Otter Creek Audubon Society

September 2016

Otter Tracks

Inside

Long-eared Owls:
The Best Kept Secret of the Forest

EXPOSED!

by Tyler Pockette

The Long-eared Owl has long been considered one of the most mysterious and difficult-to-find birds known to breed in Vermont. Some avid life-long bird watchers in the state have never seen one; most who have can count their sightings on one hand. But how can a year-round resident in the state be so difficult to find that virtually nobody knows how to find one? Three local birders set out on a quest to solve the mystery behind one of the best kept secrets of Vermont's forests.

Starting in February of 2014, Ian Worley, Ron Payne, and I attempted to formulate a method for locating Long-eared Owls by intent, rather than pure luck. After two years and over 60 owling outings we did not have a single Long-eared Owl to show for our efforts, though on every outing we located at least one other owl.

Our breakthrough came in February. After observing the species at winter roosting sites in other states, I developed a search image for the specific habitat Long-eared Owls seemed to prefer, one birders usually overlook except to occasionally coax a Saw-whet Owl response. This neglected habitat, dense stands of mature red cedar, proved to be the jackpot for locating Long-eared Owls. In three months we located 19 different individuals, including two confirmed nesting sites, within ten different red cedar thickets in Addison County. This gives hope to birders across the state for an encounter with the formerly best kept secret of Vermont's forests, the Long-eared Owl.

Long-eared Owl. Photo by Tyler Pockette

OCAS Mission:
To protect birds, other wildlife and their habitats by encouraging a culture of conservation within Addison County.

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[top] Once-married underwing
photo by Jennifer Murdoch

[middle] Harris's three spot
photo by Ron Payne

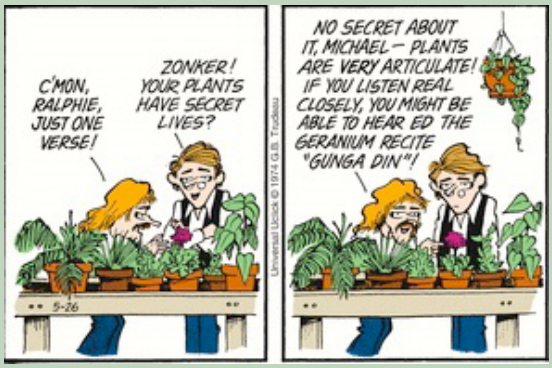
[bottom] White furcula moth
photo by Ron Payne

Plant to Plant

Editorial by Warren King

VIEWPOINT

In 1973 derision of *The Secret Lives of Plants,* which dealt with plants' communication and emotion, derailed potentially productive exploration of plant communication modalities just in its infancy. Botanists interested in this subject were turned down for grants and their careers were jeopardized. A 1983 paper that described the defensive response of injured maple saplings to herbivore damage in a nearby maple was dismissed when replication proved difficult. Finally in 2000 a paper described wild tobacco plants' increased resistance to herbivory when nearby sagebrush plants had their leaves clipped. Care was taken in experimental design and the results were replicated repeatedly. This acceptance triggered a landslide of research on communication from part to part of individual plants as well as communication between nearby plants of the same species and of different species.



Much of this interplant communication has to do with signals conveyed by volatile organic compounds (VOCs) released by a plant in response to damage. Nearby plants, likely to be relatives of the injured plant, benefit from detecting the response and chemically protecting themselves. Nearby plants of different species "eavesdrop" beneficially on the "conversation." The effective distance of communication with VOCs through the air is about two feet.

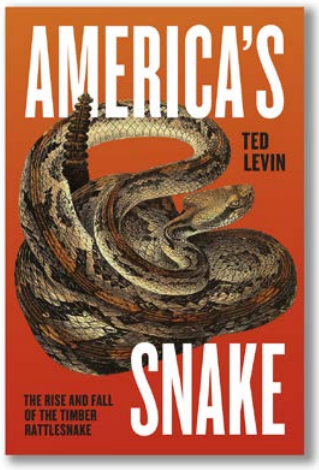
But exchanges of information can take place through plants' roots even if the aboveground portion of the injured plant and the nearby plant are isolated from each other by plastic bags. The method of exchange is not known but is probably chemical.

Most plants are beneficiaries of fungal mycorrhizal connection to their root system. The mycorrhizal strands extend significantly the effective surface area from which the benefitted plant can absorb water and nutrients. Plants receive phosphorus and nitrogen and in exchange provide carbohydrates to the mycelium, the mass of fungal strands. The mycorrhizae are also capable of transmitting signals. And because the strands can connect plants many yards apart, plants share a network that has been called the "wood wide web." Trees in a forest share up to 40 percent of their carbon with neighboring trees, including a variety of species, probably through their mycorrhizal connections.

But communication probably doesn't stop there. There is evidence of exchange between plants through electrical pulses of charged ions carried possibly by the plants' plasmodesmata, reminiscent of, but quite different from, animal nervous systems. Research also suggests interplant communication through magnetic or acoustic signaling or sensing. And there is evidence that groups of plants can exchange information through "root swarm intelligence" to solve communal problems. We haven't heard the end of this research.

National Moth Week 2016

OCAS joined MALT and the VT Entomological Society in organizing a public event on 30 July to celebrate National Moth Week. After an indoor introduction to moths at Ilsley Library in Middlebury, participants witnessed firsthand and photographed the remarkable abundance and diversity of moths attracted to illuminated white sheets in Otter View Park and in Wright Park. This issue offers a brief sampling. Stay tuned for this event next year.



Book Review

America's Snake

by
Ted Levin

University of Chicago Press
June, 2015. 481 pgs.

Review by
Warren King

Ted Levin, among Vermont's foremost naturalists, has harbored an enduring passion for timber rattlesnakes for the past 30 years. He is not alone. There are a number of rattlesnake enthusiasts, and perhaps an equal number of rattlesnake haters. Those whose passion leads them to study and protect rattlesnakes have learned the hard way that dissemination of information about rattlesnake locations and numbers results in loss of snakes or entire populations. Thus, Ted has taken care to provide fictitious or ambiguous place names and numbers in his book.

This book is a labor of love, a partial autobiography, a history of rattlesnake conservation, and a painstakingly detailed investigation of rattlesnake biology, ecology and adaptations. It is presented in colorful, attention-capturing language.

Levin introduces us to a dozen fellow rattlesnake researchers and conservationists, each one larger than life. He takes us, accompanied by one of his colleagues, to a dozen rattlesnake habitats in the Northeast. These are sites such as talus slopes where snakes can escape winter's cold literally intertwined with their family.

Depending on the state, timber rattlesnakes are threatened, endangered or extirpated in New England. Their numbers are declining. Most populations are genetically isolated by busy roads. Levin concludes that all timber rattlesnake habitats are too small, too close to roads, and their locations are too well known. And now they have a new problem, Ophidiomyces, a fungal equivalent of the white-nose fungal syndrome that has laid waste to populations of gregariously hibernating bats. This fungus affects the snakes' scales, made of keratin.

Levin makes a convincing case for complete protection of this long-lived, beautifully muscular, communal, passive, deliberate, predictable rodent-eater. He proposes timber rattlesnake as America's snake. His book is edifying, compelling, all 400-plus pages of it, and entertaining beyond anyone's expectations.

Marbled Murrelets' Woes

The Marbled Murrelet is a small chunky seabird in the auk family that occurs along the North Pacific coast from central California to the Gulf of Alaska and the Aleutians. California considers it endangered; in Oregon and Washington it is threatened. It forms large aggregations at sea in winter, unfortunately in areas of high oil tanker traffic. It is also subject to entanglement in gill nets.

The Marbled Murrelet attained notoriety in the ornithological world in 1974 when the species' first nest was finally discovered — nearly 50 miles inland and more than 100 feet up in a redwood. Old growth forests along the Pacific coast are subject to continuing logging. Recent research indicates the immediate causes of Marbled Murrelet decline is inadequate fish and crustacean supplies as well as predation of eggs and nestlings by Steller's Jays and ravens.

Steller's Jays have risen dramatically in abundance in old growth forests along the Pacific coast in response to increasing use of old growth as recreation sites by people who bring food and leave scraps behind. The jays, known for their remarkable memory for food sources, find Marbled Murrelet eggs or young probably by chance initially but by memory in subsequent years following Marbled Murrelet nesting attempts in the same location.

Researchers are addressing this problem by utilizing avoidance training with chicken eggs dyed blue-green and speckled with brown paint, reasonable Marbled Murrelet egg facsimiles, but with carbachol, a vomit-inducing chemical, injected into the eggs. The response is immediate and is not forgotten by the Steller's Jays. Studies in three California state parks confirm predation is reduced 44 to 80 percent, enough to stabilize the Marbled Murrelet population nesting in the Santa Cruz Mountains for the next century and reduce the risk of its extirpation from 96 percent to 5 percent. Steller's Jays' strong territoriality can prevent new jays from coming into occupied territories.

Marbled Murrelet chick photo credit: Peter Halasz

These three parks are attempting to train human visitors to leave their picnic sites scrap-free with "Keep It Crumb Clean" signs. Redwood National Park will use the signs and other incentives to keep people from leaving scraps but will hold off on the taste aversion training approach. California Audubon Society encourages closure or restriction of park areas during the Marbled Murrelet breeding season. Skeptics fear that park visitors will be slower to learn than Steller's Jays.

The Buzz on Audubon Vermont's Golden- and Blue-winged Warbler Geolocator Work

by Margaret Fowle and Mark LaBarr

Building on their effort to enhance shrubland bird habitat in the Champlain Valley, Audubon Vermont has expanded its work in 2016 to better understand the full life cycle of Golden- (GWWA) and Blue-winged Warblers (BWWA) in the region: determining habitat requirements on breeding grounds, during migration, and on wintering areas. A key component is determining exact migration routes and stopover habitat used along the way. Geolocators are attached to songbirds to record their migratory paths. In 2015, more than 400 geolocators were placed on GWWA across the southern Appalachians to the Great Lakes region, excluding the Champlain Valley.

Golden-winged Warbler with geolocator in place.
photo by Margaret Fowle

The southern Champlain Valley of Vermont is a focus area for the national GWWA Working Group, but was considered a very small portion of the U.S. population. A 2014 Audubon Vermont survey revealed higher concentrations of GWWA than were previously known, making this region the largest and only known population of GWWA in New England.

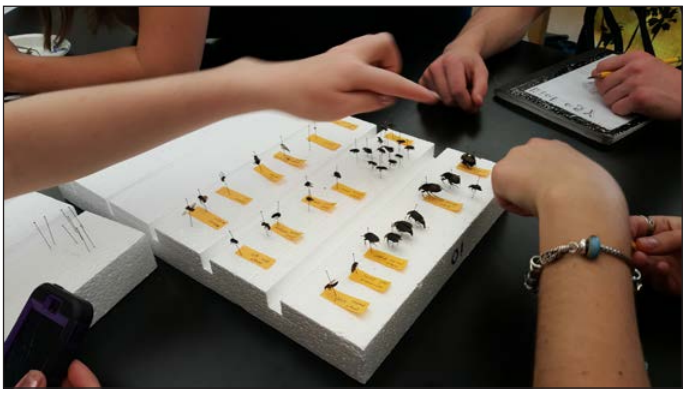
Staff from the University of Maine and Audubon Vermont attached 37 locators on Golden- and Blue-winged Warblers in 2016. These locators will be removed after the birds return in the spring of 2017, and data will then be downloaded. The results will not only add to the growing knowledge of these species but will also engage the public in Audubon's efforts to improve and conserve shrubland bird habitat in the Champlain Valley.

Spotlight on Outdoor Learning

by Carol Ramsayer

Eight teachers used their OCAS Environmental Education Grants to provide outdoor learning experiences for their students, from pre-school to tenth grade. Shoreham Elementary sixth graders got up-close with water ecology issues through the Lake Champlain Maritime Museum's On-Water Paddling morning. Live birds and cold-blooded creatures from VINS were the visiting VIPs at Bridport Central. In Huntington, the Birds of Vermont Museum and Audubon Vermont hosted Addison Central's primary students for a day of exploring nature. And Cornwall Elementary's 3rd through 6th graders were immersed in learning about tracks, wildlife corridors and game cameras. Ask them about their bobcat, rabbit and fox pictures!

Chris Johnstone, a tenth grade biology teacher at Middlebury Union High School and his students studied insect and arthropod biodiversity at two habitats: a natural setting and a nearby one disturbed by human activities. The students trapped insects from both habitats, identified and categorized them, and created proper scientific collections for study. Students statistically tested their hypothesis – that human disturbance in the ecosystem would lower its biodiversity. As often happens in the real world of science, using two statistical indices produced conflicting results! One certainty, however, was that these students had a hands-on citizen science experience they will carry with them forever. In June, OCAS board members witnessed the understanding and enthusiasm shown by the students at their final presentation on the project.



"Are the specimens different or the same?" **photo by Chris Johnstone**

Another grant was unique for its collaboration between two schools and two Audubon chapters. Students from the Moosalamoo Center of Otter Valley Union High School mentored students from the entire Leicester Central School about the natural and human history of Hawk Hill. For a month and a half the older students shared their knowledge of beaver pond diversity, water quality, and local fauna and flora. Re-enactments in May brought to life the fur traders who had previously inhabited the area. The students invited parents and OCAS board members to a celebration to experience haiku along the trails, a fur traders' encampment with real campfire-cooked food, displays of pond life, and a beaver-themed songfest. OCAS members were thoroughly impressed with the children's knowledge and enthusiasm, as well as the friendly collaboration between the two age groups. Rutland County Audubon and Otter Creek Audubon shared funding of this exciting endeavor.

The creativity and commitment of Addison County educators continues to inspire OCAS as they strive to broaden their students' involvement in the natural world. If you know of a teacher who might be interested in the 2017 round of Environmental Education Grants, applications will be available on the OCAS website in early December.

OCAS Calendar of Events
September – December 2016

Sunday, September 18
11 am–2 pm

Hawk Watch at Buck Mountain, Waltham. Meet at 10:30 am at Vergennes Park and Ride, junction of Routes 22A and 7, Vergennes, or at 11 at the trailhead on Route 66. Carpool to Route 66 if possible; parking there is extremely limited. Joint outing with Green Mountain Audubon, led by Ron Payne, Warren King and Bruce MacPherson. Call Warren at 388-4082 for more information or if in doubt about the weather.

Saturday, October 1
9:30 am–4 pm

Dead Creek Wildlife Day. For information call 802/241-3700. See article, page 6.

Thurs., November 10
5:30–8:45 pm

OCAS Annual Dinner and Meeting. The speaker is Geoff LeBaron, Director of National Audubon's Christmas Bird Count since 1987. Geoff's talk is titled The Christmas Bird Count: From Historical Conservation to 21st Century Science. Reservations needed for dinner at 6. No fee for talk at 7:15. Dinner will be at the American Legion at 49 Wilson Rd. off Boardman St. behind G. Stone Motors south of Middlebury on Route 7. Call Sue Rasmussen at 897-5411 for reservations. OCAS members will receive a separate invitation by mail. See article in November *Otter Tracks*.

Addison County Christmas Bird Counts

Saturday, December 17 **Ferrisburgh Christmas Bird Count.** Call Mike Winslow at 877-6586 for details.

Saturday, December 17 **Mt. Abe Christmas Bird Count.** Call Randy or Cathy Durand at 453-4370 for details.

Sunday, December 18 **Middlebury Christmas Bird Count.** Call Jim or Kris Andrews at 352-4734 for details.

Saturday, January 7 **Hinesburg Christmas Bird Count:** Call Paul Wieczorek at 802-434-4216 for details.

Marsh, Meadow and Grassland Wildlife Walks

A monthly joint OCAS-MALT event. We invite community members to help survey birds and other wildlife at Otter View Park and Hurd Grassland. Meet at Otter View Park parking area, Weybridge Street and Pulp Mill Bridge Road, Middlebury. Shorter and longer routes possible. Beginning birders are welcome. Come for all or part of the walk. For information call 388-1007 or 388-6019.

Saturday, September 10, 8–10 am
Saturday, October 8, 8–10 am
Saturday, November 12, 8–10 am
Saturday, December 10, 8–10 am

New Take on Lichens

We learned in high school or college that lichens are composite organisms formed when an alga and a fungus "take a lichen to each other." The alga converts energy from sunlight and carbon dioxide into sugars for the fungus; the fungus provides the alga with minerals, water and shelter in exchange. The word "symbiosis" was coined to describe this and other mutually beneficial relationships in nature.

Scientists have been unable to create proper looking and acting lichens from an alga and a fungus. A research team from the University of Montana recently burrowed into the genetics of an ascomycete fungus, a frequent lichen component, to help find out why. The ascomycete genes were all present, but the research showed some additional genes were there too. They discovered that the unaccounted-for genes were those of a yeast, a single-celled basidiomycete fungus. The yeast was part of an entirely different fungal group, one not known to have a role in lichen structure. One researcher noted "These yeasts comprise a whole lineage that no one knew existed, and yet they are in a variety of lichens on every continent as a third symbiotic partner." The yeast component changes the color of the lichen, and makes toxic substances that confer additional protection to the lichen. The scientists have now discovered related yeast lineages in 52 genera of lichens worldwide.

Whether this discovery will enable scientists to synthesize lichens from their component parts has yet to be tested, but textbooks around the world will need to be rewritten to reflect that a lichen is formed by a combination of an alga and one *or two* fungi.

15th Annual Dead Creek Wildlife Day!

On Saturday, October 1, head out to Addison for Dead Creek Wildlife Day for a free celebration of the Champlain Valley's wildlife! Family-friendly activities as well as talks and demonstrations will take place throughout the day at Dead Creek Wildlife Management Area. A full list of events will be posted on the VT Fish and Wildlife website at least a week ahead.

Here are some of the fun, informative events to take place:

- Duck and Goose Calling Contest. 11:30 for children; 1 PM for adults. Prizes for each group, so start practicing!
- Bird-banding from 7-noon at the boat launch area, one mile west of the headquarters.
- Beginners' bird walk at 10.
- 30th anniversary of the Vermont Duck Stamp. A talk at 10 by state wildlife biologist John Austin and at 12:30 by Fish and Wildlife Commissioner Louis Porter and Waterfowl Advisory Committee chair Gary Starr.
- Engaging update on Vermont's bats by bat biologist Alyssa Bennett at 10
- Live Vermont Critters at 11 and 1!
- Kiley Briggs' talk at 2 on the plight of Vermont's endangered timber rattlesnakes.
- Demonstration of a beaver baffle at 2.
- Master retriever handler and trainer Alec Sparks will run his dog Zoom through its paces at 10:30, while Game Warden Rob Sterling and his rescue dog Crockett will show their own brand of retrieving at the headquarters area at 2.
- Owl pellet dissection with Otter Creek Audubon's Carol Ramsayer from 2 to 4.
- Nature walks at 10:30 and 2:30.
- Soap carving – 11 to noon.
- Decoy carving, face painting, bluebird nest box construction, pellet gun shooting and, for the first time, archery, take place all day.

Rodney Olsen takes time out from banding to show a freshly captured Red-tailed Hawk at Dead Creek Wildlife Day.

photo by Gary Starr

Entrance and parking are free. A free bus runs between headquarters and the Dead Creek parking area and West and East Brilyea reservoirs through the day. Nutritious food is available at a reasonable price. This event is geared to participation by family members of all ages. Come to Dead Creek Wildlife Management Area headquarters on Route 17 one mile west of the junction with Route 22A in Addison on October 1st to see why Dead Creek Wildlife Day continues to be among Addison County and Vermont's most popular events.

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