

VNRC

Published  
by the  
Vermont  
Natural  
Resources  
Council, Inc.

# Vermont

## Environmental Report

### Vermont's Backyard Biodiversity

Summer/Fall  
2021



# Member Profile

## Linda Hecker

*Linda Hecker is an educator who lives in Guilford. She serves on the Guilford Conservation Commission and plays chamber music in her spare time.*

### ***How did you become a member of VNRC?***

I moved to Vermont more than 50 years ago, to a remote part of Guilford near some of the state's most productive forestland. Living at the edge of the woods, I was curious to learn about my local environment, especially after joining the Guilford Conservation



Commission in 2004. So I turned to organizations like VNRC.

I've always been impressed by VNRC's educational resources, particularly around protecting forestland and safeguarding Act 250. I also appreciate the nuanced positions the organization takes linking the health of our human communities to that of our natural environment, and supporting working lands as part of who we are in Vermont.

### ***How has your work on the conservation commission changed since the pandemic?***

It hasn't slowed down one bit! In the early days we were still able to meet in person, socially-distanced and outdoors, to carry on a few of our projects. This included stewarding a trail we developed in a local forest with the New England Forestry Foundation, and conducting an ash tree inventory to prepare for efforts to combat the Emerald Ash Borer.

Meanwhile, we began holding all other meetings remotely. While this posed a challenge for some due to unreliable or slow internet connectivity, it's something we'll continue. We've found online meetings to be a more efficient way to engage people, since we can save the time (and fuel) of driving long distances to attend in-person gatherings in a rural area.

### ***How did you adapt the way you conducted outreach to the community?***

With fewer opportunities to engage in person, we started a weekly "series" on Front Porch Forum called Cabin Fever Notes, where we shared ways that locals could get outdoors safely during lockdown while participating in "citizen science" endeavors. For instance, we encouraged people to act as vernal pool monitors, and advertised webinars being offered by the State and various organizations (including VNRC) about wildflowers, ferns, forests, and wetlands. We gained many new

volunteers this way.

Down in the southernmost part of the state, Guilford often misses out on programs and training sessions conducted in Central Vermont or Burlington. During the pandemic, all of these workshops became available online on a regular basis. This accessibility of programming made a big impression on us and helped us in our work.

### ***Could you share some examples?***

Virtual instruction from the Vermont Fish & Wildlife Department meant the conservation commission was able to continue work on the

natural resources inventory in Guilford's town plan, regardless of an inability to meet in person. The Association of Vermont Conservation Commissions (AVCC) held its annual summit online, making it possible to attend and learn from other like-minded groups doing conservation projects in their towns.

The Windham Regional Commission (WRC) continued to help us understand what constantly-changing state regulations are asking of us. For instance, Act 171 requires that towns do what they can to plan development to protect important forest blocks and wildlife connectors. WRC connected us with resources such as VNRC's Act 171 guide, Community Strategies for Vermont's Forests and Wildlife, which was a huge help. I'm looking forward to seeing the updated version.

### ***You had your backyard wildlife habitat certified through the National Wildlife Federation, for which VNRC serves as the Vermont affiliate. What motivated you to do this?***

It actually started as something to recommend in Cabin Fever Notes. We wanted to encourage folks to get outside and think about their property and environment. Then I decided to participate myself as a little experiment!

When I've tried gardening in the past, I've been overwhelmed by deer, woodchucks, and chipmunks. As they say, "If you can't beat 'em, join 'em." I decided to stop the warfare and instead share the environment with all of these critters. I moved my vegetable garden to a neighbor's fenced-in area, and devoted my attention at home to plants that attract pollinators and insects.

I live on a wetland at the edge of a forest, and there's plenty of water. Hummingbirds and bees have loved my irises, day lilies, and bee balm. My raspberries and butterfly weed have

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Through research, education, collaboration and advocacy, VNRC protects and enhances Vermont's natural environments, vibrant communities, productive working landscapes, rural character and unique sense of place, and prepares the state for future challenges and opportunities.

VNRC is the Vermont affiliate of the  
National Wildlife Federation.

**VNRC membership includes a subscription to  
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Published in August 2021

Cover photo:  
A bobcat spotted in a Richmond backyard. Paul Leible

## The Inside Word

# Addressing Global Environmental Challenges at Home



By Brian Shupe, *Executive Director*

Since VNRC was founded in 1963, our mission has been caring for Vermont's resources—its farms and forests, unique natural areas, the vitality of our small communities, and the health of Vermonters.

This involves acting on issues of all scales—from stopping an ill-conceived plan to dump an old ferry in Lake Champlain and preventing a sprawling

development around Exit 4 in Randolph, to slowing the insidious trend of forest fragmentation and ensuring that we do our part to combat and prepare for climate change.

We work at the local level, directly with planning and conservation commissions and energy committees, to provide them with resources to make well-informed decisions that shape the future of their communities. This is important, because many of the decisions that affect land use and land conservation occur at the municipal level in Vermont.

And, perhaps most prominently, VNRC works on state policy through active engagement with the Vermont Legislature, watchdogging how different administrations implement and enforce laws, and, when necessary, through litigation to ensure that laws are applied as intended.

I am proud of how much VNRC has accomplished over the past 58 years, and how active and effective we have remained over the course of the COVID-19 pandemic. Equally important is what our members and supporters do to further our mission through personal action and local activism. This edition of the *Vermont Environmental Report* (VER) focuses on what you can do to address global environmental challenges.

In past VERs we've highlighted our involvement in the Vermont Alliance for Half-Earth, which is pursuing renowned ecologist E.O. Wilson's clarion call to protect 50% of the Earth's land and water to avoid a disastrous collapse in the world's biodiversity. The effort has gained traction at the national level with President Biden's embrace of the 30x30 initiative, an important commitment (and first step) to preserve 30% of the nation's land and waters by 2030.

This will require bold state and national policy, and action on the part of our cities and towns, but also will benefit from personal decisions of landowners across the state on how to manage their land. I'm hoping that the resources and inspiration we share in this issue will support these efforts and promote greater awareness about the role that individual behavior can play in addressing the two ecological crises we face: loss of habitat and climate change.

As always, we appreciate your support, and hope to see you at our 2021 Annual Meeting. See the back cover for more details. 🌱

**Equally important is  
what our members  
and supporters  
do to further our  
mission through  
personal action and  
local activism**





Tim Newcomb

*Barred owl spotted in Worcester*

# Vermont's Backyard Biodiversity



Paul Leible

*Red fox seen in Richmond*

From brook trout to bobcats, sugar maples to swamp milkweed, and wild turkeys to wood turtles, thousands of wildlife and plant species call Vermont home. They live and grow in our mountains, forests, rivers, and everywhere in between. Many of them can be found in the woods, farms, and parks near our homes—and even in our own backyards.

Gazing upon Vermont's fauna and flora can be a favorite pastime, but preserving their habitat and livelihood is no easy task. It requires a multifaceted approach, ranging from state-wide policy to individual stewardship. In this issue of the *Vermont Environmental Report*, we explore the many ways we can work together to protect Vermont's rich biodiversity, with a look at some current initiatives and groups taking the lead on this work—including many of you!

## 30x30: A global and national effort

The ongoing loss of natural areas and degradation of surface waters is a global crisis. Between 2001 and 2017, the United States lost the estimated equivalent of a football field—slightly more than an acre—of natural area to development every thirty seconds. Deforestation in the Amazon rainforest is occurring at the even more alarming rate of one and a half acres per second.

The depletion of wild places is having disastrous effects on

biodiversity, the variety of species that live in our ecosystems. Global animal populations have declined by 68% on average since 1970. One million animal and plant species are currently at risk of extinction, including a third of U.S. wildlife.

Luckily, scientists believe there is a way to prevent mass extinction of species while simultaneously bolstering our resilience to climate change. It will require a dramatic shift in human behavior. According to *An Ecoregion-Based Approach to Protecting Half the Terrestrial Realm*, a plan authored by 49 scientists in 2017 (followed by *A Global Deal for Nature* in 2019), we must aim to protect at least 30% of the world's lands and waters over the next ten years. Find the 2019 report at [www.globaldealfornature.org/science/](http://www.globaldealfornature.org/science/). Since this paper was published, more than fifty countries have expressed agreement with the 30% by 2030 target.

The United States began to get on board in 2019, when Senators Tom Udall (D-New Mexico) and Michael Bennet (D-Colorado) championed what became known as the 30x30 Initiative in Congress. Within a month of taking office, President Biden issued an executive order that, among other items addressing the climate crisis, committed his administration to protecting 30% of U.S. land and coastal seas by 2030 by supporting local, state, private, and tribally-led conservation and





*Black bear*

restoration efforts currently underway across America.

In March 2021, Deb Haaland was confirmed as Secretary of the Department of the Interior, making her the first Indigenous person to hold this position. Her commitment to healing the wounds the federal government has inflicted on Tribal communities, while fighting to advance conservation goals and improve access to public lands, bodes well for the fate of 30x30 and related programs. The Department is now evaluating how to best assess our progress towards the 30x30 goal, while considering ways to achieve more equitable access to nature and public lands for all.

It's about time we took these steps. According to the U.S. Geological Survey, only 12% of lands in the United States, and just 23% of oceans, have been permanently protected. Is 30% of land and water conservation enough? Maybe not, but it's a start. The naturalist E.O. Wilson wrote in his 2016 book, *Half-Earth: Our Planet's Fight For Life*, that we must actually devote fully half of the Earth's surface to nature in order to preserve the biodiversity of the planet, and thus the human race. Wilson's teachings began a movement, the Half-Earth Project, which you can explore at [www.half-earthproject.org](http://www.half-earthproject.org).

Locally, the Vermont Alliance for Half-Earth—a group of educators, conservationists, business leaders, and public officials

## *A pollinator at work*



based in the Winooski River watershed—engages Vermonters around preserving local biodiversity under the half-earth model of conservation. We spoke with Curt Lindberg, one of the group's co-founders, in our Summer 2020 issue. Find that profile and learn more about the group at its website, [www.vermontallianceforhalfearth.org](http://www.vermontallianceforhalfearth.org).

## **From state policies to community strategies**

While it's encouraging to see policy makers commit to conservation goals like 30x30, it begs the question: What's next? We can enact laws and policies promoting the conservation of our natural lands and wildlife at the state level, but communities need to take the lead at the local level in order for meaningful progress to be made.

In Vermont, towns have long had general authority to work on policies related to forests, wildlife, and land conservation. Act 171, however, which was signed into law in 2016 with VNRC's support, amended Vermont's planning and development statutes to encourage municipalities to explicitly address the fragmentation of intact forests and wildlife habitat. As of 2018, Act 171 requires towns and regional planning commissions to identify important areas that function as forest blocks and habitat connectors and plan for development in these areas to minimize forest fragmentation.

The fragmentation (or breaking up) of forests by roads, highways, and development puts wildlife at risk by reducing their habitat. This is especially true in a changing climate, when animals must often travel further to find food and mates in the first place. If they miss a single "connection" from one forest block to another, that could mean missing the opportunity to reproduce and perpetuate their entire genetic line, explains Jens Hawkins-Hilke, Conservation Planner at the Vermont Fish and



Wildlife Department.

“Sometimes, dispersing males of a species will do these really big movements that are totally unpredictable, outside of our ability to model. They’ll just up and go,” said Hawkins-Hilke. “Maintaining a network of connectivity reflects these sorts of big movements, which is a really big deal for genetic exchange and ultimately, the continuity of a species. Just one mating connection per generation could be sufficient for maintaining gene flow.”

In our Winter 2019 issue of the *VER*, we highlighted resources that are available to help municipalities incorporate Act 171 strategies in their town plans. Find more info at [vnrc.org](http://vnrc.org) and at [tinyurl.com/Act171guidance](http://tinyurl.com/Act171guidance). Now, some years later, we are conducting an extensive assessment to see how municipalities across the state are actively working to achieve wildlife conservation, and evaluating the tools they are using to do so.

More than 125 towns in Vermont have received technical assistance on Act 171 adoption, from Guilford to Plainfield, Dummerston to South Hero. There are many successes to report. Waitsfield, for instance, has taken a highly deliberative approach over the years to balance the needs of the community with the needs of its natural ecosystems.

This heavily-forested town in the Mad River Valley has discussed placing new housing close to Route 100, its main thoroughfare, to curtail sprawl and increase residents’ proximity to downtown amenities. But it’s not that simple, as some parts of the road are more important as wildlife crossings than others are.

Through Act 171 guidance from VNRC and Vermont Fish & Wildlife Department, Waitsfield has been able to re-map its forest blocks and wildlife road crossings, examining Route 100 to determine the best spots to accommodate affordable housing without compromising areas already known to be important



*Moose and calf*

wildlife crossings. Recognizing that Route 100 is a fragmenting feature, this technical assistance has helped the town identify draft policies and use conservation science to maintain forest resources while still reflecting a community emphasis on smart growth.

“It’s gratifying to see so many municipalities implementing Act 171, legislation that VNRC helped to champion to promote the protection of our forests and wildlife. Critical to the success of this effort is the outreach we and partners at the Agency of Natural Resources have been doing to connect towns with the resources they need to make impactful decisions,” said Jamey Fidel, who has devoted countless hours guiding towns in this arena as Forest and Wildlife Program Director at VNRC.

VNRC is currently updating two publications that relate to this work: *Community Strategies for Vermont’s Forests and Wildlife: A Guide for Local Action*, which was distributed to every municipality in the state upon its publication in 2013, and *Wildlife Considerations in Local Planning: An Evaluation of a Decade of Progress in Vermont*. Both were designed to help municipalities with planning resources and strategies for conserving forests and wildlife.

Nearly ten years later, the updated version of *Community Strategies* will include several new chapters and place greater emphasis on helping communities understand how to plan to conserve forest blocks and habitat connectivity areas. “We wanted municipalities to be able to pick up the publication and determine, ‘What can we do? What are our options?’ as they make important decisions about forest and habitat management in their towns, using a menu of implementation steps,” said Fidel.

The guide will include revised strategies for working forests, as well as a new chapter that details the benefits of intact forests for watershed health and water quality. In addition to providing food and habitat for wildlife, healthy forests provide overstory



*Act 171 requires towns to identify places like this where animals are likely to cross, and plan development to minimize the fragmentation of these critical spots.*

vegetation with roots that bind to sediment. Roots uptake and filter water, helping to mitigate the negative effects of stormwater runoff.

Municipal policies can promote watershed health by incentivizing or requiring nature-based solutions during the development review process. This can include maintaining riparian buffers to protect rivers and streams, limiting the intrusive impacts of driveways and roads, and discouraging fragmentation through proactive subdivision design and planning.

Find the current version of both guides at [vnrc.org/healthy-forests-wildlife/](https://vnrc.org/healthy-forests-wildlife/), where the new publications will be made available later this year.

## Less mowing, more growing

There are also things you can do in your very own backyard to steward the diverse ecosystems around you. Whether you own a home and hundreds of acres or rent an apartment with planters on the balcony (find some tips for small-space container gardening in the call-out on page 6), the first step is knowing why your efforts are important in the first place.

In much of the nation, even in rural states like Vermont, residential lawns are ubiquitous. Irrigated turf covers nearly two% of land in the United States according to a 2005 study published in the *Journal of Environmental Management*—that’s more than 40 million acres of residential and commercial lawns, parks, golf courses and soccer fields. Lawns are problematic because they replace diverse natural habitats for wildlife with a monoculture (the cultivation of a single crop in a given area) of non-native

grasses that require extra water, pest control, and maintenance.

A recent study by the National Science Foundation found that lawn maintenance is contributing to “continental-scale ecological homogenization.” Just as the destruction of large swaths of wilderness poses a growing threat to biodiversity on the global scale, replacing natural flora with monoculture in American neighborhoods is no small detriment to the health of our wildlife. (Not to mention that lawn maintenance often requires the use of fossil fuels and chemicals that are toxic to most living things.)

To combat monoculture, you can simply “rewild” your lawn. This lets nature step back in by re-establishing natural ecosystems and native species. Stop mowing, and you’re likely to see more birds, butterflies, and other organisms visit your property. Stop using pesticides, and your yard will be healthier for children, pets, and wildlife. You don’t need a national park-sized tract of land to foster biodiversity; you can do it right at home.

In 2020, the Vermont Alliance for Half-Earth embarked on a project documenting the ways that people around the state are doing their part, from ceasing mowing to allow a backyard wetland to flourish to building structures that attract and support animals and insects. Find the collection, *A Shared Life: People and Biodiversity in Vermont*, at [arcg.is/uaym](https://arcg.is/uaym), and see the innovative ways fellow Vermonters are supporting the various organisms who live nearby their home, town, school, or workplace.

## Certified Wildlife Habitats

The National Wildlife Federation (NWF) believes that anyone can reclaim wildlife habitat, re-establish native plant communities, and protect the local watershed through sustainable gardening practices right at home. Through its Certified Wildlife Habitat program, NWF encourages and empowers individuals to make changes big and small to support local biodiversity.

Having your outdoor space “certified” by NWF is simple; just fill out a short application demonstrating that your habitat can provide food sources (such as fruit trees, bird feeders or pollinator-friendly gardens), water (like bird baths and ponds), cover (thicket or brush), and places for wildlife to mate and care for their young (trees and shrubs, caterpillar host plants, or bat/bird boxes, for example). You’ll also be asked if your garden follows sustainable practices such as soil and water conservation; organic growing; and controlling invasive species.

If your backyard habitat fits the criteria, you’ll receive a certificate or a sign you can proudly display in your garden, indicating your commitment to fostering diverse species on your land. Both come at the cost of a donation, which also includes a one-year membership to NWF. (As the Vermont affiliate for NWF, VNRC receives a small contribution from NWF for each certified habitat designated in the state.)



Erin Martin

*For the past seven years, Erin Martin of Brattleboro has been replacing her lawn, originally “devoid of life,” with plants that attract local wildlife.*



Erica Herzog



In our role as state affiliate of NWF, it has been VNRC's pleasure to connect with the many Vermonters who have submitted their backyard habitats to the program in recent years. From vast acreage, to small urban garden plots, to shared spaces like schools and office buildings, the diversity of examples have given us a wonderful view into the types of opportunities there are to support healthy wildlife in our communities.

Paul and Brenda Leible of Richmond certified their mix of open fields and wooded hillside in 2019. The Leibles have long seen and documented animals visiting their land, which features a quarter-acre pond fed by a natural brook. They've observed foraging black bears, bobcats (see our cover image), grouse, and a wide variety of critters attracted to the pond, including muskrats, otters, blue heron, and kingfishers. Paul said the couple decided to participate in the program to encourage their grandchildren's appreciation for the



*Samuel, age 7, radiates pride in his pollinator garden in Bellows Falls.*

outdoors and local wildlife habitat.

Erin Martin of Brattleboro told us that when she moved into her home seven years ago, the yard was a "typical suburban lawn: devoid of life." She made it her mission to foster a biodiverse, healthy ecosystem instead. Each year she expands her gardens with the long-term goal of replacing all of the grass with plants and viable habitat.

Martin's efforts have attracted butterflies (silver-spotted skipper, monarch, and various swallowtail species) and caterpillars; an incredible array of birds (among them American goldfinch, American robin, Baltimore oriole, black-capped chickadee); and a healthy population of bees, wasps, garter snakes, chipmunks, toads, insects, and spiders.

## Container Gardens: A Solution for Renters and Small Spaces

Of course, not everyone has access to their own land to pursue strategies that conserve and support wildlife. According to Census data, renters represented nearly 30% of Vermont households in 2019. Moreover, even many homeowners have little outdoor space to work with.

The good news is that you don't need lots of acreage or even a private yard to make a difference in your local ecosystem. With container gardening, you can create a "wildlife habitat" of your own—fulfilling requirements for food, water, cover, places to raise young, and sustainable practices—with nothing more than a balcony, rooftop, or small porch.

The National Wildlife Foundation (NWF) shared some helpful tips with us about container gardening, or planting in containers instead of directly into the ground:

- Select the largest containers possible, to allow room for roots to grow and so the potting mix takes longer to dry out.
- Choose plant varieties that are compact and can do well in dry soils, as containers dry much more quickly than a



*A household in Montpelier.*

Stephanie Gomory

garden bed in the heat of the summer. Consult your local garden center to aid in your selection.

- Choose a combination of 3-4 native perennials that produce nectar, pollen, fruits and seeds for birds, insects and other wildlife. This type of distribution makes the container more attractive to a diversity of pollinators—and more attractive to the human eye! To find a list of perennials that are native to Vermont, visit [tinyurl.com/VT-perennials](http://tinyurl.com/VT-perennials).
- To provide places to raise young, plant swamp milkweed (a host plant for monarchs) or parsley or dill (to attract swallowtails).
- Provide cover by planting a berry-producing shrub and/or native grass, to bring height to 2-3 feet above the soil top. You can also add filler of native ferns, vine, or groundcover as needed.
- Water regularly, but make sure there are drainage holes at the bottom of the container for excess water to run off. If the container does not have adequate drainage holes, add small rocks or pieces of broken clay flower pot to the bottom before filling so that plant roots do not sit in water.
- Provide a dish feeder or other water container nearby so that wildlife can take a drink when they visit.
- Please note: Feeders and bird boxes can be added nearby to supplement habitat, but they are not a replacement for plants that provide food and cover.

Follow these steps, and soon you'll be welcoming local species to your micro-habitat! Visit [vnrc.org/backyard-habitat](http://vnrc.org/backyard-habitat) for more tips. 🌱



# Engaging Students in Biodiversity

Charlie Wanzer has a request for biologists, ecologists, and other natural resources professionals working in Vermont: Get involved with your local schools.

Wanzer teaches math and science at Twinfield Union School in Plainfield, Vermont. Through his work, and as an amateur naturalist and a member of the Vermont Alliance for Half-Earth, he is passionate about connecting students with the natural world.

In May and June this year, Wanzer organized a “bioblitz” for Twinfield, nearby schools, and community members. A bioblitz is an event where participants find and log as many species as possible in a specific area over a short period of time.

Students and teachers snapped photographs of plants and animals outside their schools and uploaded them to a collaborative database called iNaturalist. Working with

## Doug Tallamy comes to Vermont

VNRC and the Vermont Alliance for Half-Earth are thrilled to welcome renowned conservation scientist and educator Doug Tallamy to Vermont this summer.

At a sold-out event on August 26, Tallamy will guide Vermonters on how to transform their yards, forests, and farms into havens for wildlife and biodiversity. To be added to the wait list and receive a recording of the talk, visit [vnrc.org/doug-tallamy](http://vnrc.org/doug-tallamy).

While in Vermont, Tallamy will also visit local schools and talk with teachers, students, and community members about making school properties like Twinfield into better homes for plant and animal species.



the Vermont Center for Ecostudies and North Branch Nature Center, Twinfield is analyzing the data and will publish the results in the school newsletter.

Bioblitzes offer a fun way for people of all ages to engage with their natural surroundings. They can also help inform choices about land management for nature (carbon sequestration and biodiversity), education, and recreation. Twinfield sits on nearly 90 mostly-wooded acres, with extensive lawns. Wanzer hopes the bioblitz will create a school discussion about which areas could be

mowed less and “rewilded,” allowed to grow into meadows and ultimately more forest. Or where gardens might be planted to encourage native pollinators and other wildlife.

Wanzer believes that schools need to intentionally steward their grounds to model a land use ethic for the community. He thinks that partnerships with local conservationists would help with this goal, while enriching the way teachers educate students about nearby woods, animals, insects, and plants. Initiatives could include recruiting educators into conservation commissions to collaborate on projects based on school grounds, using schools for evening programs, or building community efforts through schools’ communication channels.

“Many schools are already connected to the natural world, through the land around them,” said Wanzer. “What we could really benefit from is a connection to professionals who can help us understand how best to care for this land—and the Earth overall.” 🌱



Charlie Wanzer



Melanie Maiola and her second grade students at Twinfield Union School plant a catalpa on school grounds. In 30 years, the tree should be resplendent with lavish white blossoms.

Charlie Wanzer

“The transformation from the barren grass lawn to the healthy ecosystem of today is a huge source of pride and commitment. I can’t wait to see which new species move in next year!” Martin told us.

Erica Herzog of Bellows Falls certified her family’s backyard with her son Samuel, age 7. Last year he raised money and sought seed donations with the goal of making his garden more pollinator-friendly. Thanks in part to these local contributions,

Samuel received his very own NWF yard sign and shared tips and resources with others. He soon began enjoying visits from bumblebees, butterflies, and hummingbirds. “We’ve made it a mission to encourage more Vermonters to follow suit,” said Herzog of Samuel’s efforts.

Have you certified your backyard wildlife habitat, or are you interested in doing so? Visit [vnrc.org/backyard-habitat/](http://vnrc.org/backyard-habitat/) to learn more or share your story. 🌱

## Preventing Monoculture

Caring for biodiversity is about more than protecting wildlife, or even securing the survival of the human race. It’s also about the continuity of the human spirit and the preservation of culture, stories, and tradition.

The Rian Fried Center for Sustainable Agriculture and Food Systems at Sterling College in Craftsbury, Vermont reports that approximately 75% of crop genetic diversity has been lost globally since 1900—and with it, a loss of cultural and culinary knowledge. It’s a sobering truth that makes the term “monoculture” feel applicable to more than just our front lawns.

In five gardens across New England, an organization called Gedakina is planting heirloom seeds of Nanticoke squash, Algonquin Long Pie, Potawatomi strawberry corn, skunk beans, Seneca sunflower, and other varieties of corn, beans, and squash, which are the “three sisters” of crops native to this land (a fourth, sunflower, helps protect corn from birds and wind).

A multigenerational endeavor to strengthen and revitalize



Judy Dow



Mihiku Paul Anderson

*Beans climb on a corn stalk for support in one of Gedakina’s gardens in New England.*

the cultural knowledge and identity of Native American women and their families, Gedakina grows food and medicinal plants for the communities it serves, saving seeds in the process. The organization is directed by Judy Dow, who is also a member of VNRC’s Board of Directors.

One of Gedakina’s initiatives, Cultivating Mother Corn, works to recover Indigenous food systems and agricultural methods like mound planting and wild ricing. Beyond improving access to fresh, organic foods for Indigenous people, the program aims to reduce dietary-related illness and food insecurity and cultivate the traditional bond between women, their families, and the land.

When we think about biodiversity, it’s important that we consider the way it affects us beyond our experience in the outdoors. It’s also in our culture, our kitchens, and our bodies. 🌱

### Member Profile

*continued from inside front cover*

been popular with butterflies. I feed the birds in the winter.

I’m interested in Half-Earth, the idea that preserving fully half of anything, even one’s backyard, can go a long way in dealing with climate change and forces of development. I don’t maintain a lawn and leave much of my property unmowed. I try to keep invasives in check so the native plants have more of a chance to flourish.

***Conservation is a long-time passion, but your “day job” is in a different field. Tell us more.***

I’m a lifelong educator with a focus in special education. I was a founding faculty member at Landmark College in Putney,

a college that caters exclusively to students who learn differently, and spent many years teaching teachers. After retiring three years ago, I still teach online, which enables me to instruct educators from around the world.

I am also a violinist who plays in classical string quartets and orchestras—as much chamber music as possible! I’ve played for the Windham Philharmonic since moving to Vermont and now serve as President of the Board of that group.

A remarkable thing about Vermont is the ability for anyone, regardless of their profession, to learn deeply and contribute to the wellbeing of their communities. I’ve had that privilege through my work on the Guilford Conservation Commission, and I encourage others to find ways to get engaged in ways that matter to them. 🌱



## Steve Parren: “People really do care.”

*“We don’t need to live our lives apart from nature. Our own backyards can be both safe havens for wildlife and delightful connections with the natural world for us.”*

Steve Parren, who recently retired after thirty years as manager of the Vermont Fish and Wildlife Department’s Wildlife Diversity Program, wrote these words in the 1990s. They appeared in his award-winning booklet, *Backyard Wildlife Habitat in Vermont*, which advised Vermonters on how to attract and support wildlife on their land.

Accompanied by lovely and informative illustrations by Libby Walker Davidson, Parren’s guidance on establishing sources of food, water and cover is just as relevant today as it was then. You can find it at [tinyurl.com/backyard-wildlife-habitat](http://tinyurl.com/backyard-wildlife-habitat).

Inspiring people to foster biodiversity in their own backyards is just one way that Parren left a special legacy. In cooperation with conservation partners, he and his team at Fish and Wildlife also created successful recovery plans for iconic species such as the loon, osprey, and peregrine falcon, and coordinated international efforts to maintain habitat for the spiny softshell turtle.

Parren’s passion for endangered nesting turtles wasn’t limited to his work with Fish and Wildlife; his personal conservation efforts saved thousands of hatchlings, according to a June 2021 article in *Seven Days*.

For three decades, Parren led Vermont’s Wildlife Diversity Program—formerly called the Nongame and Natural Heritage Program—which is responsible for monitoring, managing, and conserving nongame wildlife (animals that are not fished or hunted), native plants, and natural communities, with special



Steve Costello/Green Mountain Power

*Osprey roost on a nesting platform at Lake Arrowhead in Milton in summer 2021.*

focus given to the protection of endangered and threatened species.

The program also manages the Natural Heritage Inventory, which documents the diversity of native plants, animals and natural communities in the state. Parren promoted this work by supporting a talented staff, and building successful partnerships with diverse organizations and agencies.

“We are very lucky in Vermont because you can go out your door and have a positive interaction with wildlife,” Parren said. “People really do care.”

When we spoke to Parren recently, he addressed the myriad challenges facing wildlife in Vermont. These include climate change, development of the last remaining natural habitats on Lake Champlain’s shoreline, and increasing land division and forest fragmentation. As for the latter, he’s optimistic thanks to tools like the Department of Fish and Wildlife’s Vermont Conservation Design, which maps the areas of the state that are of highest priority for maintaining ecological integrity.

“We need to utilize these tools, maintain these areas, and keep them connected. Forests are resilient — even if we leave them alone, they will take care of themselves,” Parren said.

He’s also optimistic because of the way Vermonters tend to unify around wildlife conservation. Parren cites strong support by the hunting community for non-game work, and vice versa. He says he appreciates how VNRC has long appealed to people across the spectrum who are engaged in hunting, fishing, wildlife watching, and enjoying the outdoors, as well as the organization’s advocacy for conservation at the broad landscape scale. Parren also noted VNRC’s long standing support for adequate staffing for the Wildlife Diversity Program.

“I didn’t experience divisions among people when it came to wildlife,” Parren said of his decades working for Fish and Wildlife. “Conservation is a team sport.” 🌱



Molly Parren

*Steve Parren holding a wood turtle, a species he has monitored since 1984.*

# Recent Highlights of Our Work

## Energy and Climate Action



*Advances conservation, efficiency, renewable energy, and transportation solutions that reduce fossil fuel usage and save Vermonters money.*

- With the #ActOnClimateVT coalition, celebrated the Vermont Legislature's historic \$250 million commitment to climate action in the annual budget, and its significantly increased investments in a 21st century transportation system.
- Johanna Miller continues to serve on the Vermont Climate Council, which is currently developing an initial Climate Action Plan, the roadmap for meeting Vermont's climate commitments as established by the Global Warming Solutions Act. In 2021 the Legislature committed at least \$200 million over the next three years to implementing the Climate Action Plan.
- Completed two partnerships with Middlebury College, advising students on opportunities and strategies for building a climate/jobs corps program in Vermont and exploring how climate issues are being framed and discussed (or not) in Vermont media. Miller received the Tiffany Nourse Sargent '79 Engaged Partnership Award from Middlebury for her work.
- Celebrated the successful introduction of S.148, "An Act Relating to Environmental Justice." Initial responses on this long-overdue policy have been positive, and we look forward to helping move it forward in 2022.
- Wrapped up our 2021 season of the Climate Dispatch, a weekly

video series that keeps Vermonters informed of timely energy and climate opportunities. The Dispatch will continue to appear off-session as well. Stay tuned!

- Through coordination of the Vermont Energy and Climate Action Network (VECAN) of 120+ town energy committees across the state, we continue supporting grassroots energy and climate work. Activities range from hosting well-attended webinars to collaborating on a communications toolkit to assist local climate leaders with their advocacy.

## Forests and Wildlife

*Maintains and enhances the ecological and economic vitality of Vermont's forests, including promoting healthy wildlife populations.*



- Updating statewide subdivision trends on our Vermont Parcelization Website utilizing a new grant from the Forest Ecosystem Monitoring Cooperative to capture recent land use change due to COVID-19 migration.
- In the final stages of updating VNRC's Community Strategies for Vermont's Forests and Wildlife guide. Additional chapters will explore Act 171 planning to conserve forest blocks and habitat connectivity areas, and strategies to maintain healthy forests and water quality. The guide will include a user-friendly checklist for municipal officials and other users.
- Providing technical assistance to communities for wildlife and forest conservation, including a deep dive in Warren and Waitsfield, and developing a comprehensive database to measure

Act 171 implementation across the state.

- Coordinating with the Vermont Fish and Wildlife Department, regional planners, and VNRC interns to publish a report analyzing a decade of trends related to town plan and zoning policies for wildlife and natural resource conservation.
- With the Forest Partnership, developed a comprehensive list of recommended strategies related to forest and climate policy and submitted them to the Climate Caucus and relevant subcommittees. The strategies highlight the importance of keeping forests as forests as a climate strategy.
- With statewide partners, examining policies to increase incentives for old/wild forests in Vermont's Current Use Program as a foundation for continuing policy work next year.
- In partnership with Audubon Vermont and the Vermont Law School's Environmental Advocacy Clinic, submitted comments on the Green Mountain National Forest's (GMNF) recent analysis of road building on the forest, and advocated for the GMNF to adhere to the original targets identified in the guiding GMNF Forest Plan.

## Smart Growth

*Promotes and protects Vermont's smart growth development pattern of compact settlements – with options for transportation, housing, and employment – surrounded by farms, forests, and natural areas.*



- As a member of the I-89 Corridor Study Advisory Committee, worked



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closely with partners (AARP, CLF, Local Motion) to ensure that any new investments in the interstate improve livability and promote transportation choices other than cars.

- Celebrated the enactment of the Transportation (T-Bill), which advanced many of the goals set forth by the Transportation for Vermonters (T4VT) coalition, which VNRC coordinates.
- In collaboration with the Lake Champlain Committee (LCC), averted the sinking of a ferry in Lake Champlain by appealing a State permit. In response to our advocacy, the applicants withdrew their proposal and the Legislature enacted a three-year moratorium on sinking vessels in public waters.
- Small Grants for Smart Growth were awarded to the Town of Monkton, to revise the town's Unified Planning Document to better address land conservation and smart growth, and the McIndoe Falls Academy in Barnet, VT, to engage the community around the development of a community center.
- The Smart Growth Report Card, an assessment of state spending on smart growth that will highlight the importance of making smart growth decisions with COVID-19 recovery funding, is pending publication.

## Clean Water

*Protects and enhances the quality of Vermont's streams, rivers, lakes and ponds, wetlands, and groundwater.*



- Successfully advocated for the Legislature to appropriate more than \$100 million in American Rescue Plan Act (ARPA) funds for use in clean water projects. Working with the Water Caucus, we continue to ensure that these one-time federal funds are properly prioritized and allocated.
- Celebrated the signing into law of H.108, a wetland protection bill, while continuing to advocate for broader

reform to safeguard wetlands across Vermont.

- In collaboration with the Lake Champlain Committee (LCC), averted the sinking of a ferry in Lake Champlain by appealing a State permit. In response to our advocacy, the applicants withdrew their proposal and the Legislature enacted a three-year moratorium on sinking vessels in public waters.
- Participated as an appointed member of a legislative committee to recommend actions to address the impacts of large surface water withdrawals.
- Worked with Watersheds United Vermont to convince ANR to change a provision in its proposed water funding distribution rules (Act 76 rules) that would have discouraged watershed groups from applying for clean water funds.
- On the ground ecological restoration work includes the planned removal of the Dunklee Pond Dam on Tenney Brook in Rutland, which began in early August. VNRC staff and volunteers also assisted with planting 1,000 trees at the Mill Pond Dam site in Colchester, garnering media attention from Vermont's TV stations as we communicate the importance of river reconnection and riparian habitat restoration.

## Toxic-Free Environment

*Advocating for policies that protect Vermonters' health by reducing exposure to hazardous chemicals, holding toxic polluters accountable for the harms they cause, and ensuring our waters are clean and safe.*



- Celebrated the enactment of S.20, a nation-leading law banning the sale of food packaging, carpets and rugs, ski wax, and firefighting foam that contain toxic PFAS chemicals.
- Advocating for ANR to regulate

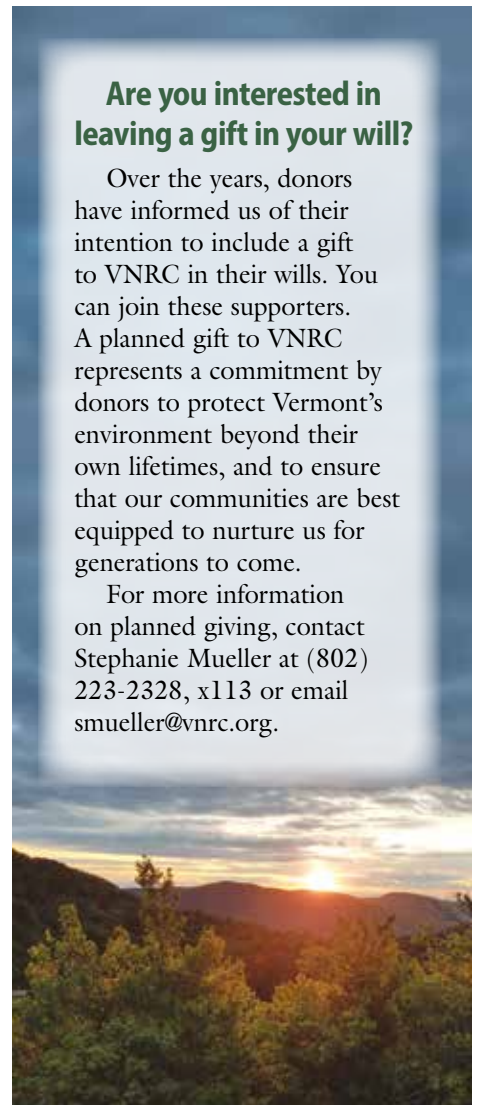
the entire class of PFAS chemicals in drinking water and surface water (there are 9,000+ PFAS chemicals and Vermont is currently proposing to regulate just five).

- Continuing our work to expand Vermont's bottle redemption law, known as the Bottle Bill, which would reduce plastic pollution by increasing recycling and creating green jobs. The bill passed the House in 2021 and will be taken up by the Senate in 2022.
- Working to build support for a bill to hold corporate polluters responsible for paying the medical monitoring costs for victims of toxic contamination.

## Are you interested in leaving a gift in your will?

Over the years, donors have informed us of their intention to include a gift to VNRC in their wills. You can join these supporters. A planned gift to VNRC represents a commitment by donors to protect Vermont's environment beyond their own lifetimes, and to ensure that our communities are best equipped to nurture us for generations to come.

For more information on planned giving, contact Stephanie Mueller at (802) 223-2328, x113 or email [smueller@vnrc.org](mailto:smueller@vnrc.org).



# News & Notes

## Celebrating another successful Wild & Scenic Film Festival

Thank you to the 700+ people who joined us in April for an evening of inspiring short films about environmental stewards and the resilience of nature. We are grateful for your support!

## Vermont Legislature makes historic investments in climate and the environment

The Vermont Legislature adjourned in May after approving historic investments in climate action, clean water, land conservation, affordable housing, and other programs that will benefit Vermont's people, environment, and communities.

The State allocated \$250 million to climate initiatives, with approximately \$50 million in climate programs this coming year, and at least \$200 million over the next three years to implement the Climate Action Plan.

Building on Vermont's longtime commitment to cleaning up polluted waters and modernizing our water infrastructure, lawmakers also put forward an unprecedented level—\$225 million—of clean water funding over the next three years.

Find a full recap of these and other victories in the *VNRC & VCV Legislative Bulletin*, which can be viewed at [vnrc.org/2021-legislative-bulletin](http://vnrc.org/2021-legislative-bulletin).

## Vermont enacts nation-leading PFAS law

This law (S.20) restricts the sale of consumer products that contain per- and polyfluoroalkyl substances, known as PFAS.

Toxic “forever chemicals” like PFAS don't break down in the body or in the environment, and are linked to health impacts such as high blood pressure, thyroid disease, and kidney and testicular cancers. Harm to the immune system due to PFAS exposure has broad-ranging effects, from reduced ability to fight off viral infections like COVID-19 to reduced responsiveness to vaccines.

Vermont's new legislation is the most comprehensive PFAS bill in the country. It bans the sale of firefighting foam and food packaging that contains these contaminants. It is also the first state law to ban PFAS in ski wax, rugs, carpets, and stain resistant treatments. Learn more at [vermontconservationvoters.org](http://vermontconservationvoters.org).

## A win for wetlands

A new law (H.108) ensures that Vermont's wetlands are safeguarded by the same State water laws that already protect lakes, ponds, rivers, and streams. The legislation also requires projects with large wetland impacts, like oil and gas pipelines, to undergo a rigorous analysis and avoid impacts when alternatives exist.

By providing carbon storage, water filtration, wildlife habitat, and flood mitigation, wetlands provide important defenses against the impacts of climate change while also combating the root of the problem.

“Protecting wetlands and addressing the environmental impacts of expanding fossil fuel infrastructure is critical as we contend with the climate crisis,” said Jon Groveman, Policy and Water Program Director at VNRC. “H.108 is a significant step in the right direction.”



## Ferry sinking averted

In April, VNRC and the Lake Champlain Committee (LCC) appealed a permit issued by the State to allow the sinking of a 152-foot-long ferry near the Burlington waterfront as a scuba diving site. The retired vessel contained PCBs and other toxic contaminants.

As a result of our advocacy and public input, the decision to sink the ferry was reversed and the Legislature enacted a three-year moratorium on sinking vessels in public waters. We'll continue to advocate for the responsible use of Vermont's waters that takes into account the public good and environmental health.

## Vote by mail prevails

As many states put up roadblocks to voting in 2021, Vermont worked to make voting easier by enacting legislation that implements permanent, universal vote-by-mail for all general elections in Vermont.

The November 2020 presidential election saw record-breaking turnout across the state, thanks largely to Vermonters' ability to vote remotely. Now, our options for casting a ballot have been permanently expanded.

Special thanks to our partner organization Vermont Conservation Voters (VCV) for advocating for a strong vote-by-mail policy during the 2020 elections.



## Dam good news

Dam removal isn't just about tearing things down; it's about building up and restoring ecosystems. Removing a dam reconnects miles of aquatic habitat, and planting trees at removal sites reduces streamside erosion and promotes biodiversity.

In May, with the Winooski Natural Resources Conservation District and volunteers, VNRC planted 1,000 trees along Indian Brook in Colchester at the former site of the Mill Pond Dam. We helped remove the



dam in 2019, and the work didn't end there. Learn more about this and other efforts at Free VT Rivers, our newly improved resource about dam removal and river restoration across Vermont: [www.freevermontrivers.org](http://www.freevermontrivers.org).

VNRC is looking forward to more dam removals in the coming years thanks to recent competitive grant awards. We'll be removing the Dunklee Pond Dam in Rutland with help from the Vermont Department of Environmental Conservation's Clean Water Initiative Program (CWIP). Funds from a Lake Champlain Basin Program (LCBP) Technical Grant will go toward scoping, feasibility, design, and construction removal of five dams spread throughout the Lake Champlain Basin.

## Farewell, Kate McCarthy!

After more than nine years as VNRC's Sustainable Communities Program Director, Kate McCarthy has moved on to serve as a Program Officer for the Vermont Community Foundation.

"We are extremely sad to see Kate leave. While at VNRC, Kate served as an extremely credible expert on community planning, smart growth and the interconnectedness of transportation, affordable housing, energy efficiency and land conservation," said Brian Shupe, VNRC's Executive Director.

"While we will miss her, we are all very pleased that Kate will remain in Vermont and continue working to strengthen the state's communities and serve Vermonters," Shupe added.

Thank you, Kate, for all you've given to VNRC and to Vermont over the years!



## Thank you, recent interns

Big thanks to recent interns Daniel Jarrad, Carolyn Clark, and Zachary Handelman.

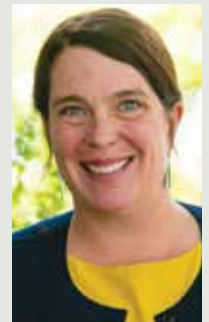
Daniel served as our Legislative Intern over the winter and spring, navigating the halls of a virtual State House. We're grateful that he shared his time and expertise with us, displaying great dedication and professionalism despite the unusual circumstances.

Carolyn and Zach conducted policy and legal research for VNRC, with a focus on researching water quality, exploring land use trends in Vermont, developing climate change policy for forests, and promoting sustainable community development.

If you'd like to find out about internship and volunteer opportunities at VNRC, visit [vnrc.org/join-our-team](http://vnrc.org/join-our-team).

## Middlebury collaborations on climate

For several years, VNRC has worked with educators at Middlebury College to offer real-world perspectives to students interested in climate policy. In 2021, our Energy and Climate Program Director, Johanna Miller, won the inaugural Tiffany Nourse Sargent '79 Engaged Partnership Award for her long-term engagement with students about advancing climate policy, organizing communities, advocacy, and more.



Also this year, Energy and Climate Program Associate Ian Hitchcock partnered with an Environmental Communications class to inform a report about patterns in the media coverage of climate issues in Vermont. Students said that engaging with Ian made their work feel more "real."

It's an honor to work with educators and students at Middlebury and elsewhere, and we look forward to future partnerships.

## Environment, power, and privilege

Since 2020, VNRC has been engaged with the Burlington-based Center for Whole Communities (CWC) to explore how issues of equity and inclusion inform our work on behalf of Vermont's environment and communities.

Through staff training, deep dives into our key program areas, and group reflections, we've been grateful to benefit from CWC's unparalleled expertise and collaboration. We will be sharing more soon about our journey.



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## Webinar: Backyard Habitats

**W**e're bringing this issue to life in a webinar! On Thursday, September 9 at noon, Steve Parren (see p. 9) will discuss the importance of backyard habitat management in supporting Vermont's natural ecosystems. He'll share tips from his many years of professional and personal conservation work.

Plus, hear from two Vermonters who have certified their backyard habitats. They'll share advice about small and large steps they took to support wildlife at home. The program will be followed by a Q&A.

Learn more and register at [vnrc.org/webinar-backyard-habitats](http://vnrc.org/webinar-backyard-habitats).



## VNRC's 2021 Annual Meeting is September 23

*Save the Date!*

**V**NRC's 2021 Annual Meeting is coming up on Thursday, September 23. Join us at 5:30pm as we review our year in environmental advocacy and vote on new board members.

We'll also present this year's Arthur Gibb Award for Individual Leadership to Nancy Patch, a county forester for the Vermont Department of Forests, Parks, and Recreation, and Vice Chair and Co-Founder of the conservation organization Cold Hollow to Canada.

Visit [vnrc.org/annual-meeting](http://vnrc.org/annual-meeting) to learn more. We hope to see you there!



*Nancy Patch*

coldhollowtocanada.org

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