Field Notes

ECOSTUDIES

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Uniting People and Science for Conservation

THE RECOVERY OF AN ICON: PEREGRINE FALCONS 20 YEARS LATER

The recovery of the eastern Peregrine Falcon population is among the great success stories of conservation biology and endangered species management. Historically, the population was centered in New England and the Adirondack Mountains, ranging south along the spine of the Appalachians to western Georgia. In 1940 the eastern peregrine population was estimated at 350 pairs—by the mid-1960s the species was completely gone, victimized by the devastating pesticide DDT.

The road to recovery began in the early 1970s, when Tom Cade and others perfected the technique of breeding peregrines in captivity, providing a source of birds that could be reintroduced into their vacant range. The first release of captivebred peregrines occurred in 1974.



BEGINNING IN 1974 WITH THE FIRST RELEASE OF CAPTIVE-BRED PEREGRINES, THE RECOVERY OF THIS ICONIC RAPTOR HAS BEEN A RESOUNDING SUCCESS.

In New England, approximately 300 captive-bred peregrines were released at 17 different sites in Massachusetts, New Hampshire, Vermont, and Maine. The reintroduced population grew slowly at first—by 1991 there were just 22 nesting pairs. During the last 20 years, however, New England's peregrines have undergone a population boom, with an estimated 114 breeding pairs fledging 150 young in 2010. In addition, use of buildings, bridges, quarries, and other human-made structures for nesting is now widespread, especially in urban areas where the species only infrequently nested prior to reintroduction.

In the early 1990s, as the reintroduced population became bet-

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IRENE AND STREAMS

Like most Vermonters, on August 28 and 29 I watched with horror and amazement as rivers and streams around much of the state swelled to levels most of us have never seen, carrying away houses, cars, propane tanks, and bridges in violent torrents. My own town of Brandon experienced seri-



The normally placid Neshobe River tore through downtown Brandon, VT during tropical storm Irene.

ous flooding, and several businesses were damaged or destroyed. Normally placid and picturesque streams carved new paths and ruined mile after mile of highways. But unlike many Vermonters, my thoughts at the time also turned to fishes and other aquatic life in those streams. Could they possibly survive this hundred-year event, or would they be churned into bouillabaisse?

I found a partial answer on August 31, barely three days after the deluge. I ventured



Two miles upstream, the same river appeared normal and unscathed two weeks later.

to a favorite trout stream near Pittsford. The Forest Service access road was torn up, but the stream looked in remarkably good shape. My first cast of a dry fly resulted in a vigorous

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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.

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



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VCE VIEW

The woodlands, fields and waterways have become quieter with each passing week. Many seasonal occupants are now to our south or have hunkered down for the tough months ahead, out of sight and sound. Shorter days portend a time of year when many of us turn inward, refocusing on our human connections.



For me, several recent developments have reinforced the link between VCE's work and people. First, we lost our great friend and conservation ally Pat Nye to a valiant struggle with cancer. No one was more devoted to the protection of loons, and Pat inspired many with her unwavering zeal. This issue of *Field Notes* is dedicated to Pat—the entire VCE community thanks and honors her.

Second, tropical storm Irene, which bore an erratic but devastating path across Vermont, unified us all in remarkable ways. As did so many other Vermonters, VCE staff pitched in to help with recovery efforts during Irene's immediate aftermath. We all witnessed

moments of heartbreak and uplift, futility and resilience. As support poured in from all corners and in all forms, a profound sense of community gained strength.

Finally, VCE celebrated its four-year milestone in mid-October with an informal gathering at Jeff and Terry Marshall's Norwich home. That event brought together nearly 100 young birders, tried-and-true volunteers, and loyal supporters. Our extended "family" now reaches across the hemisphere, and we hope an enduring VCE hallmark will be our ability to foster connections, bridging the human and natural realms.

Our forthcoming 5-year strategic plan demonstrates VCE's steadfast commitment to engage people in our work. No matter how we cast ourselves—as scientists, conservationists, naturalists, or outdoor enthusiasts—VCE always comes back to its core of people. You mirror our success, you deliver our conservation mission, and you inspire us. We thank you.

-Chris Rimmer

VCE LAUNCHES AN ADVISORY COUNCIL

We're pleased to announce the formation of a VCE Advisory Council. We are fortunate to have assembled a diverse group of eight scientists and local conservationists, who bring a fresh dimension of engagement and support to VCE. As a complement to our Board, they promise to be valued advisors and ambassadors, and have in fact already proved their mettle. We inaugurated several members via a memorable overnight field trip to our Mt. Mansfield study site in mid-September. With unbeatable weather, a full moon, and an all-time record of 20 mist-netted Bicknell's Thrushes in < 24 hours, we had a lively and fun session, setting a high bar for future Advisory Council get-togethers!

Our Council members' professional backgrounds cover a broad spectrum from ornithology to freshwater fish ecology, polar ice research, software engineering, law, landscape painting, and environmental education. We welcome them, invite you to "meet" them at: www.vtecostudies.org/People.html, and look forward to their involvement with VCE.

ED HACK, 2011'S OUTSTANDING CITIZEN SCIENTIST

The Julie Nicholson Citizen Scientist Award honors Julie Nicholson's extraordinary passion and commitment to birds and wildlife conservation through her many years of tireless work as a citizen scientist. It is given annually to an individual who exemplifies Julie's dedication to the cause of citizen science and conservation.

Despite my urban roots in Paterson, New Jersey, a secondgeneration son of working class immigrants, I never considered myself a city person. I played ball and ran the streets with friends but always had an eye turned to the woodlot. At family picnics, I'd often be found turning over rocks and hunting creek bottoms for hidden critters. I've never stopped the search. Although my love of nature never

translated directly into a profession, I consider myself a "career" citizen scientist.

I attended public schools, where my leanings towards math and science guided me to a premed major at Rutgers University. I quickly realized, however, that being a doctor was not in the cards, so I completed a degree in Biological Sciences. Not until I began working on my masters at the University of Delaware did the light finally switch on. I found myself staring out the windows at a world that beckoned to me.



FROM HIS URBAN ROOTS IN NEW JERSEY TO HIS LIFE IN RURAL VERMONT, CITIZEN SCIENTIST ED HACK HAS MAINTAINED A LOVE OF NATURE AND A STEADFAST COMMITMENT TO PARTICIPATION IN A WIDE ARRAY OF CITIZEN SCIENCE PROJECTS.

Christmas Bird Count. No Google Earth in those days —we made do with a nail and a length of string to plot our 15-mile radius. Julie, Sally and I did the count together every year, with only a few misses, until Julie's passing in 2009. Sally and I are still at it.

During the mid-1970s, Julie and Sally recruited me for the first Vermont Breeding Bird Atlas. If I wasn't much of a birder at the start, I felt like a veteran five years later! It was a tremendous learning experience, and I enjoyed it immensely. Twenty-five years later we did it all over again, and it was just as much fun.

Whenever masonry threatened

Environmental Science, a field gaining in prominence, was where I belonged. But the academic world had run its course for me, and I didn't want to start over. I finished my masters and sought a position in the working world, one that might satisfy my need to be close to nature.

I set my sights on Vermont, moving here with my wife Sandy in 1970. A wildlife biologist job at the Vermont Fish & Wildlife Department failed to materialize when the program was discontinued, just before I was due to start. However, I was here to stay, so looked elsewhere and found work in the construction world. I enjoyed working with my hands and treasured a job that allowed me to be mostly out-of-doors. I soon started my own masonry business, which continues to this day. to interfere with my volunteering in the field, Julie provided a welcome prod. Her quiet enthusiasm and can-do attitude made it difficult to say no. More often than not, my response to Julie's requests for help on a VINS or VCE project would be, "What time should I be there?"

Soon after arriving in Vermont, I met Fred Merrill, an

accomplished Woodstock birder and a knowledgeable amateur botanist. Fred introduced me to the importance of

songs and calls in bird identification, and he served as a great

mentor. I also became aware of a fledgling environmental

organization, VINS, whose office was then located in a small Woodstock village store. I quickly became acquainted

Julie Nicholson. Both were instrumental in launching my

It wasn't long before I found myself sitting down with

Sally to determine an appropriate circle for the Woodstock

with VINS' co-founder Sally Laughlin and volunteer

involvement as a "citizen scientist".

Over the years, I've counted spring migrants for the Silvio Conte NWR "Migratory Bird Stopover Habitat Survey", slogged up peaks at dawn for Mountain Birdwatch, and stalked under the hot sun with a net to learn my fritillaries and skippers for the Vermont Butterfly Survey. Most recently, the Vermont County Birding Quest and eBird have captured my attention. The combination of fun, discovery, and camaraderie leave me wishing I had time to do more. I also wish Julie was still here to do it all with me.

—Ed Hack

Peregrines - CONTINUED FROM PAGE 1

ter established, I began working with colleagues to band Peregrine Falcon chicks at nest sites in each New England state. By maintaining a marked population, we hoped to gain insights into falcon movements and dispersal patterns, causes

of mortality and survivorship-all essential to understanding population dynamics-and to develop effective, long-term management strategies.

Recently, thanks to funding from the U.S. Fish and Wildlife Service, I completed an analysis of 20 years of bandingresighting data from this marked population. Between 1990 and 2009, four colleagues and I banded 986 Peregrine Falcon nestlings in the six New England states. Of those, 238 (24%) were encountered at least once after banding. Most were encountered in New England, but nearly 25% were found outside the region,



peregrines to settle at nest sites similar to those at which they were raised (e.g. those hatched on cliffs were more likely to nest on cliffs, while those from urban sites tended to nest on urban structures). However, movement between habitats was also documented.

> On average, female peregrines dispersed farther than males. Among those that were later found at breeding sites, the average dispersal distance for females was 149 miles, compared to 104 miles for males. Such female-biased dispersal is widespread among birds. Since males must locate and defend a vacant territory, they would presumably have an advantage if they selected a site close to "home".

Our data also revealed OF 986 PEREGRINE NESTLINGS BANDED IN NEW ENGLAND, 238 WERE ENCOUNTERED AT that New England per-LEAST ONCE AFTER BANDING, AND 50 (SHOWN ABOVE) WERE RESIGNTED AT BREEDING SITES egrines have strong site fidelity to their chosen

including in eight eastern states, three Canadian Provinces, Cuba, and Nicaragua. The latter two were the champion longdistance dispersers from this group, but unfortunately were recovered dead. Both were young males, one a second-year bird that struck a chain-link fence while chasing prey in San Jacinto, Nicaragua (2,305 miles from its Mt. Horrid, Ver-

IN THE EASTERN UNITED STATES.



A PHOTOGENIC PEREGRINE POSES ON THE PALI-SADES IN FAIRLEE, VERMONT.

mont nest site), the second, a first-year bird shot in Camaguey, Cuba (1,675 miles from its natal site at Maine's Acadia National Park).

Of the 986 banded nestlings, 50 (5%) were resighted at breeding territories across the eastern U.S., with the majority (39) returning to New England (see map). There was a strong tendency for

nest site. Banded birds remained for an average of four years, with some staying at the same nest site for up to 11 years. This is not surprising, given that suitable nesting cliffs are relatively rare, and a really good cliff, with multiple ledges to choose from and abundant prey nearby, is worth fighting over. In fact, there have been numerous cases in which resident adult females waged serious battles with intruding peregrines. In at least three of those cases, the resident bird was killed by the interloper who then took over the nest site and the resident male in the process, prompting my colleague, Tom French, to quip to a reporter that, "peregrines may mate for life, but they don't mourn for a moment."

Twenty years ago, few of us could ever have imagined the success this project would enjoy. Peregrine Falcons have reoccupied the majority of their historic breeding sites in New England, as well as many new sites, including a variety of urban structures and artificial "cliffs." In fact, it is difficult to predict the region's current carrying capacity, given the widespread use of human-created habitats for nesting. Yet in the face of this resounding success, we must all remember that humans set the stage, wrote the script, and are charged with the responsibility to avoid a repeat performance.

-Steve Faccio

IRENE - CONTINUED FROM PAGE 1

strike from a fat, 12-inch brook trout! Four more trout and one hour later told me that these brookies and browns did just fine during Irene. But this was a relatively small and intact watershed that probably did not receive the scouring experienced by some systems. Surely this was an exception.

Examination of a favorite Vermont fishing website told me that my stream experience was not unusual. From the

Winooski and Lamoille Rivers down to the Keri Middlebury and beyond, Doug professional fly fishers indicated that not only were © fish OK but they seemed to be prospering! Many of the streams now had improved trout habitat, with deeper pools and removal of sediments. My own subsequent "sampling" in two other systems confirmed this, as cooperative trout indicated they were healthy, plentiful and hungry. I also saw normal populations of smaller fishes and abundant streamside frogs.

How could this be? How could trout (and presumably other fish species) survive such massive and destructive disturbances? In short, they've been at this game a lot longer than we have. Fishes have dealt with floods, even massive ones, for hundreds of thousands of generations, and are well adapted to ride them out. Certainly there were mortalities and changes to



While tropical storm Irene caused major dammage to many humanmade structures, in some streams fish and aquatic invertebrates appear unscathed by the disruption.

stream structure, but plenty of fish remain and have resumed their normal lives. Brook and brown trout also appeared ready for their usual fall spawning.

What about aquatic invertebrates? I have less information on them, but believe they also did fine. First, trout that feed on these mayflies, caddisflies, and stoneflies all seemed to be robust and well fed. Second, casual overturning of rocks in streams showed that these insects were still present, though whether in normal or reduced numbers I can't be sure.

But not all is favorable in our aquatic systems. First, a tremendous amount of human debris flowed into and through our rivers. Houses, appliances, broken septic systems, and leaking oil and gasoline tanks obviously caused damage. Moreover, much of the debris and pollutant load, as well as

massive amounts of topsoil and enriched runoff from farms, have ended up in Lake Champlain or the Connecticut River and beyond, making for a toxic soup that will result in over-enriched (not to mention dirty) ecosystems for some time to come.

Another major problem is well-intended but misguided "restoration" efforts in our streams. Certainly there are cases where debris piles need to be removed and streams re-directed for human safety and rebuilding of our broken infrastructure, but beyond that we must allow our streams to be the highly dynamic and resilient systems they have been since well before humans entered the scene. Rivers seek their own equilibrium, and all too often our efforts to "control" them through ditching, rip-rapping, and streambed engineering result in the waters' energy simply being deflected further downstream, with disastrous results.

In sum, historic floods like we witnessed are not unprecedented on time scales relevant to natural

ecosystems and their inhabitants. It is the human "built environment" that suffers massively. We've been at this experiment for a woefully short time and can perhaps benefit from observing how nature takes care of itself in the face of such major disturbances.

—Gary Meffe, Ph.D., is former Editor-in-Chief of Conservation Biology and a VCE Advisory Council member from Brandon, Vermont.

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

SOLVING RED KNOT RIDDLES

Standing on the dock with a huge grin, Pierrot Vaillancourt, a Parks Canada boat captain in the Mingan Archipelago for over 20 years, handed me a piece of candy. "Everyone must have a candy for luck today," he exclaimed. After driving 18 hours from Vermont, much of it along a two-lane road on the north shore of the Saint Lawrence River, I wasn't one to argue about luck. I immediately stuffed the candy in my mouth. We had come a long way to help study endangered Red Knots.

Of the six subspecies of Red Knot (Calidris canutus), rufa migrates the farthest, logging over 20,000 miles from breeding grounds in the Canadian Arctic along the eastern seaboard of North America, to wintering areas at the tip of South America, and back. Now, these birds are in trouble. Over the

McFarland

last decade, counts of the rufa population in Tierra del Fuego dropped Clare from 56,000 to just 10,000 birds. Without intervention, the subspecies may go extinct.

Successful nesting by rufa hinges on breeders encountering suitable conditions in the Arctic. Most breed in barren highlands just above the Arctic Circle where the ground remains up to 75% snow-covered. These areas have few nest predators but are particularly vulnerable to climate change.



FINN MCFARLAND RELEASES A BANDED RED KNOT IN THE MINGAN ARCHIPELAGO NATIONAL PARK RESERVE.

Since the 1980s, Yves Aubry, a Canadian Wildlife Service ornithologist and long-time VCE collaborator, has known about flocks of knots here. In 2006, partnering with Parks Canada, he began to systematically study the migrants that stopped on these islands. Six years later, the project has dozens of collaborators throughout the hemisphere.

By capturing and placing colored markers on knots' legs, biologists are able to monitor their health, arrival and departure ecology, estimate population size, and most importantly, get

an estimate of the number of juveniles produced just a

month earlier in the Arctic. Mingan is their first stop.

To fuel their spectacular travels from one end of the globe to the other, knots rely on resources at key stopover sites. The most important northbound stop is the Delaware Bay, where migrants gorge on millions upon millions of horseshoe crab eggs. They arrive weighing less than an iPhone and leave for the Arctic at the weight of two. Without enough fat they may arrive on the still-frozen tundra with too few reserves to successfully nest, or worse yet, they may not arrive at all. Beginning in the 1990s, an increase in horseshoe crab harvesting for commercial bait appears to have greatly decreased the spawning population, severely pinching Red Knots.

Christophe Buidin and Yann Rochepault, local biologists working with Aubry on the project, quickly put us to work with orders in French, sprinkled with a bit of English for our benefit. A pair of steel pipes packed with gunpowder was placed in holes dug into the gravel behind a furled net. Each was loaded with iron weights, which were in turn attached to the leading corners of the net. Detonation wire ran from the cannons up a rocky shoreline to a blind.

After lunch, the capture plan was hatched. Aubry was the detonator, while I joined Buidin as a herder. For hours I plodded the cold waters in waders, moving the shorebirds toward the

The knots' southward return in late summer again necessitates food-rich sites, which brings both birds and biologists to this chain of islands in the Gulf of St. Lawrence, the Mingan Archipelago National Park Reserve. Many of these islands are what geologists call *cuestas*, tilted bedrock forming a cliff on one side and a long gradual slope on the other. Their shallow tidal zones are filled with high-energy foods that are coveted by migrating shorebirds.

Loaded with gear and lots of volunteer help, Captain Vaillancourt eased the boat onto the rocky shoreline at low tide. We jumped off the bow, tossed the gear onto the rocks and waved goodbye. We had just a few hours before the tide crept inward sending the knots to roost, hopefully within reach of our net.



net. As high tide neared, I heard Rochepault give the command over the radio: "un, deux, trois!" A blast erupted and the net shot outward and skyward, billowing in the wind. As the birds rose, the net settled them down, trapped beneath. Everyone raced to the net. Huddled underneath were scared but unharmed knots. Except for a few drab juveniles, most still had robin-red breast feathers from the breeding season. They were gathered into boxes, then placed into portable cages to await banding and release.

Later, as I watched my daughter release the last knot banded, white H6, I wonderd if we would be able to solve the riddles of the Red Knot decline so that her children, and theirs, would someday witness the migration of this remarkable shorebird.

-Kent McFarland

To fuel their spectacular northbound migration, Red Knots gorge on millions of horseshoe crab eggs during their stopover in the Delaware Bay.

VCE WELCOMES NEW CARIBBEAN COORDINATOR

VCE is pleased to announce the hiring of a Caribbean Coordinator for the International Bicknell's Thrush Conservation Group (IBTCG). Juan Carlos Martinez-Sanchez began work in mid-October, and it is clear he will be an excellent fit for this crucial, challenging VCE position.

Juan Carlos is Spanish by birth and received his undergraduate degree from the Universidad Autonoma de Madrid in 1980. He has since spent a diverse career as a conservation biologist, concentrating in field ornithology, throughout Latin America. His work has included not only research (he received a Ph.D. from the University of Washington in 2008, studying the

role of organic shade coffee production in conserving biodiversity in Nicaragua), but protected areas management, training of conservation professionals, and implementation of on-the-ground conservation initiatives. Needless to say, this background is extremely relevant to IBTCG's needs for Bicknell's Thrush-related conservation throughout the Greater Antilles. Juan Carlos is passionate about conservation and ornithology, and he is eager to share his passion and knowledge with diverse groups of people.

Juan Carlos recently moved to Port-au-Prince, Haiti, a fortuitous relocation that places him squarely in the heart of IBTCG's Greater Antillean focus area. Although we expect his first few months to be concentrated on Hispaniola, which harbors most of the global wintering population of Bicknell's Thrush, ultimately Juan Carlos will initiate IBTCG activities on Jamaica, Puerto Rico and Cuba.

© Loretta Garden

VCE welcomes Juan Carlos Martinez-Sanchez as our new Caribbean Bird Conservation Coordinator.

This is an exciting development for VCE and IBTCG, for mon-

tane forest conservation in the Greater Antilles, and for the Caribbean bird conservation community. By the time you read this, Juan Carlos will have spent the better part of three weeks at VCE, visiting numerous IBTCG partners around the Northeast from Washington, DC to Quebec City and Ithaca, NY. He is now back in his new home, tackling our ambitious agenda in the Dominican Republic and Haiti. We welcome Juan Carlos to VCE and the IBTCG!

—Chris Rimmer

VCE PROJECT UPDATES

Record Loonwatch Count

Vermont's mid-summer loon population reached new heights in 2011. Volunteers counted 271 adult loons on 162 lakes during the annual statewide Loonwatch survey on July 16, compared to 228 adults tallied in 2009 and 210 in 2010. This increase resulted from more lakes being surveyed, excel-



Volunteers counted 271 adult loons during the annual Loonwatch survey this year, and despite wet weather in April and May, 51 pairs nested successfully.

lent weather, and simply, more loons. The biggest increases in loon numbers were observed in north-central Vermont, where 25 to 30 more adults were found than in the past several years. Trends included more individual loons on smaller ponds, and more loons congregating on larger lakes.

Despite a wet April and May and the late-arriving summer in southern VT, nesting loons had a strong year overall, with 71 pairs attempting to nest statewide and 51 of those being successful. Nesting was delayed by several weeks for many pairs because of high water, but only a few nests actually flooded. Eighteen traditional pairs did not nest in 2011, which may be attributable to high lake levels and competition from intruding extraterritorial birds. About 60 loon chicks survived through August, a lower number than in the past two years (74 in 2009, 70 in 2010). However, Vermont's average productivity of nearly one chick per nesting pair remains far higher than any other northeastern U.S. state.

Overall, we had three known adult mortalities on Bald Hill Pond, Echo Lake (Charleston), and Wolcott Pond. On a positive note, we successfully rescued several loons from entanglements or ingestion of fishing line, crash landings on ponds too small to allow take-off, and even accidental plunges over dam spillways. By the time you read this, we may have tried for a fifth time to capture a loon caught in fishing line on Harriman Reservoir. In the future, if you fish, <u>please</u> reel in when loons are diving nearby, as line entanglement is a major but entirely preventable problem.

Bald Eagles were repeatedly observed flying over loons and loon families on several lakes, but no confirmed chick mortalities could be attributed to these birds of prey, whose numbers are steadily increasing statewide.

Video of the loon capture on Tafts Corners pond in Williston is available at volunteer Gail Osherenko's blog site: **www. vermontloonblog.wordpress.com.**

There is also an excellent article on New England loons in the July/August edition of Yankee magazine, which is available online at: www.yankeemagazine.com/issues/2011-07/features/loons-squam-lake-nh

—Eric Hanson

Wendy Cole

Launching Mountain Birdwatch 2.0

The Mountain Birdwatch 2.0 launch is complete! In 2011, MBW2 opened its doors—or rather, its survey routes—to volunteers. With training workshops held in New York, Vermont, New Hampshire, and Maine, volunteers gathered to learn new protocols, meet other intrepid mountain surveyors, and practice simulated point counts using recordings of target species broadcast through very un-birdlike speakers. Our hardy volunteers surveyed 65 routes in June, with MBW technicians sampling an additional 50, for a total of 573 stations surveyed. Bicknell's Thrush was detected at 33%



HALLELUJAH, IT'S THE HIGH PEAKS! TECHNICIAN EMILY UNDERWOOD CELEBRATES THE COMPLETION OF ANOTHER SUCCESSFUL MOUNTAIN BIRDWATCH POINT COUNT.



MOUNTAIN BIRDWATCH SURVEY EXPLOSION! TECHNICIAN WENDY COLE DRIES HER SOAKED CAMPING GEAR ON BIG SLIDE SOUTH IN NEW YORK.

of these stations, which amply meets the survey goals of the new program.

This field season also marked the first year of an international Mountain Birdwatch program. Although the highest concentration of breeding Bicknell's Thrush exists within the U.S., southern Québec supports the majority of potential breeding habitat for this species, with additional pockets of habitat in Nova Scotia and New Brunswick. Our collaborators at Régroupment Québec Oiseaux surveyed 58 routes with 338 point counts in Québec, while Bird Studies Canada surveyed 15 routes with 88 point counts in Nova Scotia and New Brunswick.

Currently, MBW2 is calling all volunteers, old and new, for the 2012 breeding season. With 129 routes available across four states, volunteers can select from an extensive and diverse array of survey opportunities. Some routes can be accessed by 4WD on remote logging roads; others require hikes to access largely untouched wilderness. Whether you're a hard-core birder or just love to hike in the Northeast, we'd love to have you join this program.

-Judith Scarl

Breaking New Ground with Bobolink Geolocators

For decades avian ecologists have emphasized the importance of understanding the entire annual cycle of migratory birds to more effectively conserve their populations. Four years ago, VCE capitalized on the emerging technology of light loggers called "geolocators" to track Bobolinks throughout the year (see spring 2010 Field Notes for details). VCE has steadily improved attachment methods to increase the success of geolocators deployed on Bobolinks, waiting an entire year for the outcome of each new design. Our efforts have paid off, and we have now retrieved enough units to generate groundbreaking insights into the species' 12,000mile roundtrip annual migration.

In 2011 we retrieved 13 geolocators from Bobolinks that bred in Vermont, Nebraska, and Oregon; 12 provided data depicting daily locations of birds during migration and winter. Combined with data from three geolocators retrieved in 2010, we are now able to piece together the phenology and geography of Bobolink migrations and identify their wintering areas. These findings would not have come to light without our dedicated collaborators at the University of New England, the Platte River Whooping Crane Maintenance Trust, the University of Vermont, and the Smithsonian Migratory Bird Center.

The 2011 field season brought a few extra bonuses. For the first time, we retrieved geolocators from Bobolinks breeding in Oregon, after flooding of the breeding site thwarted recapture efforts in 2010. Geolocators were recovered from two males and two females. In addition, we recovered a second consecutive year of data from a male at our Nebraska site.

Preliminary inspection of these data reveal a trove of discoveries. Contrary to expectation, Bobolinks from Oregon headed east in the fall and then followed traditional migratory routes of eastern populations, although the annual autumn occurrence of Bobolinks on the Galapagos suggests that some birds take an alternate, western route. Two Vermont Bobolinks wintered in Bolivia, confirming earlier VCE discoveries of presumed overwintering populations in that



WEIGHING LESS THAN A GRAM, GEOLOCATORS ARE ATTACHED LIKE BACKPACKS TO THESE LONG-DISTANCE MIGRANTS.

© Phil Johnson



DATA RETRIEVED FROM GEOLOCATORS ARE GIVING US GROUNDBREAKING IN-SIGHT INTO THE BOBOLINKS' 12,000-MILE ROUNDTRIP ANNUAL MIGRATION.

country. Venezuela, Bolivia, and the Caribbean appear to be important stopovers. The male that yielded two consecutive years of data used remarkably similar migratory paths and wintering areas in each year. Many new insights promise to emerge once we fully analyze the data, with conservation implications that range from identifying stopover hotspots to connecting discrete breeding and wintering populations.

-Rosalind Renfrew

Vermont Vernal Volvo Mapping Project!

After countless hours tediously scanning more than 1,600 color-infrared aerial photographs of the entire state of Vermont through a stereo-scope, we are excited to announce that 4,869 potential vernal pools have been mapped statewide. And thanks to a hardy corps of volunteers who braved black flies, thunderstorms, and failing GPS batteries, more than 500 vernal pools have been field verified. Often armed with little more than GPS coordinates and an interest in these tiny wetlands, Vernal Pool Mapping Project (VPMP) citizen scientists set out, unsure of what they would find after bushwhacking to a designated spot. Picking out tiny wetlands on aerial photographs is far from an exact science—it's often difficult to differentiate between vernal pools and other types of wetlands, although topography and drainage patterns can help. Further, because water and shadows both appear black in aerial photos, distinguishing between the two can be impossible. So, for every three potential vernal pools visited, one turns out to be something other than a vernal pool. Sometimes it's a seep, swamp, or man-made pond, and occasionally it's nothing at all—apparently a shadow that looked like water. One potential pool in a small hemlock stand turned out to consist of three abandoned cars, including a Volvo 544 from the early 1960s!

In an effort to boost our sample size of field-verified pools, we will conduct one more season of fieldwork next spring before analyzing data and producing a final map of potential and known vernal pools in the state. In the meantime, we're beginning to plan our next steps to advance conservation of these vital wetland habitats. One intriguing option is to launch the Vermont Antique Volvo Mapping Project!

—Steve Faccio



VERNAL POOL OR...? FOR EVERY THREE POTENTIAL VERNAL POOLS VISITED, ONE TURNS OUT TO BE SOMETHING OTHER THAN A VERNAL POOL!

Volunteer Opportunities

Come join the VCE team! We have plenty of opportunities to get involved, and our staff is always interested in working with enthusiastic volunteers who have a passion for helping us acheive our conservation mission.

- * Cataloging photo and slideshow files
- * Digitizing photos
- * Typing historical field notes



- * Entering historic bird sightings into eBird
- * Assisting with major mailings
- * Data entry

A TRIBUTE TO PAT NYE: LOON PROTECTOR EXTRAORDINAIRE

Pat Nye, a passionate lover of loons and longtime VCE friend, passed away in August after a long and courageous battle with cancer. Among Vermont's legion of committed loon conservationists, no one exuded more fervor and dedication to loons than Pat. The breeding pair on Mt. Holly's Lake Ninevah could have had no greater champion, and in many respects the Ninevah loons were truly "hers".

Born in Niagara Falls, NY, Pat had an itinerant childhood, as her father's job with the New York Central Railroad led to many moves around the state. Early family camping trips to the Adirondacks instilled her love of the outdoors and nature. Soon after graduating from St. Lawrence University, she was married, moved to the Connecticut coast, and was introduced to another lifelong passion: sailing. Music and gardening were also great interests, but sailing and birding took center stage. An early encounter with a Great Blue Heron fueled her interest in birds, and frequent watches from a sailboat deck honed her expertise with both coastal and pelagic birds. Pat had a sharp eye and kept detailed records of her observations as an adult.



PAT PARTICIPATING IN TWO OF HER LIFELONG PASSIONS: SAILING AND BIRDING.



PAT NYE, LONGTIME FRIEND AND SUPPORTER OF VCE, WAS KNOWN FOR HER NO-NONSENSE APPROACH TO SAFEGUARDING THE LOONS OF LAKE NINEVAH.

In 1994, Pat and her husband Richard moved to Mt. Holly, settling in a home tucked into Lake Ninevah's wooded north shore. After observing loons on their maritime winter haunts for years, Pat became enamored, and then fiercely protective, of the Ninevah loons. The species was still state endangered at this time, and Lake Ninevah did not have a known history of loon nesting, so few lake residents and users were well educated in loon conservation, let alone proper "etiquette" during the breeding season. Pat changed all that in a hurry. Although small in stature, she was a force to be reckoned with when welfare of the Ninevah loons was at stake! Stories abound of Pat's no-nonsense approach to informing lake users when they strayed too closely to the loon nest or family. On more than one occasion, a bullhorn came into play, and laser-like launches of a canoe or kayak were often involved.

Pat's passion for loons reflected the close connection she felt with Vermont's Green Mountains and her deep care for the planet's

health. Committed to her core to Ninevah's loons, and almost single-handedly responsible for their long track record of successful nesting, Pat's zeal was fundamentally about giving back. However, she'd be the first to admit that she gained far more from the loons than she gave. The birds connected her to the landscape that was so much at the fabric of her being-from Ninevah's waters, to the forests and mountains beyond, even to the ocean waters that stirred her soul.

All of us at VCE take comfort in knowing that Pat's son Will and his family (Amber, Trinity and Caleb) will carry on her legacy on Lake Ninevah. We miss you, Pat!

-Chris Rimmer and Eric Hanson



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Field Notes Vermont Center for Ecostudies PO Box 420 Norwich, VT 05055

RUSTY BLACKBIRD (EUPHAGUS CAROLINUS)

Fifty years ago, when huge blackbird flocks darkened winter skies in the southeastern U.S., the Rusty Blackbird was a commonly spotted member of these groups. The Rusty is the most ecologically specialized North American blackbird and breeds in boreal forest wetlands ranging from northern New England throughout Canada and Alaska. It winters in forested wetlands of the southeastern U.S., joining other blackbird species to roost at night. Beginning in the 1960s, this species underwent an acute decline and has since experienced losses averaging 10% of its population annually. Despite suffering one of the most severe declines known for any once-common North



With populations sharply declining, interest in the Rusty Blackbird has spiked, and scientests are working to better understand reasons for the downward trend.

American bird, the Rusty's downward slide occurred without fanfare; the species' estimated 85-99% drop in numbers over 40 years was not formally recognized until 1999.

Understanding the Decline

The causes of this widespread population crash remain a mystery. Scientists hypothesize that changes in habitat may play a major role. More than 80% of bottomland forests in the southeastern U.S. have been converted to agriculture since the 1800s, and loss of boreal wetlands combined with acid

rain and changes in hydrology may have further reduced available habitat. With a summer diet that includes aquatic invertebrates and small fish, this species may also be particularly susceptible to mercury accumulation, which can impair reproductive success.

The Rusty Blackbird Conservation Movement

Recently, interest in the Rusty Blackbird and its plight has spiked. In 2005, a group of scientists formed the International Rusty Blackbird Technical Working Group to delve into the mysteries of this declining species. Scientists across central and northern North America are studying Rusties to better understand their basic ecology, habitat use, and response to changing habitat conditions. Answering these fundamental questions will allow us to develop management plans to protect this once-common, but now vulnerable songbird.

Fun Facts about Rusty Blackbirds

Fast Fliers: Rusty Blackbirds can fly at speeds up to 34 miles per hour. Imagine trying to track this species on foot through

the bogs, swamps, and vernal pools it prefers for breeding!

Flock Fun: While most Rusty Blackbird pairs breed solitarily, a few loose nesting aggregations, or "colonies", exist. Groups of pairs may serve to protect nests from predators.

Black Breeders: Unlike many songbird males whose vivid breeding plumage gives away their identity, male Rusty Blackbirds sport their distinguishing rust-colored feathers only in winter and are pure glossy black during the summer months.

Meat Munchers: While the main Rusty diet consists of invertebrates and seeds, some individuals may occasionally attack and eat other birds!

www.vtecostudies.org

Male Rusty Blackbird