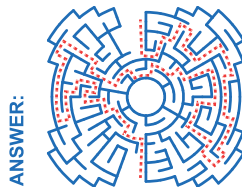
Ducks have a few strategies. First of all, even on cold days, they don't feel the chill—their feet and legs are basically skin, bones, and tendons, with few nerve receptors to register pain. Also, the muscles that power those legs are positioned close to their bodies, which helps keep them warm, as do water-repelling feathers and an insulating layer of fat.

But they have an extra secret—a specially adapted circulatory system. When ducks send blood from their warm hearts to their feet, they risk losing precious body heat to the frigid water. So, they've got a special "heat exchanger" in their legs. Here, the warm blood from the arteries (which send blood to the feet) heats up the veins (which send blood back to the heart). The veins can therefore return heat to the duck's core, and the cooler blood that heads to the legs is still warm enough to avoid frostbite. We use the same principle, called countercurrent heat exchange, in refrigerators and a number of industrial processes.

Robert Buchsbaum is Southeast, Cape, and Islands Regional Scientist

Have you seen any ducks this winter? Share your wildlife sightings with us!

[facebook.com/massaudubon](https://facebook.com/massaudubon)



ANSWER:

## The Final Word

We invite your comments, photographs, and suggestions. Please send correspondence to: Mass Audubon Connections, 208 South Great Road, Lincoln, MA 01773, tel: 781-259-9500, or e-mail: [connections@massaudubon.org](mailto:connections@massaudubon.org). For questions regarding your membership, contact: Mass Audubon Member Services, 208 South Great Road, Lincoln, MA 01773, tel: 781-259-9500 or 800-AUDUBON, or e-mail: [membership@massaudubon.org](mailto:membership@massaudubon.org).

### Photography & Illustrations

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| Cover: Stony Brook—Tim Rice©   | p 7: White pine—Barry Van Dusen©         |
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|  | p 13: Ring-necked ducks—Barry Van Dusen© |

Mass Audubon works to protect the nature of Massachusetts for people and wildlife. Together with more than 100,000 members, we care for 35,000 acres of conservation land, provide school, camp, and other educational programs for 225,000 children and adults annually, and advocate for sound environmental policies at local, state, and federal levels. Founded in 1896 by two inspirational women who were committed to the protection of birds, Mass Audubon is now one of the largest and most prominent conservation organizations in New England. Today we are respected for our sound science, successful advocacy, and innovative approaches to connecting people and nature. Each year, our statewide network of wildlife sanctuaries welcomes nearly half a million visitors of all ages, abilities, and backgrounds and serves as the base for our work. To support these important efforts, call 800-AUDUBON (800-283-8266) or visit [www.massaudubon.org](http://www.massaudubon.org).





Mass Audubon

Protecting the Nature of Massachusetts

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# Welcome Winter

at a Mass Audubon Wildlife Sanctuary Near You

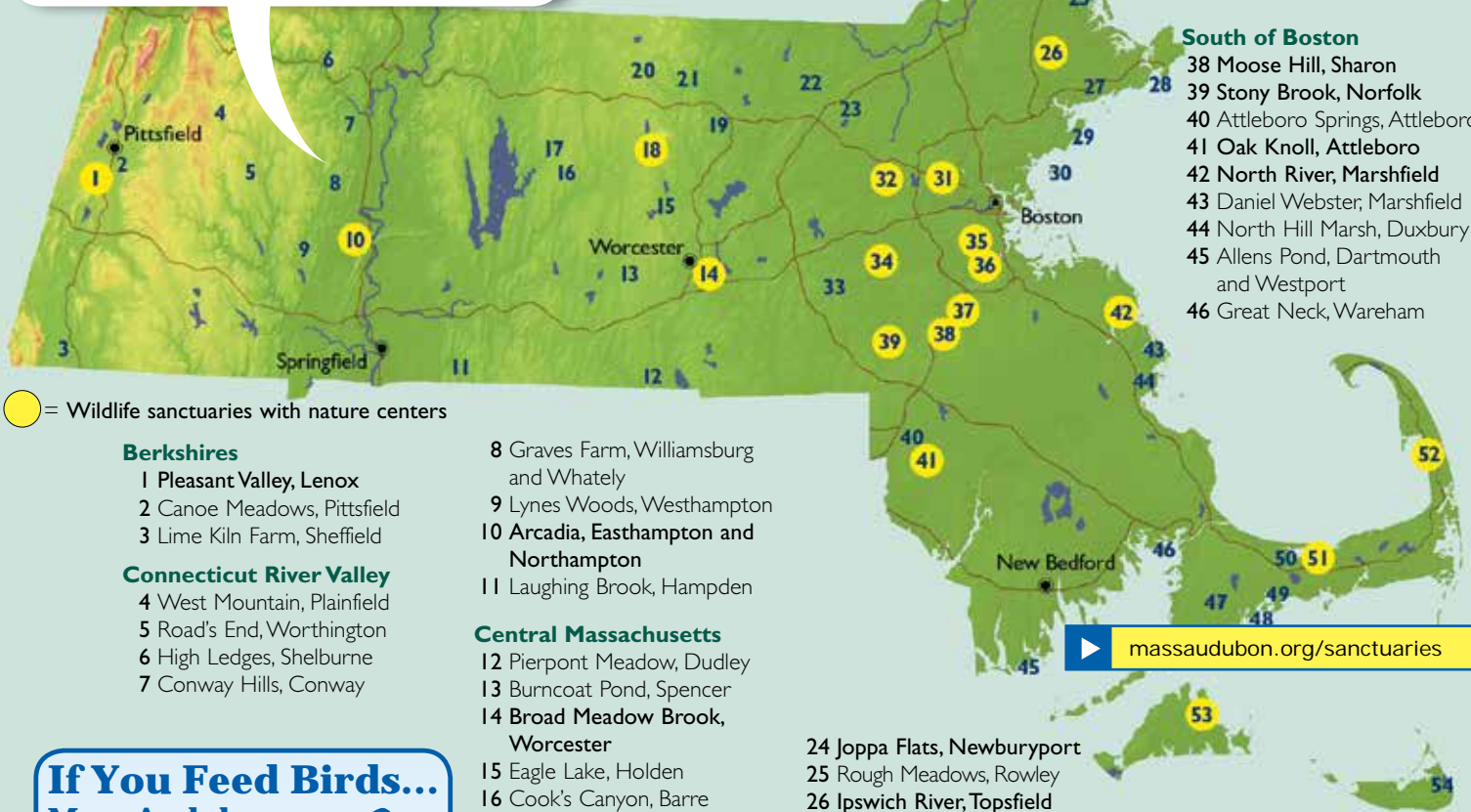


### Graves Farm Wildlife Sanctuary

was once the site of a button mill powered by water from Joe Wright Brook. You can still see the building's foundation along with discarded tin plates from which round buttons were stamped.

Mass Audubon has 54 wildlife sanctuaries open to the public year-round. They provide important habitat for wildlife and opportunities for you to enjoy and appreciate nature.

- 35 Boston Nature Center, Mattapan
- 36 Blue Hills Trailside Museum, Milton
- 37 Museum of American Bird Art at Mass Audubon, Canton



= Wildlife sanctuaries with nature centers

#### Berkshires

- 1 Pleasant Valley, Lenox
- 2 Canoe Meadows, Pittsfield
- 3 Lime Kiln Farm, Sheffield

#### Connecticut River Valley

- 4 West Mountain, Plainfield
- 5 Road's End, Worthington
- 6 High Ledges, Shelburne
- 7 Conway Hills, Conway

- 8 Graves Farm, Williamsburg and Whately
- 9 Lynes Woods, Westhampton
- 10 Arcadia, Easthampton and Northampton
- 11 Laughing Brook, Hampden

#### Central Massachusetts

- 12 Pierpont Meadow, Dudley
- 13 Burncoat Pond, Spencer
- 14 Broad Meadow Brook, Worcester
- 15 Eagle Lake, Holden
- 16 Cook's Canyon, Barre
- 17 Rutland Brook, Petersham
- 18 Wachusett Meadow, Princeton
- 19 Lincoln Woods, Leominster
- 20 Lake Wampanoag, Gardner
- 21 Flat Rock, Fitchburg

#### North of Boston

- 22 Rocky Hill, Groton
- 23 Nashoba Brook, Westford

#### Greater Boston

- 24 Joppa Flats, Newburyport
- 25 Rough Meadows, Rowley
- 26 Ipswich River, Topsfield
- 27 Endicott, Wenham
- 28 Eastern Point, Gloucester
- 29 Marblehead Neck, Marblehead
- 30 Nahant Thicket, Nahant

#### Cape Cod and the Islands

- 47 Ashumet Holly, Falmouth
- 48 Sampsons Island, Barnstable
- 49 Skunknet River, Barnstable
- 50 Barnstable Great Marsh, Barnstable
- 51 Long Pasture, Barnstable
- 52 Wellfleet Bay, Wellfleet
- 53 Felix Neck, Edgartown
- 54 Sesachacha Heathlands, Nantucket

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Mass Audubon  
Needs Your Help**

**Focus  
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Learn more:  
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