Field Notes

VERMONT CENTER FOR ECOSTUDIES
UNITING PEOPLE & SCIENCE FOR CONSERVATION

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Spring 2013

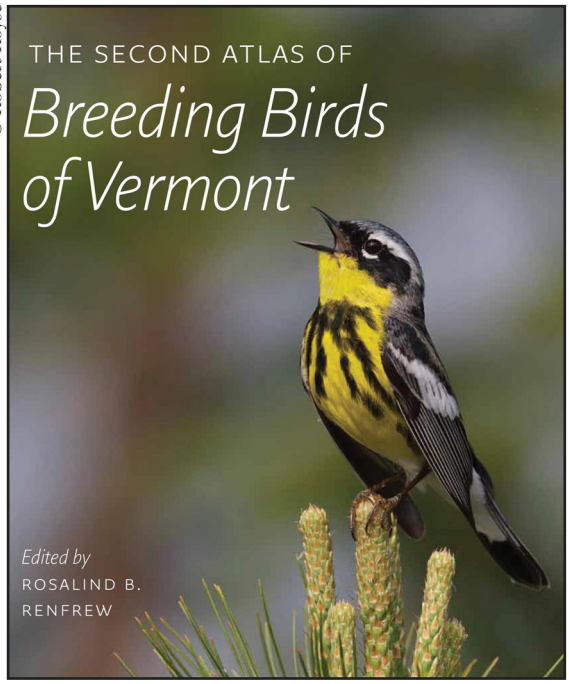
Uniting People and Science for Conservation

Breeding Bird Atlas Launches A New Era of Avian Conservation in Vermont

Bald Eagles are up. Boreal Chickadees are down. Blue Jays are stable. And knowledge of Vermont's 202 breeding bird species has never been more complete or accessible.

The Second Atlas of Breeding Birds of Vermont, published this month, is a triumph of conservation, a compendium on the status of birds gathered for the benefit of any interested Vermonter, from scientists to backyard birdwatchers, from teachers to community planners.

At a time when data and insights like these are more often found online, the Atlas is a refreshing departure. Packed into this single volume is the work of 350 observers who spent five years in the field documenting the distribution of every bird species that nests in Vermont.



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In this instance, being second is better than being first. This Atlas analyzes changes in bird populations—some encouraging, some troubling—since the original Vermont Atlas Project established a baseline 25 years ago.

"We cannot know the nature of Vermont, the health of woodlands, wetlands, and other wild places, without knowing the status of our birds," said VCE biologist Rosalind Renfrew, who directed the project and edited the book. "This Atlas will be essential reading for any Vermont conservationist."

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A Milestone for VCE's Forest Bird Program


© Steve Faccio

Volunteers such as Tom Sharp, seen here conducting a point count survey, are the backbone of the Forest Bird Monitoring Program.

On two mornings every June, they awake well before dawn, earlier than even these hearty birdwatchers might care to admit. Packing little more than binoculars, a stopwatch, and a data sheet, they drive in the dark to forest sites across Vermont. And as the woods around them rouse into a dawn chorus, they begin to count birds for one of North America's most enterprising investigations of forests and birds.

A quarter century after its inception, the Vermont Forest Bird Monitoring Program (FBMP) is poised to reach its goal of uniting people and science for conservation. VCE will analyze the 25 years of citizen scientist surveys to establish current population trends for forest birds. Our report, The Status of Vermont Forest Birds, will help policy makers, landowners, conservationists, and birdwatchers develop land-use and forest conservation strategies for the future.

Vermont forests support more than 80 species of breeding birds. Although development and fragmentation are well-established concerns, forests also face new threats. More than half of Vermont's tree species are vulnerable to three non-native insects: the Emerald Ash Borer, Asian Long-horned Beetle, and Hemlock Wooly Adelgid. A warming planet may profoundly alter biodiversity, productivity, and economics of our forests. And acid deposition leaches nutrients from soils, limiting their role in tree growth.

Vermont now has a unique opportunity to document the status of birds before major changes occur in our forests. The knowledge to be gained from FBMP will support strategies to overcome, mitigate, or adapt to emerging forest threats.

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The Vermont Center for Ecostudies (VCE) is a nonprofit organization whose mission is to advance the conservation of wildlife across the Americas through research, monitoring, and citizen engagement. With a reach extending from northern New England through the Caribbean to South America, our work unites people and science for conservation.

VERMONT CENTER FOR ECOSTUDIES
UNITING PEOPLE & SCIENCE FOR CONSERVATION

Field Notes is VCE's biannual newsletter and is free to citizen scientists, donors, and partners.

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VCE View

Partnerships—they take many forms, deliver uncounted benefits, and create powerful synergy. Reviewing VCE's list of "official" partners recently, I was amazed to tally nearly 100 groups with whom we collaborate in one way or another. These run the gamut from long-standing agency partners like the Vermont Fish and Wildlife Department, to academic institutions like Plymouth State University, to sister non-profits like the North Branch Nature Center, to international conservation allies like Fundación Loma Quita Espuela. Some provide funding, others share project work and data, others cooperate in on-the-ground wildlife conservation, others help us spread the word—some VCE partners contribute all these and more.

Although some partnerships wax and wane, most endure, strengthening over time. On Hispaniola alone, we count no fewer than 11 committed local groups who participate actively in VCE's conservation efforts on the island. Juan Carlos Martínez-Sanchez and I recently had the good fortune to work closely with several, both in the mountains of Haiti's La Visite National Park, and on the newly created Reserva Zorzal in the DR's Cordillera Septentrional. Our partners there, and elsewhere, are the face of conservation going forward. You can't imagine how eager they are to learn, to act, and to effect change. I often feel that we gain more than they do in our exchanges. Their spirit and resolve in the face of daunting odds are inspiring.

VCE's citizen scientists—including so many of you—are our most valued and lasting partners. Our recent launch of *The Second Atlas of Breeding Birds of Vermont* (see Bryan Pfeiffer's lead article) underscores the power of volunteers. You tirelessly atlased, entered your hard-won field data, authored and edited species accounts, donated photos, and lent your financial support. You created a conservation tool for the ages, one that could never otherwise have come to life.

Many new opportunities await the myriad conservation partnerships that are VCE's lifeblood. We're eager for them, the relationships they bring, and the conservation they promise to achieve.

—Chris Rimmer

A VCE Board Transition

After five-plus years as a VCE founding Board member, and our Chair since 2011, Jeff Marshall handed over the reins to Peter Brooke in late March. Jeff has guided VCE with a calm but determined approach, a strong business sense, and great personal interest. We're thankful that he has agreed to stay on for at least a few months! Peter brings his passion for the outdoors, creative energy, and zeal for VCE's mission. We're pleased to welcome him, and the transition has already proven seamless. Our Board continues to be among VCE's greatest assets.

© Kent McFarland

Outgoing Board Chair Jeff Marshall (right) hands the reins to incoming Chair Peter Brooke.

Thinking Globally: Connecting the Dots for Bicknell's Thrush Conservation

When it comes to conservation, big-picture thinking is critical. Migratory species epitomize the need for conservation not just across habitat patches, but across countries and hemispheres. Bicknell's Thrush, a globally vulnerable species currently being considered for federal endangered status, breeds on mountaintop conifer "sky islands" of the northeastern U.S. and Canada, and in scattered lowland conifer habitat in the Canadian Maritimes. Atmospheric pollution, mountaintop development, and climate change threaten the breeding grounds of Bicknell's Thrush, but the species encounters its greatest challenges on the Caribbean islands where it overwinters. On Hispaniola, the winter stronghold of Bicknell's Thrush, most suitable wet forest habitat has been lost, largely due to subsistence farming, logging, and charcoal production. Recent estimates indicate that only 1% of Haiti's original old-growth forest remains.

© Juan Carlos Martínez-Sánchez

Much of the suitable Bicknell's Thrush habitat on Hispaniola has been lost to farming, logging, and charcoal production.

While rangewide habitat conservation efforts for Bicknell's Thrush are essential, protection and restoration of winter habitats represent the most critical short-term priorities. Conserving Hispaniolan montane forests has far-reaching benefits that extend well beyond Bicknell's Thrush; the island hosts a rich array of flora and fauna that includes not only endangered endemic birds like La Selle Thrush and Hispaniolan Crossbill, but also amphibians, orchids, and other biota found nowhere else on earth.

© Courtesy of VCE

The Bicknell's Thrush, a globally vulnerable species, breeds on mountaintop conifer "sky islands" of the northeastern U.S.

In partnership with the U.S. Forest Service (USFS), VCE has embarked on a project to explore conservation options that link breeding and wintering habitat. In keeping with the National Forest's motto "Land of Many Uses," USFS allows a certain amount of carefully regulated development on our National Forests, such as the construction of new trails at ski areas. VCE and USFS are creating an innovative plan that will present ski area and other developers on the White Mountain (WMNF) and Green Mountain (GMNF) National Forests with an opportunity to contribute funds for habitat mitigation, restoration, or protection on Bicknell's Thrush wintering grounds. This plan will provide ski areas with a "menu" of potential conservation projects they can fund in the Caribbean, allowing them to direct conservation resources for this vulnerable species where they are most needed.

Such a plan requires careful safeguards at multiple scales. Authorization for high-elevation development on the WMNF, in particular, is already extremely restrictive. To minimize effects on our Northeastern mountain landscapes, this hemispheric habitat mitigation plan will involve potential development only on a very limited amount of low-quality Bicknell's Thrush breeding habitat. Our plan will include future evaluations to ensure that the effects of permitted projects on Bicknell's Thrush in the National Forest remain minimal. However, given that limited development will occur as part of the National Forest's plan, this remote habitat mitigation project promises to ensure compatible advances both in responsible ski area growth and thrush conservation.

VCE biologists are working closely with our local partners in the Dominican Republic and Haiti to identify suitable sites for conservation and to determine the most immediate needs at each site. We look forward to unveiling our plan in the spring of 2014, and we hope this novel approach will provide a global model to conserve migrants like Bicknell's Thrush across their full annual cycle.

—Judith Scarl

A Call to Citizen Scientists:

Making the Most of Grasslands

In a state better known for forests than fields, Vermont is hardly a haven for grassland birds. But landowners can still offer critical patches of habitat for Bobolinks, Eastern Meadowlarks, and other declining grassland species.

VCE is enlisting citizen scientists and landowners for a new project to identify and enhance grassland "hotspots" in the Upper Valley of the Connecticut River.

© Phil Brown

Declines in grassland bird populations, including Eastern Meadowlark, have been widespread and steep.

Declines of North American grassland bird populations have been widespread and steep—it is predicted that another 50% of populations will be lost in the next 50 years if trends continue.

Over the decades, as Vermont farms gave way to development or were left fallow, forests have risen where grassland birds once nested. Eastern Meadowlark has almost disappeared, Bobolink numbers have fallen, and other species like Henslow's Sparrow have not been seen for many years.

The Upper Valley, however, still supports plenty of open space. In this swath of land that stretches some 60 miles along the Connecticut River in Vermont and New Hampshire, farmland dominates near the river and hayfields dot nearby upland regions. In these open spaces, grassland birds can maintain viable populations, if given the chance.

In collaboration with New Hampshire Audubon and Plymouth State University, VCE will recruit volunteers to conduct roadside bird surveys this summer to find the strongholds of grassland birds and their habitat in the Upper Valley. In the project's second year, we will offer willing landowners advice on managing their grasslands for birds.

To join the project, contact Rosalind Renfrew at rrenfrew@vtecostudies.org. You'll be giving birds the gift of grasslands.

—Rosalind Renfrew

Spearheading the Vermont Atlas of Life

The new Vermont Atlas of Life is collecting sightings from citizen naturalists and professional biologists and presenting them in the form of maps, photos, and even social networking. From mushrooms to maples, moose to microorganisms, everything counts. Anyone can participate in the atlas online at: http://www.inaturalist.org/projects/vermont-atlas-of-life.

"What's amazing about the nature of Vermont is how little we know about it," says VCE's Kent McFarland, who spearheaded the project's launch on January 1. "We can't recognize all the risks to biodiversity in this state without a better understanding of what's here and where it lives."

At the website, participants can enter the name of any species they discover, its location, and an optional photograph. The project also allows naturalists and experts to corroborate or correct these reports, even to identify a photo of a mystery species.

Participants can also submit sightings with a smartphone application, which McFarland believes will encourage more young people to observe nature. "We're bringing the virtual world to the natural world," Kent says.

© Kent McFarland

Vermont Atlas of Life extends citizen discovery to all taxa, including insects like this Six-spotted Tiger Beetle.

VCE already manages Vermont eBird, the increasingly popular online bird inventory, (www.ebird.org/vt) and recently helped launch eButterfly, a similar online checklist for butterflies (ebutterfly.ca). The Vermont Atlas of Life now extends this kind of citizen discovery to all taxa from the most common tree to the most obscure insect.

—Bryan Pfeiffer and Kent McFarland

Hope for Haiti's Montane Forests

In February, Chris Rimmer, Juan Carlos Martínez-Sanchez and long-time VCE colleague Jim Goetz led a return expedition to two remnant patches of broadleaf cloud forest in Haiti's La Visite National Park. Our 2005 survey of these fragments had painted a grim picture, as both sites suffered from unchecked local subsistence agriculture and wood extraction. Eight years later, our goal was to re-evaluate their conservation status. We hoped the tables might be turning, with recent international focus on Haiti's precarious ecological future and collaborative efforts with Jim to develop incentive mechanisms for local residents.

© Juan Carlos Martínez-Sanchez

VCE colleagues proudly display their French edition Hispaniolan field guides (L to R: Patricia Louis, Chris Rimmer, Françoise Benjamin, Jean Mary Laurent).

© Juan Carlos Martínez-Sanchez

VCE's Haitian trainees banding a Red-legged Thrush, La Visite National Park, February 2013.

Four days of intensive mist-netting, banding, and point counts yielded a mixed outlook for these two forest patches. On the hopeful side, both remnants persist and have lost less broadleaf habitat than we feared. Less encouraging is that both continue to lose ground, as local farmers cut, clear, and cultivate. Surprisingly, populations of resident birds and overwintering migrants showed little overall change. We were alarmed, however, by the near absence of Bicknell's Thrush and two rare, highly vulnerable cloud forest endemics, La Selle Thrush and Western Chat-Tanager. Our total detections of these three forest specialists plummeted from 10, 10, and 22 individuals, respectively, in 2005 to 1, 1, and 5 birds. These species may be the first to disappear when patch size and vegetation structure become compromised.

A noteworthy highlight was our recapture of three individuals that we had banded in 2005—two Narrow-billed Todies and a Western Chat-Tanager! Ultimately, however, the trip's undisputed high point was the involvement of our young Haitian counterparts, whose passion and enthusiasm countered any discouragement we may have felt. These up-and-coming conservationists are eager to make a difference. They are the future of conservation in Haiti—their dedication and sense of purpose must carry the day.

—Chris Rimmer

Drink Coffee for the Birds!

Make sure your java is Bird Friendly® and help VCE at the same time! VCE is partnering with Birds and Beans® to promote consumption of triple-certified, organic, shade grown, Fair Trade coffee. You can find this tasty brew in several Upper Valley and other regional food co-ops.

Breeding Bird Atlas - continued from page 1

With 202 confirmed breeding species in the state, the Atlas offers 202 distinct bird biographies, each featuring photos, maps, and graphs, and each as varied as the stories of Vermonters themselves. But the Atlas does reveal common trends—increases among groups of rare species, for example, and declines among others. Here are only a few examples:

- **Grassland Species** – Vermont's grassland birds declined markedly since the first Atlas project, echoing steep drops elsewhere in North America. Upland Sandpiper and Grasshopper Sparrow, once rare but reliable in Vermont, are now nearly absent from the state; Vesper Sparrow, Eastern Meadowlark, and Horned Lark are breeding in far fewer areas. American Kestrel and Bobolink remain fairly widespread in proper habitat, but their numbers are declining nonetheless. In Vermont, loss and succession of farmland, coupled with intensification of haying, have contributed to drops in grassland birds. One notable exception among grassland birds here was an increase in Northern Harriers.

- **Aerial Insectivores** – Birds that feed mostly on flying insects—nightjars, flycatchers, swifts, and swallows—showed disturbing population trends. Among 19 aerial insectivores, 13 species declined and the remainder either gained population or remained relatively unchanged since the first atlas. Common Nighthawk (which has nearly vanished as a Vermont breeding bird) and Whip-poor-will showed the most precipitous drops. Bank and Cliff swallows, Purple Martin, Olive-sided and Yellow-bellied flycatchers, and Chimney Swift all showed declines since the first Atlas. Unlike grassland species, aerial insectivores span a diversity of habitats, but a common cause for the population declines may be a drop in insect prey abundance. Additional concerns include mercury and other atmospheric toxins accumulating in insects and loss of breeding and wintering habitat for some species.

- **Wetland Specialists** – Although loss of wetland habitat is a perennial concern, Vermont's wetland birds generally fared well since the first atlas. This is another diverse group, occupying forests and open wetlands, and ranging from Pied-billed Grebe to Swamp Sparrow. Among wetland species, more than three times as many species gained population as lost. Most species nesting in forested wetlands (swamps) increased, suggesting some level of improvement in wetland quality in Vermont.

- **Managed Species** – Although the Atlas does not designate this as a particular group, certain species gained ground at least in part as a result of human intervention. Of the 17 birds showing the project's greatest gains on a percentage basis, nine intersect the lives of people, either as protected species (Loon and Bald Eagle), at the bird feeder (Carolina Wren and Tufted Titmouse) or as managed game species (Mallard and Wild Turkey).

© Bryan Pfeiffer

Governor Peter Shumlin joins VCE's Rosalind Renfrew to unveil the Atlas at Dorothy Alling Memorial Library in Williston on April 3.

For some of the changes in bird distribution, it might be tempting to blame climate change, invasive species, and other global ecological forces. The Atlas is cautious on explanations, except when a consensus of scientific research explains population changes.

"The Atlas is like a medical checkup, a fresh diagnosis for the state's breeding birds," said Renfrew. "From here, the Atlas is already guiding our decisions about conserving species at risk."

Biologists are using Atlas results to guide research on a number of declining species. Atlas data supported the listing of Common Nighthawk and Whip-poor-will under the state's Endangered Species Act. Requests for Atlas data are coming from Vermont planning commissions, researchers, and land managers.

"This is our new encyclopedia to the birds of Vermont," said Renfrew. "It will enhance conservation across the state for decades to come."

—Bryan Pfeiffer

VCE Monthly eNews

If you would like to receive our NEW monthly eNews, email Melissa at mmackenzie@vtecostudies.org

Forest Bird Monitoring Project - continued from page 1

Which bird species are declining? Which are increasing? What forest types hold the most bird diversity? Where might that diversity be most at risk? What can Vermonters do to protect and enhance their state's birds and forests? The Status of Vermont's Forest Birds will offer answers and guidance. Here by the numbers is a sense of FBMP's scope over the past quarter century:

31: Vermont forest bird monitoring sites

58: citizen scientists participating in the project

136: number of bird species encountered

2,670: hours spent in the woods

54,045: bird observations in the FBMP database

The task of making sense of the data falls to VCE Biologist Steve Faccio. Steve will analyze population trends of various bird species and groups (long- and short-distance migrants, for example, or canopy nesters). He'll compare results to those of other projects, including the Vermont Breeding Bird Atlas, and he will run rigorous statistical analyses to examine patterns in the data.

Steve will present results in two forms: The Status of Vermont Forest Birds, a report for all audiences and interests, will feature easy-to-read text, graphs, tables, and illustrations. A scientific paper in a peer-reviewed journal will bring FBMP, its methods, and conclusions to a broad community of biologists and conservationists. The massive analysis and report writing should be complete by 2015.

© Bryan Pfeiffer

Analysis of 25 years of FBMP data will be used to help develop conservation strategies for the future of Vermont's birds.

VCE is currently seeking funds to bring these data to life and guide the next chapter of FBMP. We're eager to probe into our 25 years of hard-won information and share the findings.

—Bryan Pfeiffer and Steve Faccio

If you enjoy watching wildlife and wish to contribute to protecting our natural heritage, then it's time to join the VCE team! Consider becoming a citizen scientist. Visit **http://www.vtecostudies.org/citsci.html** to find the citizen science project that's right for you.

Citizen Science Opportunities

Project	Website/email	Leader	Season	Ability
Vermont Atlas of Life Report and explore sightings of all taxa with this online tool.	http://www.vtecostudies.org/atlas/ kmcfarland@vtecostudies.org	Kent McFarland	Year-round	Beginner to expert
Mountain Birdwatch Adopt a mountain and survey Bicknell's Thrush and other mountain songbirds.	www.vtecostudies.org/MBW/ jscarl@vtecostudies.org	Judith Scarl	June	Beginner to expert Hiking required
LoonWatch Participate in the annual one-day census of Vermont's breeding loons.	www.vtecostudies.org/loons/ ehanson@vtecostudies.org	Eric Hanson	mid-July	Beginner to expert
Vermont Loon Recovery Program Help monitor nests and lakes.	www.vtecostudies.org/loons/ ehanson@vtecostudies.org	Eric Hanson	Spring-Summer	Beginner to expert
Forest Bird Monitoring Program Help track long-term changes in populations of interior forest songbirds.	www.vtecostudies.org/FBMP/ sfaccio@vtecostudies.org	Steve Faccio	June	Able to identify forest birds by sight and sound Hiking required
Vermont Bumblebee Survey Help document bumblebee species and survey populations.	www.vtecostudies.org/vtbees kmcfarland@vtecostudies.org	Kent McFarland	April-October	Beginner to expert

VCE News and Events


© Melissa MacKenzie

Earn a VCE T-shirt.


© Judith Scarl

VCE Birdathon 2013


© Melissa MacKenzie

Enjoy a day outside.

Team VCE is gearing up for another low-carbon Birdathon on May 20. After an overnight trek to the rustic Pico Camp at 3400' elevation, we'll hike at dawn to the summit, then descend through the early morning chorus, jump on our bikes, and traverse a diversity of habitats over hill and dale to Woodstock, VT. Keep track of our escapades throughout the day via email alerts, Twitter, and Facebook. We invite you to join us in our effort to advance the conservation of wildlife through research, monitoring, and citizen engagement.

The Vermont Breeding Bird Atlas!

A powerful resource with enchanting portraits of Vermont's breeding birds.

© Bryan Pfeiffer

Now in bookstores. Order online at www.upne.com

Mountain Birdwatch Training Sessions

Two Mountain Birdwatch training sessions are scheduled for May 2013! Once again, these sessions will be classroom based and combine discussions of MBW background, results, and protocols with mock point counts to help volunteers get comfortable with bird IDs and survey methods. All volunteers are encouraged to attend any workshop.

© Judith Scarl

Mountain Birdwatch trainees practice identifying birds by thier songs and calls.

Saturday, May 11, 10 a.m. to 1 p.m.
Fairbanks Museum and Planetarium
St. Johnsbury, VT.

Sunday, May 19, 10 a.m. to 1 p.m.
McLane Audubon Center,
Concord, NH.

©Ellen Cronan

Mountain Birdwatch trainees practice point counts on a jumbo field card.

Influence of Wind Development on High-elevation Birds: Preliminary Findings

For many New England residents, the sight of massive wind turbines on distant ridge tops is becoming commonplace. Invariably, the benefits of a clean, renewable energy source and its effects on local communities are considered during the permitting process. But what about wildlife that reside in the unique ridgeline habitats where these facilities are being constructed?

This question prompted a recent study by Plymouth State University, in collaboration with New Hampshire Department of Fish and Game, to investigate how development and operation of a wind park in northern New Hampshire might impact high-elevation birds, with a focus on Bicknell's Thrush. This montane spruce-fir habitat specialist, long a flagship of VCE's research, is currently undergoing federal review for listing under the Endangered Species Act.

© Clinton Parrish

We do not yet know the extent to which wind park developments will influence Bicknell's Thrush or other high-elevation birds in the long term.

We launched our collaborative study on two peaks south of Dixville Notch in 2010, prior to any wind development. Both peaks support breeding Bicknell's Thrushes, and our initial goals were to collect pre-construction data on the species' occupancy, abundance, and spatial use via point counts and radio telemetry. We repeated our protocols during construction in 2011 and again in 2012, when the wind park was fully operational.

Bicknell's Thrush abundance remained relatively stable over the three-year period, and telemetry data revealed that birds did not avoid access roads or turbine pads. However, home range sizes for individual thrushes near turbines increased when turbines were operating at full capacity. Several other species demonstrated slight declines over the three years; these included Black-Backed Woodpecker, Gray Jay, and Golden Crowned Kinglet, all interior forest species. In contrast, we noted slight increases in abundance of several species that occupy more open, disturbed forest, such as Blackpoll Warbler, Dark-eyed Junco, and Fox Sparrow. American Robin, a remarkably adaptable species, showed a marked increase following construction. Thankfully, no avian mortalities due to collision with turbine blades have been reported at the site, following targeted mortality searches.

While our findings suggest few short-term, adverse impacts to Bicknell's Thrush from turbine construction and operation, our broader results indicate that the entire avian community may be shifting in response to wind development. Once a contiguous spruce-fir forest, the study area has undergone removal of 25 hectares of intact forest and creation of 7 kilometers of edge habitat via fragmentation from the access road and turbine pads. One finding of concern is that turbine noise appears to alter Bicknell's Thrush movements, possibly forcing males to travel further to effectively broadcast song against the masking effects of turbine noise. Such behavioral disruption could impact habitat selection, home range fidelity, hormonal stress levels, and ultimately, reproductive success. We believe that the influence of noise coupled with fragmentation effects may cause even more pronounced community shifts over time.

As proposals for onshore wind farms escalate, wildlife managers need to take a step back, both to evaluate what we know and what we need to know. We know that siting is critical; wind parks create a large ecological footprint, and impacts are almost certain to be greater in areas with no prior anthropogenic influence than in areas with existing infrastructure. Although preliminary findings offer insight for short-term responses, we do not know the degree to which new developments will influence high-elevation wildlife communities in the long term. A clear script to design and fund sound, long-term ecological studies is an immediate need to guide future decisions regarding wind development in the Northeast.

—Clinton Parrish, Plymouth State University

Help Us Reduce Our Footprint!

If you are interested in receiving *Field Notes* but would like to do so electronically, please contact Melissa at: mmackenzie@vtecostudies.org

Tribute to Peter Stettenheim: ornithologist, peace advocate, VCE friend

The ornithological community, social justice movement, Upper Valley, and VCE lost a remarkable friend with Peter Stettenheim's passing in January. Peter was a man of many skills, passions, and convictions. He shared these freely and touched many lives in doing so. All of us at VCE respected Peter's myriad ornithological achievements, admired his boundless intellectual curiosity, and enjoyed our regular interactions with him. From the very first day we established VCE in 2007, Peter was an engaged colleague, a valued advisor, and a regular attendee at events from our annual celebration to brownbag lunches at the office.

Peter holds a Green Heron while working on the Avian Anatomy Project at Michigan State University.

Peter's life isn't easily encapsulated, but much of his personal and professional trajectory traces to Quaker roots, which instilled in him both a fascination for nature and a strong sense of community service. His ornithological resume is varied and deep, but he was best known as a world expert on the structure of feathers and functional avian anatomy. Following his PhD from the University of Michigan in 1959, Peter devoted much of his career to advancing scientific writing, both via his own published research and by editing the work of others. He became editor of several leading publications, including the quarterly journal *The Condor* and the monumental *The Birds of North America* series. His book, *Avian Anatomy Integument*, is still considered an ornithological landmark. However, Peter may best be remembered by colleagues for his intellectual precision, his open-minded curiosity, his articulate voice, and his thoughtful manner.

Peter's longtime friend, colleague, and fellow Upper Valley resident George Clark remembers that, in addition to Peter's international reputation as an ornithologist, "Less widely known was the invaluable guidance and encouragement he informally provided to so many of us in avian biology. Talking with Peter was always invigorating, sprinkled with novel insights and his subtle wit."

Peter and his late wife of 46 years, Sandy, were inveterate and intrepid travelers. Their sense of adventure extended far beyond birds and science to include art, music, foreign language, history, and culture. Their annual excursions to far corners of the globe spanned Antarctica to Alaska, and Tibet to South Africa. The Stettenheims, however, were deeply grounded people who devoted endless energy to both local and global causes. Not only were they untiring volunteers to non-profits like the Montshire Museum (Peter was a co-founder) and VCE (during 2009 and 2010, Peter wrote a series of monthly blog posts, "Focus on Science", in which he distilled scientific papers into non-technical jargon), but Peter and Sandy took a dynamic and conspicuous role as community activists. For more than ten years, both could be found in West Lebanon every Saturday morning, rain or shine, spearheading a weekly peace vigil with like-minded friends. As their son Joel so aptly remarked, Peter and Sandy lived their conviction that "You make a difference by being involved."

Peter's rich, enduring legacy spans many people and organizations. His adventuresome spirit, rigorous intellect, deeply held principles, and caring manner are missed by a legion of family and friends. Few leave such a mark on the rest of us.

—Chris Rimmer

Peter and Sandy Stettenheim on an ice floe in the Antarctic Sound.

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Phenology: It's All About Timing

Year in and year out through the 1970s, birders in Vermont's Windsor County regularly witnessed the first American Woodcock courtship displays during the early days of April. Fast-forward 30 years to the new millenium—woodcock now arrive as early as March 15 with many displaying by the last week of March.

Phenology, the study of the timing of natural events such as migration, flowering, or breeding, is a key phenomenon to examine and unravel the effects of climate change on ecosystems. It all comes down to timing.

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American woodcock, formerly found displaying during the first week of April, now arrive as early as March 15, with many displaying by the last week of March.

In 2007, Camille Parmesan, a biologist at the University of Texas at Austin, examined phenological changes in 203 species across the northern hemisphere. Important life-cycle events among all species advanced by an average of nearly 3 days per decade in spring. Amphibians shifted their breeding 7.6 days earlier, more than twice as early as trees, birds, and butterflies. In turn, butterfly emergence or migratory arrival showed three times earlier advancement than the first flowering of plants—this could signal an increasing and potentially disruptive mismatch between plants and the pollinators they rely on.

Closer to our home base here in New England, Richard Primack from Boston University and his colleagues have examined many sets of long-term phenological data across the region. Caroline Polgar led the team in reviewing more than 5000 butterfly flight records from museum collections (1893–1985), then combined these with more recent citizen naturalist data (1986–2009) from the Massachusetts Butterfly Club. Temperature in the months during and prior to flight explained more variation in emergence date than did other predictors. Elfin butterflies, for example, advanced their flights by 5.5 days and Hairstreaks by 2.8 days for each 1 degree Celsius rise in spring temperature.

However, as Parmesan noted, only long-term records of field observations can reveal the complex phenological interdependencies between species and their ecosystems; we sorely lack these records over grand scales of time and space. Such understanding is essential to interpret and mitigate future responses to global warming.

Many citizen science projects, are seeking to close this gap. From eBird to eButterfly, and now the Vermont Atlas of Life on iNaturalist, we have the tools to collect these crucial data. But we need your help to track changes in species phenology and biogeography.

Today, with hundreds of volunteers entering sightings, we are daily amassing thousands of invaluable natural history records. Last year alone, 2.3 million individual birds sightings were entered across the state. Volunteers are helping us digitize a century's worth of historic bird records that we have accumulated from myriad sources; these range from hand-scribbled notebooks in attics to 30+ years of painstakingly compiled citizen science data in the Records of Vermont Birds. More than 120 nature enthusiasts are now entering their natural history sightings in the Vermont Atlas of Life—the number is growing daily. Together, we are poised to amass the greatest natural history record ever assembled for this region and to understand phenological changes in ways never imagined possible.

—Kent McFarland