

NATURAL HERITAGE HARMONIES



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A publication of the Wildlife Diversity Program

Vermont Fish & Wildlife Department
Agency of Natural Resources

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

Bald Eagles and Much More

*By Julie Moore, Agency of Natural
Resources Secretary*

The bald eagle was first listed as endangered in Vermont back in 1972, long before our current list of endangered and threatened species took form in 1987. Species are listed through a rigorous rule-making process with advice from the Vermont Endangered Species Committee and lots of public notice and input. We currently list 36 animals as endangered and 16 as threatened, as well as 69 endangered and 94 threatened plants.

We are a small state with lots of cool stuff, but you already knew that. This year we are proposing the delisting of the bald eagle. This is a huge milestone that represents the efforts of our agency and departments, partners, the banning of DDT, and the efforts of other states. We should all feel proud that we worked together to recover this magnificent creature and symbol of our nation.

So here we are in 2021 making the bold declaration that the bald eagle is
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Mapping Natural Communities for Land Management Decisions

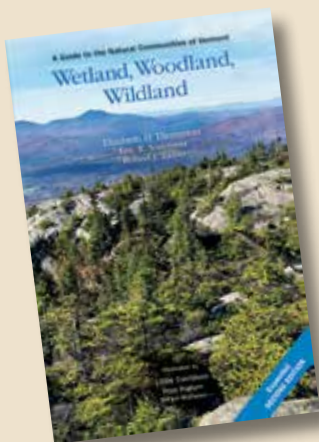


Bob Zaino

Halfmoon Cove Wildlife Management Area in Colchester can be accessed either from the Winooski River or through a town-owned fishing access on Route 127.

YOUR GUIDE TO VERMONT'S NATURAL COMMUNITIES

Want to learn more about natural communities? Pick up a copy of the expanded second edition of *Wetland, Woodland, Wildland: A Guide to the Natural Communities of Vermont*.



Published by the department, The Nature Conservancy, and Vermont Land Trust, and distributed by Chelsea Green Publishing. Find it in local bookstores around the state, or online at:

www.chelseagreen.com/product/wetland-woodland-wildland/

Many Vermonters and visitors alike know the roughly 350,000 acres of state-owned lands—state parks, state forests, and wildlife management areas—as remarkable places to hike, hunt, paddle, birdwatch, and enjoy the state’s natural beauty. For Vermont Fish & Wildlife’s state lands ecologist Bob Zaino, they are places to find, map, and assess natural communities.

Natural communities—defined as assemblages of plants, animals, and their environments—help make sense of the complexity of nature. Hemlock Forests, Alder Swamps, and Cattail Marshes are all examples of natural communities. Ecologists recognize 97 distinct types of natural communities in Vermont, each with its own physical setting and associated plants and animals.

Because it is not possible to find and list every species that occurs on a piece of land, natural communities are an efficient way to classify the landscape and make land management decisions. Conserving and managing good examples of each natural community type helps ensure that their associated species continue to have habitat into the future. This is especially important for poorly studied or cryptic species, like the Carolina andrena bee or the brown elfin butterfly, both of which might be found in Pitch Pine-Oak-Heath Rocky Summit natural communities.

As part of the long-range management planning process for state lands, Zaino prepares maps of natural communities for each parcel, which in turn inform decisions about timber harvesting, recreation use, and ecological restoration.

Does he have any favorite places on state lands? “One of my favorites is the Silver Maple-Sensitive Fern Floodplain Forest and Maple-Green Ash Swamp of Halfmoon Cove Wildlife Management Area,” Zaino says. “It’s just four miles from downtown Burlington but it’s a different world, filled with tall arching maple trees and abundant birds.”

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Cover image: Bald Eagle from Lake Seymour, by Doug Gimler



Steve Parren

We are proposing to designate four Lake Champlain nesting beaches used by the state-threatened spiny softshell turtle and other turtle species as critical habitat. Some of these sites provide habitat for hundreds of nests.

Bald Eagles

continued from page 1

recovered. It is a little intimidating, but we have been here before when we delisted the osprey, common loon, and peregrine falcon. Those experiences taught us to trust in ourselves and our perseverance to take the sustained effort it requires to recover a species. The proposed change to our endangered and threatened species list is a mixture of both good and not so good news. In addition to the eagle, we are delisting the Canada black snakeroot plant because we now know of more populations.

However, we are uplisting the brook floater mussel from threatened to endangered because it continues to decline here and throughout its range. We are proposing to list the rue anemone plant as endangered, having only two known populations that are vulnerable to loss. The eastern meadowlark is no longer a species we commonly encounter, and this is sadly true for other grassland birds. It is being proposed for threatened status and the American bumble bee is being proposed for endangered. We last detected this grassland species in 2000.

Protecting Critical Habitat

We are taking bold steps to help our native species. Three common tern colonial nesting islands owned by Green Mountain Audubon and the largest bat wintering cave in all of New England owned by The Nature Conservancy are being proposed as critical habitat, which will protect these habitats even when listed species are not present. We are also proposing to designate

four Lake Champlain nesting beaches used by the state-threatened spiny softshell turtle and other turtle species as critical habitat. Some of these sites provide habitat for hundreds of nests. Two sites are owned by the department, one by Forests, Parks and Recreation, and the fourth by a supportive landowner. All of these sites are currently managed by Fish & Wildlife and nesting success has been improving.

So, we continue to take the actions needed to face challenges head on. It was no accident that the bald eagle met its recovery goals. The sustained and continuing efforts of Vermont Fish & Wildlife and its many partners made the difference. Let's celebrate!



Mathew Paulson-Flickr/Creative Commons.org

Eastern meadowlark may be listed as threatened.

Wildlife Diversity Program Highlights - Supported Through Vermont

A donation to the Nongame Wildlife Fund is a gift to the future of wild animals and wild places in Vermont and protects everything from... We're able to leverage your donation for additional federal funds, so one dollar to the Nongame Wildlife Fund can yield an additional...



Mark Ferguson

Mudpuppies

Relocating Mudpuppies

Mark Ferguson and Steve Parren spent a week in March 2020 trapping mudpuppies in the Lamoille River and translocating them upstream of two dams, with the goal of increasing this rare species' overall resiliency in this river system. Over the course of seven days, 36 mudpuppies were captured and moved. The department also plans to use radio-transmitters to help study mudpuppy movements following relocation.



Deb Marshall

Flowering diapensia and Lapland rosebay

New Discoveries

Bob Popp and Bob Zaino confirmed new populations of diapensia (*Diapensia lapponica*) and Lapland rosebay (*Rhododendron lapponicum*) on a peak in the Green Mountains. Until recently, diapensia was only reported from a single location and Lapland rosebay has never been reported from Vermont, but occurs in the White Mountain in NH and Adirondacks in NY.

Golden-Winged Warblers

Golden-winged warblers nest in old fields with sparse trees or shrubs and a grassy understory close to mature forests. In Vermont, this type of habitat is becoming increasingly rare. The department, working with Audubon Vermont and others, is creating high-quality shrubland habitat by establishing openings in early successional settings and controlling invasive shrubs. Efforts include creating nine acres of young forest habitat in Charlotte, clearing 14 acres of old field habitat in Bristol, removing invasive shrubs from 25 acres along Lewis Creek in Hinesburg, and enhancing shrubland at Hinesburg's Geprag's Community Park.



Tom Benson - Creative Commons.org

Todd Tillett - Creative Commons.org

ont's Nongame Wildlife Fund

om grassland birds to little brown bats. We appreciate all our supporters who donate year after year! two to three dollars for conservation in Vermont. Below are some projects benefiting from the fund.



Private Lands and Bats

The department assists private landowners interested in managing for Indiana bats, northern long-eared bats, and various bat species inhabiting underground sites. Staff assess parcels for potential roost trees and desirable habitat characteristics and, when appropriate, connect interested landowners with cost-share habitat incentive programs. Staff also help with private land planning by providing guidance on creating, restoring and conserving bat habitat.



Staff assist landowners by accessing their land for potential bat roosting trees and other desirable habitat characteristics.

VFWD



Mark Ferguson

There are likely more than 300 different types of bees in Vermont

Citizen-Science Bee Survey

The department, in partnership with Vermont Center for Ecostudies and Stone Environmental, began a citizen science-based survey of bees in Vermont. The project began in 2019 and focused on surveying Chittenden County. In 2020 the effort expanded to other counties. So far, more than 20 species have been added to the list of Vermont bees. There are likely more than 300 different types of bees in Vermont. Learn more and get involved at val.vtecostudies.org/projects/vtbees/.

American Marten Survey

Data from the department's remote camera surveys confirm there is a breeding population of the state-endangered American marten within a narrow portion of the southern Green Mountain National Forest. During the 2019-2020 winter field season, marten were detected in 17 of the 27 forest units surveyed.

The project, which began in 2014 to gain a better understanding of marten distribution in the area and evaluate the success of the 1989-1991 reintroduction effort, is a partnership between the department, the US Forest Service, and Central Connecticut State University.



Remote camera surveys for American marten confirmed their presence in the southern Green Mountain National Forest, representing the southernmost population of martens in the US.

VFWD

Mapping Vernal Pools

By Mark Ferguson, F&W Zoologist

Vernal pools are a unique type of natural community where water collects in a small, forested basin and provides several months of habitat for aquatic life to thrive before drying out later in the summer. Wildlife species that depend on these pools in Vermont include wood frogs, spotted salamanders, Jefferson salamanders, blue-spotted salamanders, fairy shrimp, and fingernail clams.

The department, with its partners Arrowwood Environmental and the Vermont Center for Ecostudies (VCE), embarked on an effort in 2009 to begin documenting where vernal pools are found on the landscape and the important wildlife populations that use them. Using primarily aerial imagery, this resulted in a map of over 4,800 potential pools across the state. Citizen scientists could use this map to find and visit sites, with landowner permission, to collect and provide data to the project. Additional pools were also reported by the public from their field observations.

Working again with VCE, we have developed the Vermont Vernal Pool Atlas (VPAtlas), a convenient way for the public to provide and access vernal pool information. The web-based tool is found at vpAtlas.org. The website offers a publicly-accessible, searchable, online database of vernal pool locations, along with physical and biological characteristics of pools that have been field-verified. People can also register as users to upload their vernal pool observations and photographs. Anyone can become a VPAtlas user and contribute to this statewide resource. Users should remember to obtain landowner permission to visit pools so their data can be mapped.



Vernal pool information is now available through VPAtlas.

Charlie Hohn



Department botanist Bob Popp inventorying a wetland.

Everett Marshall

Inventorying Wetlands

By Everett Marshall, F&W Natural Heritage Information Manager

Where are Vermont's rarest wetland plants found or the best examples of Lakeside Floodplain Forests, Sedge Meadows, or Deep Bulrush Marshes? The Vermont Natural Heritage Inventory (VNHI) has a two-year Environmental Protection Agency Wetlands Development Grant to improve the protection of rare plants and significant natural communities and enhance the Vermont Department of Environmental Conservation (DEC) Wetlands Program's knowledge.

To answer these questions VNHI began the study this past field season with a focus on inventorying wetlands containing rare plants with a historic (25 years since last confirmed) or unclear status. The study also includes under inventoried wetland natural community types as identified in the Vermont Conservation Design, such as Shallow Emergent Marsh, Deep Broadleaf Marsh, and Alder Swamp.

Highlights of some of the newly documented wetland natural communities this past year include an Intermediate Fen in Orange, a Lakeside Floodplain Forest in Alburgh, a Boreal Floodplain in Newark, a Red Spruce-Cinnamon Fern Swamp in Chittenden, and a Boreal Cedar-Sphagnum Swamp in Holland. There were also a number of new wetland plants found, including small beggar's-ticks (*Bidens discoidea*), cat-tail sedge (*Carex typhina*), and border meadow-rue (*Thalictrum venulosum*), Ontario aster (*Symphotrichum ontarionis*), Schweinitz's sedge (*Carex schweinitzii*), and marsh willow-herb (*Epilobium palustre*)

Staff involved in the project include botanists Bob Popp and Aaron Marcus, and ecologists Eric Sorenson, Bob Zaino and Dan Farrell, and grant manager Everett Marshall. Information from the study will be added to the Natural Heritage Database and made available to DEC's Wetlands Program, conservation planners and the public through the Natural Resource Atlas.

New Approach to Monitoring Den Sites

By Luke Groff, *F&W Herpetologist*

Vermont's Timber Rattlesnake Recovery Plan includes objectives related to number of adult females, annual reproduction, and age structure. Estimating these parameters requires monitoring, which traditionally involved repeatedly surveying dens and birthing sites. However, over time, repeated site visits may degrade these important habitats and negatively impact snake behavior. Consequently, we sought an alternative approach.

In October, with help from The Nature Conservancy staff, we field-tested a passive monitoring approach to remotely detect timber rattlesnakes previously marked with Passive Integrated Transponder (PIT) tags. Part of this approach involved surrounding a known den with a cord antenna system that automatically records the unique PIT tag number, date, and time of marked animals that move across it. We also deployed a trail camera to better understand how many unmarked snakes use the den and to determine when and at what temperatures snakes were most active.

The cord antenna system detected seven rattlesnakes during the 13 days it was deployed. Four of these snakes had not been detected since 2011, one had not been detected since 2013, and two had not been detected since 2017. The trail camera pictures showed snakes frequently entering and exiting the den during early and mid-October. A volunteer is currently reviewing the pictures and evaluating snake activity, but a preliminary review indicated most snake activity occurred between 6:30 PM and 11:00 PM at temperatures as low as 42°F.



Luke Groff

A cord antenna system surrounds a known den and records snake movements as they cross over the antenna.



Kiley Briggs

Our passive monitoring approach provide many benefits including fewer site visits and impacts to important habitats, less snake handling and disruptions to snake behavior, better information, lower costs and reduced risks to human safety.

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

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Wildlife Diversity Program

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Your Support Makes a Difference!

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Volunteer Spotlight – Warren King

By Lilla Stutz-Lumbra, F&W Outreach Coordinator

If anyone deserves to be recognized for their commitment to conservation it's Ripton resident Warren King. I first met Warren years ago when we worked together planning Dead Creek Wildlife Day. His enthusiasm and ability to recruit volunteers and sponsors for the event was inspiring.

So, it came as no surprise to learn he was presented with Agency of Natural Resources' Sally Laughlin Award for the Conservation of Endangered and Threatened Species late last year. Warren has spent thousands of hours volunteering for conservation efforts, both locally and statewide.

The Nature Conservancy, Vermont Audubon, National Audubon, and Otter Creek Audubon are a few of the conservation organizations to benefit from his membership. For more than ten years, Warren was part of the Bird Scientific Advisory Group to the Vermont Endangered Species Committee. Warren also had a leadership role with the Vermont Association of Conservation Commissions and serves on his town's conservation commission.

He has logged numerous hours searching for rare plants. As an active volunteer with the Native Plant Trust (aka New England Wildflower Society), he monitors populations of

Vermont's rare and endangered plants, including locating and monitoring populations of the state-threatened eastern Jacob's ladder.

Some of the many other projects Warren has volunteered for include surveys of marsh birds at Little Otter Creek and ruffed grouse and barred owl on the Green Mountain National Forest, the Vermont Breeding Bird Atlas, the Otter Creek River Watch project, and Dead Creek Wildlife Day.

Warren is well-known in Vermont's conservation community. His long-term commitment to Vermont's wildlife and plants and the organizations that protect them is proof of his passion for conservation. Thank you Warren for all you do!



Lilla Stutz-Lumbra