

NATURAL HERITAGE HARMONIES



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Vermont Fish & Wildlife Department
Agency of Natural Resources

Conserving Vermont's fish, wildlife, and plants and their habitats for the people of Vermont

Wetland, Woodland, Wildland for a New Generation of Conservationists

For nearly 20 years students, naturalists, foresters and landowners have opened the book *Wetland, Woodland, Wildland* to appreciate the beauty and intricacy of the natural world. Now, this book has gotten a makeover. *Wetland, Woodland, Wildland* will be released as a second edition in fall 2019 with new photos, new illustrations, and updated information. The new edition includes 17 additional natural community types based on recent inventory work and data analysis.

“One of the things I’m most excited about is adding associated animals to each natural community type in this edition,” said co-author Eric Sorenson. “Natural communities are traditionally defined by their plants and soil types. But all our native animals have also adapted and evolved along with the combination of natural communities that have made up the Vermont landscape for thousands of years. We hope that adding lists of animals likely to be encountered in each natural community will broaden the interest in the book.”

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Loons Continue Their Comeback

Perhaps more than any other species, loons reflect the community effort required to save wildlife. Conservationists have been working on restoring loons in Vermont since at least 1978 and continue to help the birds today.

Vermont Fish & Wildlife's Steve Parren points out that conservation success stories don't happen overnight. "This has been a team effort from the beginning, involving state biologists and game wardens partnering with staff from the Vermont Institute of Natural Science (VINS) and the Vermont Center for Ecostudies (VCE). There are also many volunteers who have surveyed loons on lakes each summer, members of the public who respect loon's space during nesting season, and hydroelectric companies cooperating to maintain summer lake levels for loons," said Parren, wildlife diversity program manager for Vermont Fish & Wildlife.

Since 1998, Eric Hanson with VCE has overseen the Loon Conservation Project. His work is sponsored, in part, by donations to the Nongame Wildlife Fund.

Following decades of work, loons were successfully removed from the state endangered species list in 2005. Vermont's seven nesting pairs in 1983 has grown to more than 90 nesting pairs last year. But loons still face a variety of threats, from lead fishing tackle, to increased development pressure near lakes and ponds, to the potential for disturbance during the loon nesting season by people in boats, canoes, and kayaks getting too close to nests.

"By maintaining forested shoreline habitat and enjoying loons from a distance, we can ensure that the iconic call of the loon continues to be heard for generations to come," said Parren.



Tom Rogers

HOW YOU CAN HELP

- **Keep Your Distance** – Enjoy loons from a distance through binoculars. Avoid getting within 300 feet of loon nesting and nursery areas during the May through August breeding season.
- **Fish Responsibly** – Avoid depositing toxic lead sinkers and fishing line in Vermont waters. Nearly 50% of loon deaths are caused by ingesting lead fishing gear or injury from fishing line entanglement and hooks.
- **Get Involved** – Observe and report on loon sightings and nesting activities in your area. Participate in the Vermont Loon Watch held annually on the third Saturday in July.
- **Show Your Support** – Contribute to the Nongame Wildlife Fund by purchasing a Conservation License Plate or donating on your Vermont income tax.



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Articles written by Tom Rogers, VFWD
Cover image: Illustration by Libby Davidson of a Cold-Air Talus Woodland Natural Community.



“West Virginia whites don’t like to cross roads, so they highlight the need to maintain unfragmented forests in Vermont. But they also remind us of the need to maintain all of Vermont’s various natural community types to maintain the diversity of species that rely on them.”

— Eric Sorenson, ecologist, VFWD



Wetland, Woodland, Wildland

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Information on associated animals was compiled in part from field observations by the authors, but also from a variety of sources such as the *Breeding Bird Atlas* and Vermont Center for Ecostudies’ inventories of amphibians and butterflies, as well as from naturalists such as butterfly expert Bryan Pfeiffer, and Vermont Fish & Wildlife biologists.

Sorenson cites tight associations between some animal species and their natural community type, such as spotted salamanders that must have vernal pools for breeding, northern water thrush that are associated with specific types of swamps, or even deer that require hemlock forests to make it through tough winters. Other associations are looser, such as black bears using seeps to feed on emerging greens as the snow melts.

A tight animal and natural community association is that between a butterfly called the West Virginia white which is tied directly to common toothwort, its host plant for laying eggs. Toothwort is found primarily in “rich woods” natural communities.

“West Virginia whites don’t like to cross roads, so they highlight the need to maintain unfragmented forests in Vermont,” said Sorenson. “But they also remind us of the need to maintain all of Vermont’s various natural community types to maintain the diversity of species that rely on them.”

In addition to Sorenson and the first edition’s original co-author Liz Thompson, director of conservation science for the Vermont Land Trust, a third author has been recruited for this edition – Vermont Fish & Wildlife’s state lands ecologist Bob Zaino. According to Sorenson, Zaino brings “new ideas and new energy as well as a detailed knowledge of the state’s natural communities. But he also brings continuity. Someday, Liz and I will retire, but the natural community classification doesn’t retire.”

All of Vermont’s terrestrial and wetland natural landscape can be mapped to its natural community type and *Wetland, Woodland, Wildland* has been instrumental for two decades in understanding and conserving Vermont’s biodiversity. Thanks to the work of Sorenson, Thompson, and Zaino, a new generation of conservationists can enjoy and apply this important book.



Vermont Reptile and Amphibian Atlas

Spotted salamanders are closely associated with vernal pool natural communities.

Vermont's Nongame Wildlife Fund – Conserving Our Natural Heri

A gift to the Nongame Wildlife Fund is a gift to the future of wild animals and wild places in Vermont and protects everything from tig your donation for additional federal funds, so one dollar to the Nongame Wildlife Fund can yield an additional two to three dollars for



Caroline Byrne

Tricolored bats are federally threatened and state endangered.

Save Bats

Tricolored bats like this one have disappeared from half of their known hibernation sites in Vermont due to White-nose Syndrome. Vermont Fish & Wildlife biologists are researching where these bats remain and how to best help them recover from this devastating fungal disease.



Pete McHugh

Mark Ferguson, department zoologist, surveying mussels near a dam.

Monitor Mussels

Dams releasing water for power generation or whitewater recreation may affect mussels and other benthic organisms upstream and down. Department biologists work with dam operators to ensure that these human activities minimize disturbance to mussels and other filter feeders that are crucial to clean water.

Think Big!

The Vermont Conservation Design project looks at habitat conservation in Vermont from a landscape scale. The goal is to take a statewide approach to maintain a diverse and connected network of habitats that species need to adapt to climate change and other conservation threats.



VFWD

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ger beetles to lynx. We appreciate all the people who donate year after year! We're able to leverage conservation in Vermont. Here's how your gift helps:



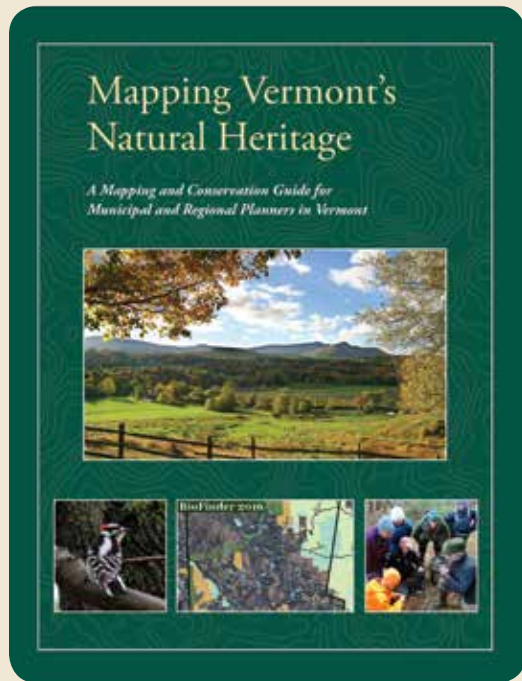
Recover Bald Eagles ↻

This past year, 2018, marked another successful year for Vermont's bald eagles with 23 known nesting pairs producing at least 33 successful young. The bald eagle remains on the list of species protected under Vermont's state endangered species law, but its continued recovery success may enable it to be delisted within the next five years.



Nesting Bald Eagles

John Hall



Map Vermont's Natural Heritage ↻

The book *Mapping Vermont's Natural Heritage* is a guide created to support town planners and conservation commissions in achieving their goals for protecting wildlife habitats within town boundaries. It features background information about Vermont's natural landscape, natural resources maps tailored to individual towns, and a step-by-step strategy for prioritizing ecological needs alongside other diverse goals. For more information on the guide or the mapping process, contact Jens.Hilke@vermont.gov.

Study Oak-Pine Forests ↻

Oak-Pine Forests are home to diverse plants and animals including more than 120 species of greatest conservation need, but because these forests are found in warm, low-elevation places in Vermont, many are heavily altered by development. Department ecologists are working to improve their understanding of oak-pine forests to more effectively conserve them and the species that depend on them.



Oak-Pine Forests provide habitat for many wildlife species in Vermont.

Eric Sorenson

New Discovery in Vermont: The Climbing Fern

The big find in Vermont last summer was climbing fern growing in the Northeast Kingdom, according to Aaron Marcus, Vermont Fish & Wildlife’s assistant botanist. Considered extirpated until now, the climbing fern (*Lygodium palmatum*) was located by botanist Art Gilman while he was conducting a survey along a VELCO-owned powerline. Powerlines in Vermont can be hotspots for rare, threatened, and endangered plants, and VELCO is working with botanists to conserve the fern.

Climbing fern typically grows a few feet tall in open boggy areas and is the only species of fern found in the northeast that is a vine. Though the species is considered ‘apparently secure’ globally, climbing fern is rare in states where it occurs, from Florida to New Hampshire, with only 48 known populations in New England. Spores can travel far, so although this patch may have been here all along, it is also possible that it is moving north in response to climate change.

The climbing fern was one of several historically documented species that were rediscovered in Vermont this year. “We are finding unusual numbers of long-missing plant species and new plants species in the last five years,” said Marcus. “The many eyes on the ground from volunteers and professional botanists are a big part of that story.”



Art Gilman



Eric Sorenson

Steam Mill Brook Wildlife Management Area

Conserved Now and Forever

In 2018, the department worked to permanently conserve lands to protect fish and wildlife habitat and provide lands for the public to enjoy. At Otter Creek Wildlife Management Area in Mt. Tabor, an additional 54 acres of waterfowl and songbird habitat was conserved that connects Otter Creek WMA to Green Mountain National Forest. This parcel of varied streams, wetlands, and hardwood forests was conserved thanks to an important partnership with Vermont Land Trust.

In Wheelock, Vermont, the Steam Mill Brook Wildlife Management Area was expanded by 225 acres of young forested habitat perfect for warblers, woodcock, and moose. This vast 11,000-acre wilderness contains a large expanse of unbroken forests and provides an important corridor for wildlife moving between the Worcester Mountain Range and the Northeast Kingdom. “Wildlife is increasingly under threat from climate change and forest fragmentation. Intact forests that serve as movement and migration corridors are becoming ever-more important for wildlife such as songbirds, moose, and black bears to continue to thrive,” noted John Austin, lands and habitat program manager for Vermont Fish & Wildlife Department.

Vermont’s newest WMA, Windsor Grasslands Wildlife Management Area in Winhall and Jamaica, once housed a state prison. The new WMA now comprises hayfields, young forests, and apple trees as well a state hotspot for bird-watchers looking to see grassland birds. Last fall, young people working for the Vermont Youth Conservation Corps spent a full week battling invasive plants and working to establish a mix of native, wildlife-friendly trees and shrubs in their place.

New Habitat for Pollinators on State Lands

Pollinators such as moths, bees and butterflies contribute more than \$24 billion to the U.S. economy by promoting fruits, nuts, vegetables, and cover crops. But many pollinators are in freefall from pesticides and habitat loss. Vermont recently added three native bumblebees to the state's endangered species list, including the rusty-patched bumblebee, a species that was previously common in Vermont but hasn't been spotted here for years.



Each year, Vermont Fish & Wildlife Department biologists work to create habitat for pollinators on the 145,000 acres across our 98 wildlife management areas. They maintain hundreds of acres of open meadow habitat for all wildlife, allowing pollinators to take advantage of the asters, joe pie weed, goldenrod, and other flowering plants.

At Dead Creek WMA, two acres of pollinator fields are being planted this spring with more expected in the future and the department is exploring adding some bee homes (yes, this is a real thing) near the fields. At Sandbar WMA

in Milton, staff have planted 15 acres of pollinator fields with 5 additional acres scheduled this year.

But pollinators don't just feed on seasonal wildflowers – they also keep forests healthy by pollinating many trees. Across Vermont's wildlife management areas, biologists manage hundreds of acres of wild apple trees and thousands of acres of forest mast trees such as beech and oak to benefit all species including pollinators.

By providing this crucial habitat, the department is working to keep Vermont's farms and forests secure and ensure the sight of colorful butterflies or hovering bumblebees remain a common summer day's experience in Vermont forever.

Together We Saved the Loon. Let's Not Stop Now!

Help Vermont's endangered wildlife by donating to the Nongame Wildlife Fund.

Look for the check-off on your Vermont income tax form or donate directly online at www.vtfishandwildlife.com





Wildlife Diversity Program

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Please donate to the Nongame Wildlife Fund on your Vermont income tax form.



Steve Parren Receives 2018 GMP Zetterstrom Environmental Award

Each year, *Harmonies* highlights someone who has dedicated their life to conservation. Steve Parren has worked at the Vermont Fish & Wildlife Department most of his career, but as was pointed out when he was presented Green Mountain Power's prestigious GMP-Zetterstrom Environmental Award for 2018, he has also volunteered hundreds of hours of his own time to save wildlife.

At various points in his life, Parren has focused his energy on recovering endangered species, conserving the state's migratory birds, and most recently on bringing back state-threatened spiny softshell turtles and other turtle species. As a member of the Monkton Conservation Commission, Parren was instrumental in creating the state's first amphibian underpass, allowing frogs and salamanders to migrate safely under the road.

When receiving the award, Parren turned the spotlight back on its namesake Meeri Zetterstrom, whom he worked with to restore ospreys in Vermont. "I

am humbled to receive an award named for Meeri Zetterstrom, one of the most determined and selfless environmentalists I have known. She taught me an important lesson on the value of education and volunteerism to wildlife conservation."

Parren is considering retiring from the department after a long career, which may just free him up to spend even more time afield helping a salamander across the road or protecting hatchling turtles from predators.

