

Uniting People and Science for Conservation



VERMONT CENTER
FOR ECOSTUDIES



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MISSION

The Vermont Center for Ecostudies (VCE) advances wildlife conservation across the Americas through research, monitoring, and community engagement.

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Cover photos:
 Front: Luna Moth © K.P. MCFARLAND
 Back: Autumn on a ridgeline
 in Woodstock © K.P. MCFARLAND

Left: Chris Rimmer
Right: Peter Brooke

© ALEX BROOKE



A NOTE FROM VCE'S
EXECUTIVE DIRECTOR
AND BOARD CHAIR

DEAR VCE FRIENDS AND SUPPORTERS,

A year ago, we invoked the image of “kiting” by birds as a way to underscore the equanimity that VCE managed to achieve during 2020 in the midst of extraordinarily turbulent times. As we now reflect on 2021, who among us could ever have imagined a second year in which our world was beset by such profound uncertainty and disruption? As we write this in mid-spring, nearly two years to the day from when VCE conceded to the COVID-19 scourge and closed our office doors, staff continue to work remotely and to meet virtually. Yet our message to you—our friends, partners, volunteers, and supporters—is again every bit as proud, confident, and optimistic as it could possibly be. During the past year, VCE has not only stayed resolutely focused amidst external chaos, but we have also experienced unprecedented growth and vigor.

As the following pages attest, VCE broke new conservation science ground in 2021—shedding light on invertebrates, collaborating with Missisquoi National Wildlife Refuge to survey wild bees, “blitzing” Eastern Meadowlarks statewide, and initiating a first-ever giant silk moth cocoon watch. Our new “Science to Policy” working group embodied tangible conservation application. On Hispaniola, we helped our local partners launch an ambitious forest restoration program in beleaguered Sierra de Bahoruco. And we steadfastly maintained our signature long-term wildlife monitoring efforts, celebrating a record loon breeding season (109 nesting pairs!) and completing our 21st year of Mountain Birdwatch surveys.


VCE’s mission may focus on wildlife, but it is people who provide the heart, drive, and skill to power our engine. Despite a prolonged pandemic, our community scientists stayed as connected and committed as ever in 2021, invigorating us and taking our projects to new heights. Internally, we brought on several staff who have added transformative talent and depth: Director of Conservation Science Ryan Rebozo, Director of Communications Emily Anderson, Data Scientist Mike Hallworth, Development Manager Laura Prothero, and Development Coordinator Kimberly Kemler. We’re phenomenally fortunate to have the team we do.

As we look ahead to 2022, promise and opportunity dominate our conservation science agenda and our mindset. By year’s end, a new executive director will exert fresh energy, novel approaches, and a visionary outlook for VCE’s future. You can be certain that we won’t waver from our mission or change our core culture, but we will adapt, diversify, innovate, and continue to gain strength. As always, we’ll look to you—our extended family—to help us meet the challenges, navigate the turbulence, and make a difference for biodiversity. We wouldn’t have it any other way.

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MAY FOCUS ON
WILDLIFE, BUT IT
IS PEOPLE WHO
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OUR ENGINE.*

CHRIS RIMMER
EXECUTIVE DIRECTOR

PETER BROOKE
BOARD CHAIR

A person wearing a light blue long-sleeved shirt, dark pants, and a tan cap is walking away from the camera through a dense field of tall green grass and weeds. They are holding a large, white, funnel-shaped net on a wooden handle. The background is filled with lush green foliage and trees under a bright blue sky with scattered white clouds.

VCE's 2021
Alexander Dickey
Conservation Intern
Eileen Fitzgerald
surveys for
pollinators.

DISCOVERY

"Our primary goal is to document changes in abundance and biomass of invertebrates as climate change advances."

—JASON HILL
VCE CONSERVATION BIOLOGIST

MONTANE ECOSYSTEM

Shedding Light on Invertebrates

The next time you pick your way along a hiking trail in the mountains, keep in mind you are surrounded by wildlife even if you do not see it. The vast majority of these animals— invertebrates such as spiders, slugs, beetles, segmented worms, and ants—will remain hidden from view, even if you seek them out. Along with plants and fungi, invertebrates form the bulk of the macroscopic consumers and decomposers that sustain and drive montane ecosystems.

With funding from the Forest Ecosystem Monitoring Cooperative, VCE hopes to better understand these invisible populations and how climate change may be shifting them to higher elevations and latitudes. Drawing on VCE's experience sampling arthropods atop Mount Mansfield, we designed an initial monitoring regime to serve as the basis of a regional montane invertebrate community science project in the coming years.

Our primary goal is to document changes in abundance and biomass of invertebrates as climate change advances. The two biggest obstacles to this effort were logistical and methodological. Conducting “manipulative” research in the spruce-fir zone atop Mount Mansfield required extensive permitting and coordination with many people—made that much more protracted by COVID-19. With the help of former ECO AmeriCorps member Pete Kerby-Miller, we settled on a suite of sampling methods for our initial foray that could be scalable to a future region-wide community science effort. We avoided labor-intensive sampling methods, such as hand netting, and impractical for remote locations, such as ultraviolet light traps that required electricity.

In the end, we deployed dozens of modified pitfall traps for ground-dwelling invertebrates and sticky traps for flighted insects. We also performed mustard water extraction for below-ground invertebrates. Throughout the pilot season, we modified methods and redesigned traps as we learned what worked at an exponential pace. Up next: We will sort through samples to determine which invertebrate groups we captured and which ones we missed. This will prepare us for a full-blown field season in 2022 at several dozen Green Mountain locations.

—Jason Hill



© K.P. MCFARLAND

▲ Community naturalists observed eight cocoons of the Polyphemus Moth during VCE's first Giant Silkmoth Cocoon Watch.



▲ The striking Luna Moth prefers to spin cocoons in birch trees.

© NATHANIEL SHARP

On the Hunt for Silkmoth Cocoons

Finding large and beautiful adult giant silkmoths in the summer can be a memorable experience—but it takes real determination to find the well-hidden and camouflaged cocoons in winter. During November and December 2021, community naturalists

reported more than 100 silkmoth cocoons—an increase of 2,000 percent from the same time period in 2020—during VCE's first Giant Silkmoth Cocoon Watch. Like many butterflies and moths, the adults survive just long enough to find a mate and start the next generation. Once eggs hatch, the caterpillars spend a few weeks before they pupate and overwinter in their cocoons.

One highlight of 2021 was the first report of the Columbia Silkmoth (*Hyalophora columbia*), which was spotted by several community scientists within Vermont's Northeast Kingdom between June 7 and 12. The state is also home to four other species: Cecropia Moth (*Hyalophora cecropia*), Prometheus Moth (*Callosamia promethea*), Polyphemus Moth (*Antheraea polyphemus*), and Luna Moth (*Actias luna*).

Scientists will use these November and December cocoon observations to better understand the distribution of giant silkmoth populations, which have been in decline for decades across the Northeast.

—Mike Hallworth



© JACQUELINE HUETTENMOSER

VERMONT eBIRD

Big Bird Numbers

From the frigid final Christmas bird counts of the 2020-21 season to the discovery of Razorbills and Northern Gannets along Lake Champlain in November, 2021 was a year full of birding surprises. The 11th annual statewide birding effort—Vermont eBird County Quest—also produced mountains of invaluable data for science and conservation. From tropical hummingbirds to oceanic alcids, Vermont eBirders also turned up some truly spectacular species in 2021, bringing the state list up to 390 species.

Vermont eBird, the first state or provincial portal for eBird, has grown into the largest community science biodiversity project in the state. Since 2003, more than 11,000 Vermont eBirders have submitted more than 500,000 complete checklists, creating an extraordinary open access resource for all.

—Nathaniel Sharp



110,980
CHECKLISTS

submitted to Vermont eBird in 2021, representing 285 bird species tallied by 3,909 birders—a 37-percent increase from the previous year's total

▲ VCE biologist Spencer Hardy served as a perch for a Black-capped Chickadee while birding in the Silvio Conte National Wildlife Refuge.



“This year naturalists added more than 500 new species to the database for Vermont.”

—KENT MCFARLAND
VCE CONSERVATION BIOLOGIST

Bioblitz

A bioblitz is a community science effort to encourage students, teachers, parents, kids, experts, and amateurs to record as many



© JOSH KUCKENS

species within a designated location and time period as possible. They are great ways to learn about the biodiversity around us while generating useful data for science and conservation. “You just never know when you are going to find something cool,” says VCE cofounder Kent

McFarland, director of the Vermont Atlas of Life, who reported the first state sighting of the Disk-marked Lady Beetle during a bioblitz in July. “New species are discovered all the time.”



iNATURALIST

Naturalists Build Biodiversity Big Data

Across the state, iNaturalists added more than 201,000 biodiversity records to our rapidly growing Vermont Atlas of Life database. Between a Barred Owl celebrating the New Year at 1:31 a.m. to an overwintering Eastern Boxelder Bug observed on the last day of 2021, amazing observations kept coming all year long. More than 7,750 community scientists added 201,112 observations—a 12-percent increase from 2020—representing 4,516 species. In addition, more than 3,600 naturalists and experts helped to identify and verify these data.

The vast data gathered in the past year tell us what lives where and how common or rare things are—and provide the very foundation for science-driven conservation. Even as our community members continue to build upon what we know about biodiversity in Vermont, these “occurrence records” are just the start of the work to put the data to use for conservation. Analysis can help us detect trends, shape the scientific questions we pursue in further study, and understand what drives changes in species distributions and abundance. For the first time, the Vermont Atlas of Life database—some 7 million records—is undergoing a sophisticated analysis by VCE data scientist Mike Hallworth. His work will provide guidance for the science and conservation community to prioritize conservation action and help us understand how Vermont’s biodiversity is adapting (or not) to climate change and other drivers. He is looking at the dataset as a whole and subjecting it to several prominent climate change models, with plans to release a report in 2022.

This year provided a wealth of information, as naturalists added more than 500 new species to the database for Vermont, including many new discoveries for the state and five insect species that were completely new to the entire iNaturalist platform. First, the bad news: The invasive Spotted Lanternfly was captured on a shipment delivered in Rutland; a second, dead, specimen was found on a sidewalk in downtown White River Junction. No other evidence of the insect has yet been found in Vermont.

There were plenty of other discoveries that elated naturalists. In July, while sweep netting in Underhill with a group of bioblitzers, we captured a small, black beetle with elongated spots. After hours poring over a key and uploading images into iNaturalist, we had an identification: the relatively rare Disk-marked Lady Beetle. In another Vermont first, ardent eButterfly watcher Terri Armata recorded the first observation of a Cloudless Sulphur in Shaftsbury.

The Vermont Wild Bee Survey continues to amass an extensive database—more than 50,000 bee records and more than 50 new species for the state—since it was started two years ago. It takes a village to discover bees, as a June 17 discovery proves. Jacob Penner, a botanist by training, posted images on the Vermont Atlas of Life on iNaturalist of tiny bees he found in Colchester. Spencer Hardy, VCE’s lead biologist for the bee survey, saw the report, recognized the genus, and suspected that it was the rare Least Cellophane-cuckoo Bee. He alerted two bee identification experts, and a day later Canadian Museum of Nature research associate Thomas Onuferko confirmed the sighting.

Looking ahead, the millions of biodiversity records on the Vermont Atlas of Life are a living legacy for Vermonters. We invite you to join the naturalists from around the Green Mountain State who are helping to monitor Vermont life at val.vtecostudies.org.

—Kent McFarland

© KEN COX

© TERRI ARMATA

NEW DISCOVERIES FOR 2021

1

INVASIVE:
SPOTTED
LANTERNFLY

1

LADY BEETLE:
DISK-MARKED
LADY BEETLE

4

BIRDS:
LITTLE EGRET,
RAZORBILL,
BELL’S VIREO,
MEXICAN
VIOLETEAR

1

BUTTERFLY:
CLOUDLESS
SULPHUR

▲ Vermont’s first Little Egret on the White River in Royalton

◀ The first Cloudless Sulphur report from Vermont

More than 800 Eastern Meadowlark observations were logged in Vermont during 2021.

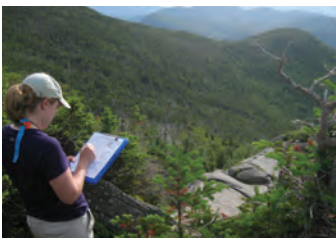
ENGAGEMENT

Meadowlark Observations

Thanks to the tremendous efforts of more than 175 community scientists across the state, more than 800 observations of Eastern Meadowlark were entered into eBird in 2021. This year also marked a sevenfold increase in the number of observations recorded with a breeding code—providing invaluable data on nesting activity. These observations spanned the May-July breeding season, providing key data on which sites remained occupied. As expected, the Champlain Valley remains Vermont's stronghold for meadowlarks, with Bennington also hosting a sizable population. However, meadowlarks were few and far between outside these two areas. Surveyors did document two notable sites outside the state's western regions—one each in Richford and Danville—that weren't previously known. Unfortunately, the 2021 Birder Blitz results appear to confirm the species' continuing, significant statewide decline. With the species' imminent listing as "threatened" in Vermont, we will use these data to target conservation of Vermont's remaining meadowlarks and seek opportunities to reverse the current population trend.

—Kevin Tolan

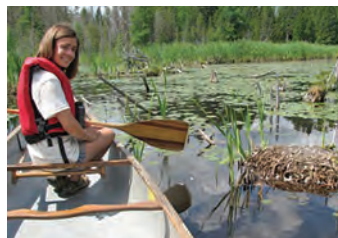
COMMUNITY SCIENCE OPPORTUNITIES



© MIKE ZIMMERMANN

Mountain Birdwatch

Each June, volunteers hit the trails to complete bird survey routes on 123 mountain ridgelines across the Northeast.



© SEAN MCCREADY

LoonWatch

On the third Saturday in July, volunteers conduct a census of breeding loons across 160 lakes and ponds in Vermont. Monitoring throughout the summer is optional.



© BRYAN PFEIFFER

Forest Bird Monitoring

Each June, volunteers monitor breeding birds on 31 sites across Vermont in one of the continent's longest-running studies of forest bird population trends.



© BRYAN PFEIFFER

Vernal Pool Monitoring

In April, May, and September each year, volunteers visit and collect data to monitor "adopted" vernal pools following protocols and using VCE-provided equipment.

Lady Beetles Spotted

Since the start of the Vermont Lady Beetle Atlas in 2019, five species have been rediscovered and one new species has been found. VCE's outreach and education to community naturalists have also fostered a great increase in the number of observers and verified records in Vermont on iNaturalist. Prior to 2019, a total of 435 research-grade lady beetle observations were uploaded; this year, 1,382 new research-grade observations were added to iNaturalist. Highlights for 2021 include the first-ever discovery of the Disk-marked Lady Beetle (*Hyperaspis disconotata*) and the rediscovery of the Ten-spotted Spurleg Lady Beetle (*Brachiacantha decempustulata*) and Hudsonian Ladybird (*Mulsantina hudsonica*).

—Julia Pupko



◀ Hudsonian Ladybird

CROWD-SOURCED COMMUNITY SCIENCE TOOLS

Volunteers report sightings and share observations of Vermont biodiversity through these digital efforts.



eBird

© GLORIA TOWNE



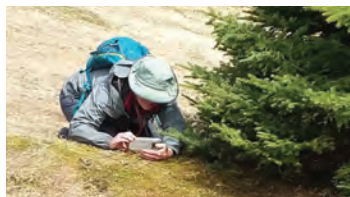
eButterfly

© K.P. MCFARLAND



Wild Bee Survey

© K.P. MCFARLAND



iNaturalist Vermont

© KAREN BOURQUE

2

NEW VCE TOOLS

VERMONT WILD BEE GUIDE

IS AN ONLINE GUIDE TO HELP NATURALISTS IDENTIFY BEES FROM PHOTOGRAPHS.

BUMBLE BEES OF NEW ENGLAND

IS A TWO-PAGE, PRINTABLE PDF THAT CAN BE BROUGHT INTO THE FIELD.

2021

BY THE NUMBERS

COMMUNITY SCIENCE PROJECT VOLUNTEERS

LOON CONSERVATION PROJECT

350

MOUNTAIN BIRDWATCH

95

VERNAL POOL MAPPING

40

FOREST BIRD MONITORING

28

VERMONT WILD BEE SURVEY

23

BIRDER BROKER

20

LADY BEETLE ATLAS

360

WHIP-POOR-WILL PROJECT

15



© K.P. MCFARLAND

Whip-poor-will Project

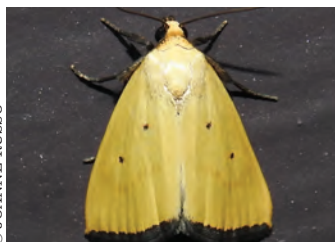
On clear, moonlit nights in early summer, volunteers travel on 17 roadside survey routes to listen for Eastern Whip-poor-wills and record surrounding conditions.



© SEAN BECKETT

Giant Silkmoth Cocoon Watch

During the month of November, volunteers find and photograph cocoons hanging in bushes and trees—then return in the spring to document what emerges.



© JOANNE RUSSO

Moth Blitz

During National Moth Week in July, volunteers leave the porch light on—or use special lights and baits—and help map moth species distribution in Vermont.



© SUSAN ELLIOTT

Lady Beetle Atlas

In early June and August, volunteers keep an eye out for the state's 36 native species, including the four "most wanted": Nine-spotted, Two-spotted, Transverse, and Thirteen-spotted.

COLLABORATION

A person wearing a tan cap and a large black backpack is crouching in a field of tall grass and trees. They are holding a professional camera with a large lens, aiming it at the ground. The scene is outdoors, with sunlight filtering through the trees.

In 2021, VCE began a multiyear collaboration with Missisquoi National Wildlife Refuge to document bee fauna.

▼ VCE biologist Spencer Hardy photographs a Wilke's Mining Bee at Helen W. Buckner Memorial Preserve in Fair Haven.



© SPENCER HARDY

Exploring Bee Fauna

In 2021, VCE began a multiyear collaboration with Missisquoi National Wildlife Refuge, a 7,000-acre refuge along the eastern shore of Lake Champlain, on VCE's Wild Bee Survey. The project will document the bee fauna of the refuge and provide recommendations for future management of important habitats. In the first summer of surveys, several new species for Vermont were recorded on the refuge as well as a number of specialist bee species with specific floral needs. Our second season of fieldwork will focus on identifying critical features of the refuge that support these rare species, so refuge managers are better able to factor native bees into management plans for their unique wetlands and extensive grasslands.

—Spencer Hardy

© JACQUELINE HUETTENMOSE

© ALLON WILDGUST



◀ Loon family on Silver Lake in Salisbury

109

PAIRS NESTED

77

PAIRS HATCHED

125

EGGS

6

NEW NESTING
PAIRS
IDENTIFIED

85

CHICKS
SURVIVED
THROUGH
AUGUST

124

LAKES HAD
LOONS
DURING JULY 17
COUNT

Loons By the Numbers

A five-year, \$446,393 grant from the U.S. Fish & Wildlife Service will support the Vermont Loon Conservation Project (VLCP), a joint program between VCE and the Vermont Fish and Wildlife Department.

The grant is part of a settlement from the 2003 Bouchard B-120 oil spill that killed more than 500 wintering loons off the Rhode Island and Massachusetts coasts. "These funds were awarded to effectively replace the future loons lost in that spill, as well as their offspring," explains VCE loon biologist Eric Hanson.

Thanks to VLCP and other community partners, Vermont's Common Loon story is largely one of success. In 1987, only 12 breeding pairs were recorded in the state and the bird was added to the endangered species list. By 2005, VLCP's combination of monitoring, targeted management activities, community involvement, and public outreach had helped the loons recover enough to be delisted. This year, a record 109 breeding pairs nested in Vermont.



With the grant funds, VCE will focus established management activities—such as nest warning signs and nesting rafts—on particularly vulnerable areas. "These include both territories with low productivity and high-risk sites where we have found management highly effective in reducing the negative effects of flooding and human disturbance," says Hanson. VCE will also use the funds to improve rescue and rehabilitation of distressed or injured loons, as well as implement lead tackle buy-back and monofilament collection programs within Vermont.

© LEE CORDNER

Conserving Cloud Forests



Grupo Jaragua, VCE's longtime conservation partner in the Dominican Republic, took additional measures toward the protection and restoration of cloud forests in Sierra de Bahoruco National Park in 2021. Using a suite of native tree

species sourced from forests adjacent to the restoration sites,

Grupo Jaragua began several planting efforts to shade out existing non-native understory species and eventually develop suitable habitats for many migratory and resident bird species. Initial reports on these efforts are encouraging, and success at these sites may lead to more restoration opportunities in other parcels with similar land-use histories. Additionally, Grupo Jaragua has identified candidate sites for acquisition that, if successfully purchased, will help connect two parcels acquired in 2020. Lastly, Grupo helped deploy audio recorders at strategic locations in the Dominican Republic to complement an existing Bicknell's Thrush GPS tagging study focused on the species' overwinter movements. —*Ryan Rebozo*

Science to Policy

VCE provides the critical data and information the public and policymakers need to make informed conservation decisions. In late 2021, to further improve how we share our science to inform on-the-ground management and policy decisions, VCE initiated a "Science to Policy" working group. This network of policy partners—including the Gund Institute, Audubon Vermont, Vermont Natural Resources Council, and Vermont Conservation Voters—will help VCE shape research priorities that reflect conservation policy needs and address the mutual interests of partners. In the coming year, the Science to Policy working group aims to bolster stakeholder engagement, develop decision-making tools, and define policy initiatives.

"We are working to improve how we share our science to inform on-the-ground management and policy decisions in Vermont."

—*Ryan Rebozo*



▲ Grupo Jaragua Executive Director Yolanda León, VCE Executive Director Chris Rimmer, Egidio Sanz, and Jim Goetz inspect a restoration site in Sierra de Bahoruco National Park.

► Chris Rimmer and Holdali Almonte, ornithologist at the Museo Nacional de Historia Natural in the Dominican Republic, examine a Bicknell's Thrush captured by a mist net in Reserva Zorral.



© RYAN REBOZO (3)

© K.P. MCFARLAND

▼ Calling Wood Frogs are a harbinger of winter's end throughout the Northeast.



New Mapping Tool for Vermont's Vernal Pools

Mapping the location of vernal pools is the first step in conserving these ecologically valuable wetlands. Although VCE researchers have successfully mapped thousands of “potential” pools using remote mapping methods, these methods fail to detect thousands more due to their small size and ephemeral hydrology. The solution: a community science approach to locating pools with the Vermont Vernal Pool Atlas (VPAtlas).

Created with funding from the Vermont Fish & Wildlife Department, VPAtlas is a statewide repository of vernal pool data. This online, interactive database and mapping tool makes it easy for anyone to search the map for pool locations and register to become a VPAtlas user. Once registered, VPAtlas users can add pool data, including “new” pools that have not been previously mapped, as well as “visits” to previously mapped pools.

With more than 100 registered users, VPAtlas received nearly 200 data submissions in 2021, mostly for locations of previously unmapped pools. Start exploring at vpatlas.org. —Steve Faccio



OUTREACH

Birders Partner with Landowners

Birder Broker uses Vermont eBird to connect landowners interested in learning more about birds breeding on their property with experienced birders looking for new places to explore. More than 80 percent of forested land in Vermont is privately owned, and this program provides a glimpse into often unexplored habitat. Working together, landowners, birders, and VCE gain a greater understanding about breeding bird populations, which will inform conservation efforts across the state. During the 2021 breeding season, 20 birders visited 23 private properties across seven different Vermont counties and submitted 53 complete checklists to Vermont eBird. During these Birder Broker visits, landowners and birders walked a set loop around the property and documented breeding evidence of birds through the use of breeding codes on their Vermont eBird checklists. A total of 100 different species were reported on Birder Broker checklists this season, and the vast majority—94 species—were labeled with breeding codes. The checklist and species totals of the 2021 season represent increases from the 2019 kickoff Birder Broker season totals of 42 checklists and 92 species. Join the effort at val.vtecostudies.org/projects/birder-broker.

▲ Landowners have long taken a central role in many of VCE's bird monitoring and conservation programs.

◀ A Tricolored Bumble Bee visits a Flat-topped Goldenrod.



© JASON HILL

Bee Guides

With a grant from University of Vermont's Apis Fund, VCE has launched an online guide to all of Vermont's almost 350 bee species. Designed to be broadly accessible, the species pages are loaded with identification information tailored to recreational naturalists, plus novel natural history and distribution information for bee researchers throughout the region. And VCE has developed multiple resources—including a downloadable two-page field guide designed by ECO AmeriCorps member Abigail Castriotta—to help users identify the more well-known and charismatic bumble bees. Learn more about the bees you find at val.vtecostudies.org/projects/vtbees/bombus.
—Spencer Hardy



© SUSAN HINDINGER



© K.P. MCFARLAND

Suds & Science

Started as a discussion series with visiting scientists at a Vermont brewpub, Suds & Science went virtual when COVID-19 hit. VCE biologist Jason Hill hosts the one-hour programs via Zoom and in 2021 took advantage of the virtual opportunity to connect experts from further away with fans of science. He interviews scientists about the intersection of their lives and their research—often incorporating questions from the audience in the community conversation. VCE's 2021 lineup included discussions on the competitive and cooperative actions of alpine plant communities in the White Mountains, insect conservation in a warming world, details on how urban heat waves impact human environmental health, and strategies for conserving rare beach and bog plant communities. Find videos of events and learn how to register for the next lively conversation at vtecostudies.org/suds-and-science.

eNews

Every month, VCE's electronic newsletter, *eNews*, brings the outdoors to your email inbox. We report on the innovative field work of VCE biologists and breaking news from the frontiers of conservation biology—here in Vermont and beyond. *eNews* is short and designed to inspire you to explore the natural world. Subscribe at vtecostudies.org/subscribe or find past issues at vtecostudies.org/enews.



▲ Each week, Julia Pupko explains how to make the most of iNaturalist.

Lunchtime Learning

Grab a sandwich for the weekly webinar with ECO AmeriCorps member Julia Pupko, VCE's community outreach naturalist. From noon to 1 p.m. on Wednesdays, she delivers a menu of iNaturalist tips through the lens of a seasonally relevant Vermont natural history topic. Sign up for the series and find previous webinars at vimeo.com/showcase/7718869.

Field Notes

◀ Through Suds & Science, VCE conservation biologist Jason Hill (top) connects experts with community scientists to discuss topics such as insect conservation in a warming world.

Field Notes, our annual spring and autumn news magazine, offers in-depth explanations of the field work, science, and conservation efforts of VCE biologists and our community scientists. Learn about what we've been doing and how you can join us to study and conserve wildlife. Find past issues online at vtecostudies.org/field-notes.



STATEMENT OF FINANCIAL POSITION

ASSETS

CURRENT ASSETS

	AS OF 12/31/21	AS OF 12/31/20
CASH	\$1,019,812	\$1,072,561
CONTRIBUTION RECEIVABLES	56,355	33,781
GRANT RECEIVABLES	178,290	52,202
PREPAID EXPENSES	25,756	16,529
CURRENT PORTION PLEDGES RECEIVABLE	202,000	29,540
TOTAL CURRENT ASSETS	1,482,213	1,204,613
INVESTMENTS	2,791,325	527,487
EQUIPMENT, VEHICLE, WEB, NET	45,719	28,100
PLEDGES RECEIVABLE, LESS CURRENT PORTION SHOWN ABOVE	373,563	9,715
TOTAL ASSETS	\$4,692,819	\$1,769,915

LIABILITIES AND NET ASSETS

LIABILITIES

CURRENT LIABILITIES		
ACCOUNTS PAYABLE	63,237	34,982
ACCRUED PAYROLL & RELATED TAXES	129,029	110,215
DEFERRED REVENUE	607	604
CURRENT PORTION OF CAPITAL LEASE OBLIGATION	1,181	1,347
TOTAL CURRENT LIABILITIES	194,052	147,148
CAPITAL LEASE OBLIGATION, LESS CURRENT PORTION		1,072
TOTAL LIABILITIES	\$194,052	\$148,220

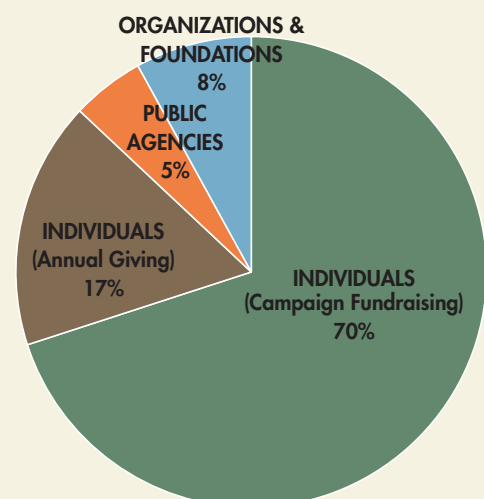
NET ASSETS

WITHOUT DONOR RESTRICTIONS	3,553,786	1,221,782
WITH DONOR RESTRICTIONS-TIME OR PURPOSE	944,981	399,913
TOTAL NET ASSETS	\$4,498,766	\$1,621,695
TOTAL LIABILITIES & NET ASSETS	\$4,692,819	\$1,769,915

STATEMENT OF ACTIVITIES

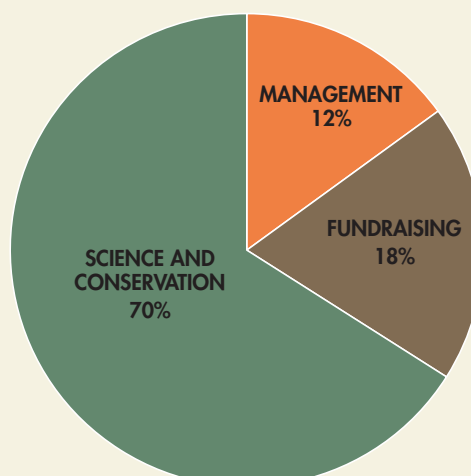
2021 REVENUE

PUBLIC AGENCIES	\$231,170
ORGANIZATIONS/FOUNDATIONS	369,016
INDIVIDUALS	753,962
CAMPAIGN	3,108,286
PROGRAM FEES	3,149
OTHER	334
TOTAL REVENUE	\$4,465,917



2021 EXPENSES

SCIENCE & CONSERVATION	\$1,117,292
MANAGEMENT	186,780
FUNDRAISING	284,773
TOTAL EXPENSES	\$1,588,845



The figures that appear in the financial summary shown above have been audited and received an unqualified opinion.

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\$25,000+

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“Your work inspires much-needed hope in a complex and interconnected world.”

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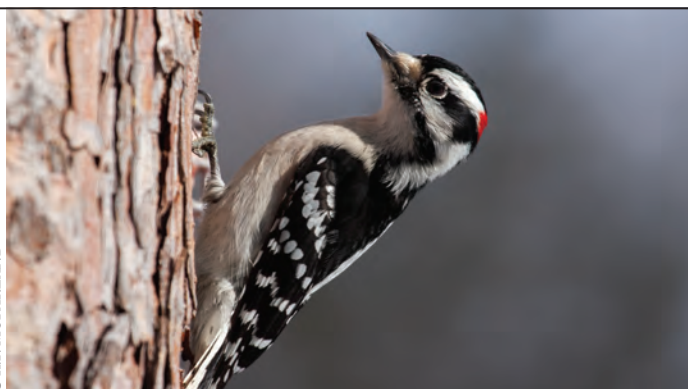
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—VEER-TESS FROST

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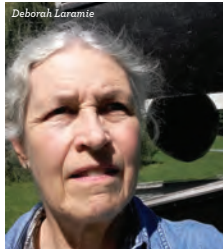
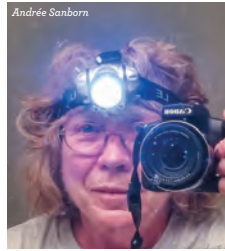
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VCE COMMUNITY SCIENTISTS OF THE YEAR

DEBORAH LARAMIE, JODY FREY, AND ANDRÉE SANBORN



As with most VCE projects, the Vermont Wild Bee Survey (VTBees) has benefited from an incredible wealth of skilled and dedicated volunteers. This year alone, 428 people have contributed observations to our project on iNaturalist. VCE has recognized the accomplishments of three of these remarkable volunteers—Deborah Laramie, Jody Frey, and Andrée Sanborn—for their work helping us document bee (and other taxa) diversity in less-studied parts of Vermont.

Deborah got hooked on insects by horseflies, which prompted her to set up a

trap to monitor the different species tormenting her horse on her property in Addison. For the past three years, she has meticulously collected any bees in the trap, sharing her finds with VTBees. Deborah's work has provided VCE with an amazing dataset that includes several species we'd have otherwise missed and offers a multiyear window into the bee fauna of a unique natural area.

During the COVID-impacted summer of 2020, Jody finally found time to document the diversity of flora and fauna in her Barton backyard. She credits her good friend Andrée

with introducing her to iNaturalist, which Jody now refers to as a “magic carpet that connects your backyard to the rest of the world.” Her backyard happens to host an impressive number of unusual bees, including several species previously unknown from the Northeast Kingdom.

A Barn Orbweaver launched Andrée into arthropod photography. “I went back and back, with tighter and tighter shots. I fell in love. I moved on to any arthropods I could find,” she says. With the help of her husband, Andrée spotted and identified the many “wonderful miracles living mostly invisibly” around their house in Barton. Since 2013, she has shared her photographs on iNaturalist and BugGuide, documenting at least 1,000 species in Orleans County. This year, she and Jody added malaise traps to their yards to help a PhD student studying ichneumonid wasp systematics. —*Spencer Hardy*

JULIE NICHOLSON COMMUNITY SCIENCE AWARD

GEORGE CLARK



George's passion for birds took root during his childhood in New Jersey, where his maternal grandfather was a professional entomologist. Professionally, he taught ecology and evolutionary biology as a professor at the University of Connecticut for 32 years and was appointed the state ornithologist. When he retired to Vermont in 1997, George began sharing his expertise with the state birding community. VCE has recognized his dedication to science with the 2021 Julie Nicholson Community Science Award. The award honors the legacy of VCE volunteer Julie Nicholson

and her extraordinary commitment to birds and wildlife conservation through her tireless work as a community scientist.

A lifelong teacher, George is in his element when introducing people to birds and the natural world. He frequently leads community birding walks in the Upper Valley, where he has served on the Norwich Trails Committee, the Milton Frye Nature Area Committee, the Norwich Conservation Commission, and the steering committee of New Hampshire Audubon's Mascoma chapter.

During the second Vermont Breeding Bird Atlas, George served as volunteer coordinator for northern Windsor County. During this multi-year project, he organized scores of amateur birders to beat the bushes for nesting birds, logged 450 hours in the field, and wrote 22 of the 209 species accounts for the Atlas book. Last, but far from least, George's contributions as an inveterate Vermont eBirder can hardly be ignored—he ranks ninth on the state's all-time list of checklists submitted with more than 6,500 and No. 1 in his home Windsor County.

Learn more about this award and George's service as a community scientist at vtecostudies.org/about-us/community-science-award.

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In memory of my Mom, who brought me to Vermont
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eBIRD

3,909

eBIRDERS

285

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487

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