

## ODE TO MIGRATION

What do a Bicknell's Thrush, a Monarch Butterfly, and a Common Green Darner dragonfly have in common? Each spring they all migrate epic distances from warm southern climates to breeding sites in the Northeast. We've learned where thrushes winter in the Caribbean. We've known for nearly 40 years where Monarchs winter in Mexico. But no one knows where darners spend their winters or how they repopulate the Northeast each spring. Yet we cannot manage and conserve a migratory animal without knowledge of its full annual cycle.

VCE biologists are hot on the trail of discovery. They have teamed up with the Migratory Dragonfly Partnership, a group of scientists from across the United States, Canada, and Mexico, to better understand dragonfly migration. VCE biolo-

© Jeevan Jose



THE WANDERING GLIDER MAKES FLIGHTS ACROSS THE INDIAN OCEAN THAT COVER TWICE THE DISTANCE OF MONARCH BUTTERFLY MIGRATIONS.

gists and the Smithsonian Conservation Biology Institute are leading a groundbreaking study using stable hydrogen isotopes in dragonfly wings to trace spring migrants back to their natal origins. Our goal is to elucidate the geographic scale of green darner migrations and connectivity of their populations.

Dragonfly migrations have been observed on every continent except Antarctica, with some species performing spectacular long-distance mass movements. The Wandering Glider is the global insect migratory champion, making flights across the Indian Ocean that cover twice the distance of Monarch butterfly migrations. In North America, dragonfly migrations occur annually in late summer and early fall, when thousands to millions of insects move from Canada

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## THE MIGRATORY CONNECTIVITY REVOLUTION

Have you ever wondered where the Phoebes or Ovenbirds that nest on your property spend the winter? It could be that your Ovenbirds overwinter in Cuba, Haiti, or maybe even Belize. In the case of the latter country, that same bird, prior to arriving to your back woods, might have been foraging next to a Jaguar or listening to reggae in beachside forest. You might be surprised to learn that for most species we don't know where specific birds or populations spend different portions of their annual cycle. Known as migratory connectivity, this phenomenon is simply defined as the geographic linking of individuals or populations between stages of an animal's life cycle, for example between breeding and wintering locations. Each year upwards of 5 billion birds worldwide migrate to and from their breeding and wintering grounds, stopping along the way to eat, rest, or find cover. For most, their migratory connectivity remains a mystery.

At present, we know year-round ranges for many species but not the migratory routes taken by specific individuals or populations, nor their endpoints. Factors that negatively impact bird populations remain poorly understood because we lack an adequate understanding of migratory connectivity. Understanding migratory linkages is the key to understanding species' ecology and evolution and to solving environmental challenges as large as climate change or a devastating oil spill, and as small as a housing development.



© Desiree Narango

OVENBIRD WITH GEOLOCATOR ATTACHED AND READY FOR RELEASE.

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## VCE VIEW

### Field Notes

Spring 2012 • Volume 5, No. 1

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The Vermont Center for Ecostudies (VCE) is a nonprofit organization whose mission is to advance the conservation of wildlife 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.

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



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by a generous gift from  
Jeff and Terry Marshall.*

I count among my many good fortunes at VCE a deep and continuing involvement on the island of Hispaniola. My February trip to the Dominican Republic coalesced for me the essence of what VCE has accomplished overall during our relatively brief existence, the goals that drive our ambitious agenda, and the challenges we face on so many levels.

© Kent McFarland



CHRIS RIMMER SEARCHES FOR RED CROSSBILLS IN THE MARSH-BILLINGS-ROCKEFELLER NATIONAL HISTORICAL PARK, JANUARY 2012.

Thrush as a flagship species, VCE has joined a coalition of Dominican businessmen and conservationists to orchestrate the purchase of this property. This represents a small but vital step to achieve lasting conservation, merging local and sustainable livelihoods with habitat restoration and protection. Read our latest report at <http://www.vtecostudies.org/reports.html> (Finca Ortega: a New Paradigm for Conservation in the DR) to learn more, and check out our YouTube channel for video of Finca Ortega's first documented Bicknell's Thrush.

These two threads—human connections and innovative, science-based conservation—lie at the heart of VCE's five-year strategic plan, now available at <http://www.vtecostudies.org/Strategicplan.html>. We encourage you to read this plan, to share with us your thoughts, and to join us in confronting the profound conservation issues that face us all. You have been the backbone of VCE's success in our first five years—we're eager to strengthen our partnership with you in the years ahead.

Eighteen years after my first foray to the DR, I inevitably reflect on the human dimension of our efforts there. During my recent trip, Juan Carlos Martínez-Sánchez and I, together with longtime colleague Steve Latta, spent a lively evening with eight Dominican ornithologists whom we've trained over the years. As my brain ached to grasp the rapid-fire Spanish around me, it was apparent that these dedicated conservationists were thirsting for more opportunity and more responsibility. With Juan Carlos providing mentorship, VCE will challenge our local colleagues to design, execute, and disseminate results of field projects. This will create lasting capacity in ways that traditional training never can, truly "uniting people and science for conservation". I was struck how this approach underlies so much of what VCE does, via our work with citizen scientists, student field biologists, fellow birders, and our Caribbean counterparts.

My DR visit was further highlighted by a field trip to the country's first private reserve, the 1200-acre "Finca Ortega". This drove home for me the necessity of innovative approaches to biodiversity conservation. Using Bicknell's

—Chris Rimmer



# VERMONT BREEDING BIRD ATLAS WEBSITE LAUNCHED

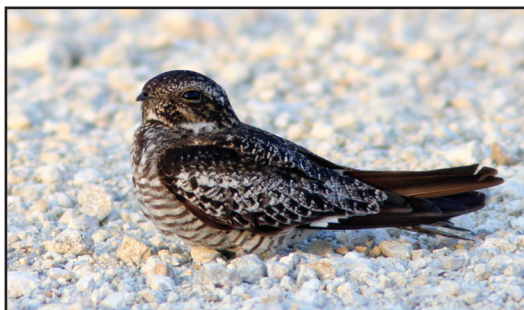
Nearly 35 years ago, Vermont pioneered our nation's first effort to map the statewide distribution of all breeding bird species in Vermont. The Vermont Breeding Bird Atlas (VBBA), published in 1985, has since been an indispensable tool for state agencies and conservation organizations. In 2003, following a quarter century of changes on Vermont's landscape, VCE and the Vermont Fish and Wildlife Department (VFWD) launched a second-generation Atlas to document changes in avian breeding distributions.

Nearly 350 citizen scientists dedicated more than 30,000 hours of field work to this landmark project. With release

top 20 "winners and losers" (increasing and decreasing species) over the past quarter century.

Web users can click on a species for a snapshot, via tables and maps, of its current status, changes since the first Atlas, and conservation implications of those changes. Accounts detail distributional and abundance trends, both in Vermont and in other northeastern states, and their possible or known underlying causes. Each account yields additional insights on state and regional conservation status, management recommendations, and links to full text species accounts from the first Atlas.

© Laura Gooch



© Ken Schneider

LEFT TO RIGHT: RED-HEADED WOODPECKER, COMMON NIGHT-HAWK, AND UPLAND SANDPIPER, THREE SPECIES WHOSE RECENT DECLINES ARE DETAILED IN THE NEW VERMONT BREEDING BIRD ATLAS ONLINE ACCOUNTS.



© Rollin Tebberts

of the new VBBA website (<http://www.vtecostudies.org/vbba>), VCE and VFWD have now transformed their hard work into an accessible, information-rich web data retrieval system and summary.

The VBBA website provides detailed accounts for each of the state's breeding bird species, summaries of results, distribution maps, informative tables, and a section on avian conservation. Funded largely by a State Wildlife Grant through VFWD, the website is a hallmark reference for anyone needing information on the status of birds that breed in the state.

A results summary section synthesizes and interprets overall changes in bird distributions across Vermont. Users can find summaries for species groups associated with distinct habitats such as grasslands, wetlands, boreal forests, and suburbs, as well as groups such as owls and aerial insectivores. Other highlights include patterns in species richness, as well as the

Natural resource managers, planners, researchers, students, and other professionals have already requested Atlas data, and VCE expects this information to reach a broader audience now that the data are available on the web. Birding enthusiasts, and especially our legion of citizen scientist atlasers, are expected to be among the most frequent users of these data.

By popular demand, another Atlas milestone will emerge in 2013: a full-color, hard cover book published by the University of New England Press. Complete with maps, data tables, more detailed species accounts, photos, and rich interpretive chapters, this publication will serve as a comprehensive, readable, and visually appealing resource. Together, the website and book will serve the needs of all people looking for vital information and meaningful insights on the breeding birds of Vermont.

—Rosalind Renfrew



## 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.

© Kent McFarland



SARA ZAHENDRA SEARCHES FOR COMMON GREEN DARNERS AT NEWNANS LAKE IN GAINESVILLE, FL, MARCH 2012.

down to Mexico, Florida and the West Indies, passing along both United States coasts and through the Midwest. North America may have as many as 18 migratory dragonfly species; some engage in annual seasonal migrations, while others are more sporadic migrants.

Spring movements northward by dragonflies are rarely observed, presumably because they occur over a wider front, a longer time period, and involve fewer individuals than in fall. We know these flights take place, however, because adults appear during early spring in areas where nymphs have not yet emerged.

North America's best-known migrant dragonfly is the Common Green Darner (see final article). This species appears at northern latitudes in early spring, often before any local dragonflies have emerged. These early returnees are migrants from the south, having flown from perhaps Florida, the Caribbean, or Mexico. They breed soon after arriving, and their nymphs develop quickly in wetlands warmed by the summer sun. Many adults emerge in August; instead of maturing and breeding at their natal site, they begin a southward movement that may span a month or longer. Their destinations are currently unknown, but presumed to be the same areas where spring migrants originate. Migrating individuals may breed at their final destination or at sites along the way.

Although migration is a common phenomenon in Common Green Darners, it is not obligatory. Populations in more northern areas are known to consist of both resident and

migratory individuals. These phenotypes overlap in space, but exhibit strikingly different annual phenologies that appear to limit temporal overlap in breeding. Migrants arrive at breeding ponds in March–April, and larvae emerge as adults after 4–5 months. Resident darners begin their breeding cycle a month or two later in June–July, and their larvae overwinter in natal ponds, finally emerging as adults in May–June of the following year.

There is evidence that water temperature plays a role in maintaining this phenotypic variation. Final-instar larvae of migratory phenotypes reared in the laboratory required a minimum water temperature of 8.7°C to develop into adults. In Ontario, resident phenotypes required 20% more accumulated warm weather days than migrants to complete larval development. These thresholds suggest that the relative size of migratory populations could vary with latitudinal gradients and associated temperatures.



© Ken Shale

A MATING PAIR OF COMMON GREEN DARNERS. THE FEMALE LAYS EGGS IN AQUATIC VEGETATION, SOMETIMES WHILE STILL IN TANDEM WITH THE MALE.

Despite spanning several countries and having been documented since at least the 1880s, North American dragonfly migration is a poorly understood phenomenon. Knowledge about migratory cues, flight pathways, population connectivity, and the southern limits of overwintering grounds remains fragmentary. This knowledge gap prevents development of international management plans and coordinated conservation actions to sustain and protect the migration. None of the dragonfly species known to undertake migrations in North America are currently endangered, but identifying the habitats on which migrating dragonflies rely for their transcontinental flights may help us better conserve these important systems. Threats to wetland habitats, including the effects of global climate disruption, could alter environmental cues for migration, affect larval development and adult emergence times, disrupt migratory corridors, or render overwintering habitat unsuitable.

CONTINUED ON PAGE 5





The overarching goal of this study is to understand the geographic scale and connectivity of dragonfly migration. Remarkably, we can do this by examining the chemistry locked in dragonfly wings. Stable hydrogen isotopes are ideal to infer natal origins of dragonflies because they reflect the latitude at which body tissues were grown and are chemically inert once bound. Vaporizing a segment of wing in a mass spectrometer provides the chemical “signature” we need to determine latitude of the natal pond where a given dragonfly emerged. With the help of field volunteers and existing museum collections, we are sampling Common Green Darners from Mexico to Texas, across to Florida, and up the eastern half of North America into Canada. We hope our findings will shed important light on one of North America’s most impressive animal migrations.

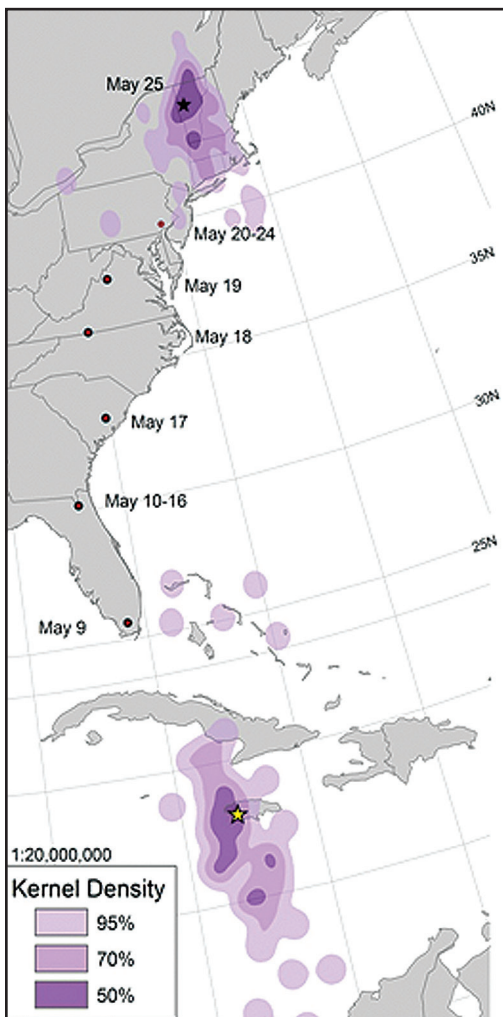
—Kent McFarland



© Kent McFarland

DRAGONFLY EXPERT MIKE MAY GIVES SARA ZAHENDRA TIPS TO IDENTIFY DIFFERENT DRAGONFLY SPECIES.

MIGRATORY CONNECTIVITY- CONTINUED FROM PAGE 1



It is critical to predicting and addressing the spread of diseases (human and animal), bird collisions with aircraft, positioning alternative energy structures, and many other human development activities. It can mean the difference between saving and losing an endangered species.

Information on migratory connectivity is critical for making correct, cost-effective, and important policy and management decisions. For example, experts agree that multiple aspects of the complex ecology of migratory birds are likely being affected by climate change. Scientists are now challenged to identify and ultimately forecast how climate change will affect the biology of species. Without information on how individuals are exposed to different climates throughout the year, adaptation or other conservation investments might be ineffective because they are targeted at the wrong place or time. Similarly, identifying the migratory routes that particular populations use when moving between breeding and wintering grounds is integral to the conservation of those species. The construction and placement of human-made structures such as buildings, cell phone towers and wind turbines can be improved significantly in terms of reducing their collision impact with birds when we understand how, where, and when specific populations of birds, as well as other migratory animals like dragonflies and bats, travel.

The good news is that scientific tools are emerging to allow for unprecedented improvement in our ability to track animal movement across the globe. Use of methods such as satellite transmitters, light-level geolocators, and stable isotopes are advancing our ability to track animals throughout the annual cycle. With the right resources and leadership, these developments will improve knowledge of animal movements and their life cycles, and hopefully their conservation. For more information check out the Migratory Connectivity Project at <http://migratoryconnectivityproject.org/>.

SPRING MIGRATION ROUTE AND BREEDING LOCATION OF A FEMALE OVENBIRD. CAPTURED IN JAMAICA, MARCH 2010, OUTFITTED WITH A GEOLOCATOR, AND RECAPTURED IN NOVEMBER 2010 AT THE SAME LOCATION (YELLOW STAR). THE BIRD BEGAN MIGRATION ON MAY 8TH AND AFTER JUST 17 DAYS ARRIVED ON ITS BREEDING TERRITORY (BLACK STAR). PURPLE AREAS DEPICT ESTIMATED REGION OF OCCURRENCE. DARKER PURPLE REGIONS ARE AREAS MORE LIKELY OCCUPIED THAN LIGHTER AREAS. (DATA FROM HALLWORTH, SILLETT AND MARRA)

—Pete Marra, Research Scientist with the Smithsonian Migratory Bird Center and VCE Advisory Council member.

# MISSION POSSIBLE

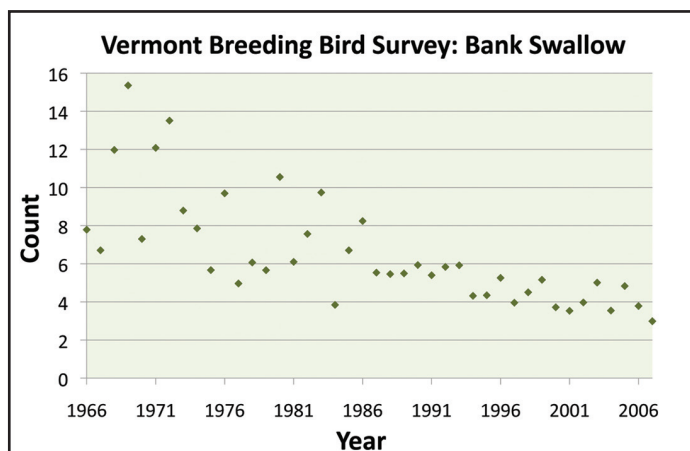
## Monitoring Bank Swallow Colonies in Vermont

Attention citizen scientists: your mission, should you choose to accept it, is to find Bank Swallow nesting colonies throughout Vermont and report them to eBird! These birds may be in trouble, and it will take all of us to investigate their status and find solutions, beginning with this mission. Okay, so maybe this assignment isn't as treacherous or glamorous as those on *Mission: Impossible*, but it may be more urgent.

Birds that feed entirely on aerial insects, like swallows and martins, are experiencing widespread and worrisome declines across North America. Population trends estimated from the continent-wide Breeding Bird Survey (BBS), conducted since 1966 by volunteers and coordinated by VCE in Vermont, suggest that these specialized birds are declining at significantly steeper rates than most other passerines. It appears that declines are most prevalent in the Northeast, where they became especially apparent in the mid-1980s.

One of these aerial insectivores, the Bank Swallow, may be particularly vulnerable in our state. According to BBS data from Vermont, populations have declined nearly 3% annually over the last 45 years. This decline, however, has not been steady. From 1966 to 1979, Bank Swallow numbers remained relatively stable. In the 1980s, populations began to plunge with annual declines reaching nearly 3.5% statewide.

The first Vermont Breeding Bird Atlas (1976-1981) was conducted before declines became noticeable. Volunteer atlasers found Bank Swallows on 108 survey blocks across the state. It was a common colonial breeder just about everywhere. Fast-forward to the second-generation atlas, completed in 2007, when breeding colonies were found on only 58 blocks statewide, a decline of almost 50%. Other breeding bird atlases in the Northeast have documented similar results: New York -28%, Pennsylvania -35%, and Ontario -45%. As for other swallow species, reasons for long-term declines remain unclear, but in the case of Bank Swallows could include gravel pit management and reclamation practices, riverbank erosion control, climate change, reduced insect prey, and pesticides.



BREEDING BIRD SURVEY POPULATION TREND FOR THE BANK SWALLOW IN VERMONT. SINCE THE 1980s, DECLINES HAVE REACHED NEARLY 3.5% PER YEAR ACROSS THE STATE.

Bank Swallows historically nested in exposed banks along rivers but now also use open gravel and sand pits. They build nests in colonies that can contain up to 2,000 pairs. Colonies are usually located near waterways in areas of fairly loose soils that are easily excavated for burrows. Males begin to dig a burrow into the bank prior to pairing with a female; females then hover in front of burrows to inspect males and their nest sites before selecting a mate. Nests are usually located in the upper third of a bank to thwart ground predators.

In most years, a few Bank Swallows begin to arrive in mid- to late April, but at many colony sites in Vermont birds do not appear until early May. Breeding behavior commences within a week of arrival. Although Bank Swallows dig their own burrows, returning birds often reuse burrows from previous years. Burrows are 15 to 48 inches deep; the terminal nest is made of grasses, leaves, and rootlets with a lining of feathers. Females lay 2 to 6 eggs. There are only seven known dates for egg laying in Vermont, ranging from May 18 to July 10. The incubation period lasts 15 days with fledging 22 to 23 days later. Fledglings are remarkably quick learners, remaining dependent on their parents for food for only about five days after leaving the nest.

Because this species is both strongly colonial and restricted in habitat, a comprehensive survey of existing colonies is entirely feasible with an army of citizen scientists like you. Participation is easy. Simply visit <http://www.ebird.org/vt> and learn how you can help the VCE Mission Possible team find and monitor Bank Swallow colonies.

—Kent McFarland

© Marcel Holyoak



THE BANK SWALLOW, A PREVIOUSLY COMMON AERIAL INSECTIVORE, SHOWED A DECLINE OF NEARLY 50% IN THE SECOND VERMONT BREEDING BIRD ATLAS.



# VCE ADVISORY COUNCIL WELCOMES NEW MEMBERS

We're pleased to welcome three new Advisory Council members, bringing to 11 this key group of VCE advisors and ambassadors. One addition is effectively a transition: Brian Farrell is cycling off the VCE Board after a 3-year tenure during which he provided thoughtful guidance and connections via his roles both at Harvard's Museum of Comparative Zoology and as an active scientist in the Dominican Republic. We look forward to a continued close working relationship with Brian, and we're grateful for his exceptional stewardship on the VCE Board.



Until recently, Elizabeth (Liz) Adams was a part-time “resident” at VCE, occupying office space in exchange for sharing her wealth of knowledge in development and foundation planning. She now devotes her professional efforts to the Student Conservation Association, where she is Acting Director of Foundation Relations. Her expertise lies in securing public and private funding to support conservation initiatives—a terrific fit for VCE!

David Goudy needs no introduction to residents of the Upper Valley, where he has been Executive Director of the Montshire Museum of Science since 1981. David has already provided wide-ranging advice to VCE during our five years, and there is no doubt that we'll benefit greatly from his diverse skills and perspective.



## CITIZEN SCIENCE OPPORTUNITIES

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.

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

# VCE NEWS AND EVENTS



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[www.vtbirdathon.org](http://www.vtbirdathon.org)

## VCE Birdathon 2012!

Enjoy a day outside.

Once again, on May 21st 2012, team VCE takes to the mountains, forests, grasslands, and lakes of Vermont to celebrate the return of our migratory birds. Join us in our quest to find as many birds as we can in one day, or form your own team and count any time in May. Teams can earn a limited edition 2012 VCE Birdathon T-shirt! Keep track of our escapades throughout the day via email alerts, Twitter, and Facebook, and help VCE advance the conservation of wildlife through research, monitoring, and citizen engagement.

## Vermont Bumblebee Survey Workshop

**When:** Saturday, April 28th, 10 a.m. to 4 p.m.

**Where:** Vermont Center for Ecostudies:  
20 Palmer Court  
Wilder, VT 05001

**More info:** <http://www.vtecostudies.org/vtbees>



© Putneypics

Come hear about the natural history, life cycle, and ecology of Vermont's bumblebees. Learn to identify our most common species, discover the threats they face, and understand the value of this project to document the status of these crucial pollinators. Come be an active participant in Vermont's first-ever bumblebee survey!

## Mountain Birdwatch Training Sessions

Mountain Birdwatch training workshops return to a wildlife center near you in 2012! Once again, these sessions will 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—past, present, and future—are encouraged to attend any workshop.

© Wendy Cole



MOUNTAIN BIRDWATCH TECHNICIAN EMILY UNDERWOOD COLLECTING HABITAT DATA.

Saturday, May 5, 11 a.m. to 1:30 p.m.  
Five Rivers Environmental Education Center  
Delmar, NY 12054

Saturday, May 12, 10 a.m. to 12:30 p.m.  
Montshire Museum of Science  
Norwich, VT 05055

Saturday, May 19, 10 a.m. to 12:30 p.m.  
Gilsland Farm Audubon Center  
Falmouth, ME 04105



© Emily Underwood

MOUNTAIN BIRDWATCH TECHNICIAN WENDY COLE SURVEYS THE ADIRONDACKS.



## VOLUNTEER HIGHLIGHT: SUE STAATS

*Volunteers are integral to the success of many VCE projects. From the Vermont Breeding Bird Atlas and the Vermont Butterfly Survey, to long-term monitoring projects such as Mountain Birdwatch and Forest Bird Monitoring, the countless hours contributed by these dedicated individuals allow us to achieve conservation in a cost-effective manner. Moreover, these citizen scientists often share their enthusiasm and knowledge of the natural world with friends and neighbors, helping to nurture a community of informed ecological stewards. In an ongoing effort to offer thanks and acknowledge their contributions, we regularly profile a volunteer in Field Notes.*

Many migrations ago, in 1989, Chris Rimmer and Sally Laughlin, both then at VINS, launched the Vermont Forest

Bird Monitoring Program (FBMP), with the goal of tracking populations of breeding forest-interior birds. During that first year, six of Vermont's top birders volunteered to conduct two annual surveys at their "adopted" study site. Since then, the FBMP has steadily grown to encompass 31 study sites, with a greater reliance than ever on the contributions of skilled birders. Although some volunteers have participated for just a few years, others much longer, no one has contributed more to this long-term program than Sue Staats. One of the original six volunteers, Sue has faithfully surveyed Pease Mt. in Charlotte twice each year for 24 years! During that remarkable run, Sue has conducted no fewer than 240 point counts, tallying 2,356 individual birds of 47 species, including 404 Ovenbirds and 236 Eastern Wood-Pewees.

Sue's interest in the outdoors began at an early age. Her family spent summers at their cottage on a small lake in north-eastern Pennsylvania, where Sue remembers fishing for hours from the dock or a rowboat in the evenings. "During the winter, my family put up bird feeders in our backyard," Sue recalls, "and I would watch from the dining room window. I was always interested in animals, watching whatever was in the yard (deer, squirrels, chipmunks, etc)."

Sue attended UVM and, not surprisingly, graduated with a BS in Wildlife and Fisheries Biology. After immersing herself in various field jobs studying Common Loons, Canada Geese, and Black Bears, Sue returned to graduate school at

UMass Amherst, receiving a MS degree in Wildlife Science. A few months later, she and her husband Nick moved to the Middlebury area, and Sue took a position with Green Mountain National Forest, where she's still employed as a fisheries technician. "In all," Sue says, "I've worked on the National Forest for 23 years, predominately in fisheries, more recently in both fisheries and wildlife."

Like any avid birder, Sue enjoys birding while pursuing her other favorite pastimes, which include gardening, fishing, hiking, and swimming. In winter, she plays hockey, and enjoys cross-country skiing and snowshoeing. Explaining her initial foray as an FBMP volunteer in 1989, she says, "I love doing

any kind of research, and since I had experience with bird surveys, I volunteered. It is really the perfect mix for me—birding and collecting useful data. I truly enjoy surveying birds, and I like being out early in the morning. Also, I think it's critically important to monitor populations over the long-term and study species' relationships with their habitats. The fact that FBMP is still going strong, even growing, after 24 years is remarkable; it requires a lot of organization (of people and data!), communication, and dedication."



LONG TIME VOLUNTEER AND CITIZEN SCIENTIST SUE STAATS WITH HER DOG RANGER.

Sue's own dedication to long-term monitoring is hardly limited to the FBMP. She has conducted a Breeding Bird Survey route near Colebrook, NH for 26 years! Sue also participated in the New Hampshire Breeding Bird Atlas project during the 1980s, authored several species accounts for their 1994 publication, volunteered in the second Vermont Breeding Bird Atlas, and regularly participates in the Middlebury Christmas Bird Count. In Salisbury, where she and Nick live with their children Arlon (age 16) and Darcy (13), Sue serves on the Salisbury Conservation Commission and volunteers with the local Little League. Thanks, Sue, for all you do!

—Steve Faccio

### VCE Monthly eNews

If you would like to receive our NEW monthly eNews, email Melissa at [mmackenzie@vtecostudies.org](mailto:mmackenzie@vtecostudies.org)

# PERSONAL REFLECTIONS ON A CHALLENGING AND REWARDING JOB: CARIBBEAN COORDINATOR

That night back in September, after Chris Rimmer called me on Skype to offer the position as Caribbean Coordinator of the International Bicknell's Thrush Conservation Group, I couldn't sleep. My head was filled with images from my recent arrival in Port-au-Prince, Haiti, and a swirling mix of imaginings about what was in store for me. Even today, six months later, I marvel and wonder whether the events of my daily life are happening for real. Let me set the stage: I live with my wife in Port-au-Prince, where I spend half my time, while the other 50% of my job finds me in the Dominican Republic. Both countries share the island of Hispaniola and a tumultuous past.

Like others at VCE, I'm a conservation biologist, and conservation is about people. We biologists sometimes tend to forget that, however, partly because we don't get that type of training during our careers, and partly because humans can be pretty hard to understand, with our diversity of cultures, traditions and languages.

Haiti is a beautiful and culturally rich country, but has lost most of its forest cover. Every time it rains, nature sends a shocking response in the form of flooding and landslides. Yet despite millions of dollars received in aid before and after the January 2010 earthquake, the international community and the Haitian government have not figured out a strategy to stop further environmental degradation. In fact, learning who is doing what among the international donors is a top priority for Société Audubon d'Haiti, the local NGO with which I work most closely. What I admire most in all the Haitians I have met, poor and rich, is their optimism in the face of enormous adversity. I reflect on that when I feel disappointed, discouraged, or simply overwhelmed.

The neighboring Dominican Republic is a country of contrast, with a strong Spanish heritage. I often joke with my wife that Dominicans are as loud as Spaniards when they argue about something (I am originally from Spain). It is a country rich in beauty and biodiversity, and Dominicans are warm, always ready to share their experiences. The country boasts an impressive network of protected areas, some better managed than others, and several well-respected conservation NGOs. I find quite remarkable the job that Chris Rimmer has done here over the years. He has been able to engage a wide array of Dominicans in conservation, using Bicknell's Thrush as a flagship species, no small feat! Chris and I visited the DR together in November, and he introduced me to many of VCE's Dominican colleagues, all of whom received me warmly. I am currently working on many different fronts in both countries, from engaging Dominican ornithologists in advanced research, to developing educational materials to help Haitian teachers raise awareness of their country's natural wonders, to helping craft strategic plans for Dominican NGOs working in the Cordillera Septentrional, a critical area for wintering Bicknell's Thrush on the island.

My brain is inundated daily with so many images that I have a hard time processing them all, from the friendly neighbors helping me fix the electricity in my apartment, to the colorful sunrise over Santo Domingo's Malecón, to impeccably dressed Haitians walking every Sunday to church, women all in white and men with the most elegant suits, in the midst of a treeless landscape. This is a world of harsh realities, great beauty, and immense hope for the future. Definitely, I like my work.



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JUAN CARLOS MARTÍNEZ-SANCHEZ REFLECTS ON HIS FIRST SIX MONTHS AS CARIBBEAN BIRD CONSERVATION COORDINATOR. WHILE WORK ON HISPANIOLA CAN BE CHALLENGING, JUAN CARLOS FINDS OPTIMISM IN THE FACE OF ADVERSITY AND IMMENSE HOPE FOR THE FUTURE.

—Juan Carlos Martínez-Sánchez



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# Field Notes

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## COMMON GREEN DARNER (*ANAX JUNIUS*)

As summer sun warms Vermont's ponds and wetlands, the Common Green Darner (*Anax junius*) can be seen skimming and darting across the water's surface, whizzing in and out of patches of sunlight, and perching in open areas on grasses and weeds. Easily recognized and admired for its aerial acrobatics and aggressive hunting tactics, the Common Green Darner is North America's most abundant and widespread dragonfly. Adults of this species can be found

throughout Vermont from May through September, typically near ponds, lakes, and marshy waters where their larvae develop. They hunt on the wing and will eat nearly any flying insect, including butterflies, wasps, mosquitoes, and even other dragonflies.

### Fun Facts

- The Common Green Darner, named after its resemblance to a darning-needle, is the official insect of the state of Washington.
- Males are highly territorial and patrol waterways in search of females. They have been clocked chasing other males at 30 miles per hour.
- Common Green Darners have nearly 360 degree vision. Their eyes are greenish-yellow and encompass virtually their entire head.
- Adults often mate in flight, and this species is North America's only darner that will lay eggs while the mating pair is still in tandem.

© Ken Slade



ONE OF THE MOST COMMON DRAGONFLIES IN NORTH AMERICA, THE COMMON GREEN DARNER HAS BEEN CLOCKED FLYING UP TO 30 MILES PER HOUR WHILE CHASING OTHER DRAGONFLIES.

### Natural History

After mating, the female darner lays her eggs one at a time on aquatic and emergent vegetation. The larval phase of this species lasts 2 to 3 years during which the nymphs pass through 11 to 12 stages. Like adult darners, the larvae are skilled and aggressive predators, feeding on a diverse array of aquatic insects that include mosquito and fly larvae, mayfly larvae and other dragonfly nymphs. They will even prey on aquatic animals as big as tadpoles and small fish! Though large and

voracious, the larvae are susceptible to predation themselves and serve as a food source for fish, frogs, turtles and birds. After their prolonged larval period, adults of the species emerge at night. Many of the earliest Common Green Darners we see in Vermont during the spring are migrants, with resident populations appearing later in the summer. One of the few dragonfly species known to have both resident and migratory populations, adults are sometimes observed during the fall in impressively large concentrations, flying south, escaping cold fronts as they go. The following spring, their offspring begin the cycle again, pursuing warm fronts as they fly north.

### Join the Migratory Dragonfly Project!

Interested in getting out, swinging your net, and learning more about this fascinating migratory insect? Become a Migratory Dragonfly Project volunteer and help VCE uncover the life history secrets of the Common Green Darner! Visit our website at <http://www.migratorydragonflypartnership.org/>

—Sara Zabendra