

# Field Notes & Ecolog

May 2007 Volume 18



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Ecological Planning programs  
at the University of Vermont





# Global Challenges, Global Change



Jeffrey Hughes  
Deane Wang



While some folks are still debating the reality of global climate change, the rest of us are debating how to meet the coming challenges. Change in the foundations of living systems — such as increase in atmospheric air and surface ocean temperatures, increase in energy driving climate circulation patterns, and altered temporal and spatial distribution of precipitation—will differentially affect humans at all levels of organization, from individuals to communities to institutions to states and countries. At stake are climate refugees, coastal flooding, regional drought, regional famine, storm damage, job migration, spread of tropical disease, and new invasive species problems.

As human systems become overstressed, resource-based conflicts multiply and the integrity of human communities and natural ecosystems weakens. How do we keep this from happening? To begin, we must change perceptions. Actions at the local level may appear inconsequential when viewed in isolation, but few local actions today remain isolated. Seemingly inconsequential actions can rapidly morph into very consequential global changes that affect the well-being of individuals, communities, corporations, and governments everywhere. It is our responsibility to help the public understand that the well-being of human and natural systems is one and the same, and that local action is a critical step to initiate change.

The speakers in our lecture series this year, *Conservation in the 21st Century — A*

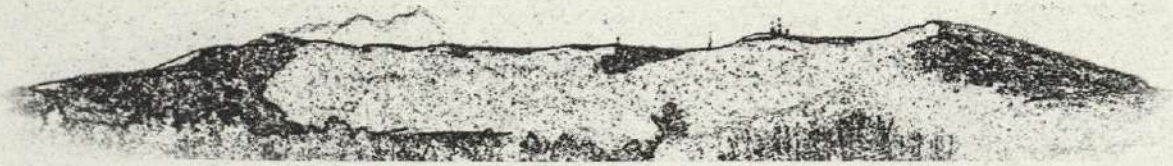
*Challenge for Leadership*, have repeatedly stressed the need to approach conservation in a way that integrates human actions and ecosystem processes. The ever-evolving curricula of the Ecological Planning (EP) and Field Naturalist (FN) programs are designed to meet this need — Ecological Planners approach it somewhat more from the policy and planning side, Field Naturalists somewhat more from the natural sciences side. In working together over the past decade, we have created a dynamic curriculum that meets in the middle, but how do we respond to global change?

The core of the FNEP experience — hard science in the field, integration of disciplines, exemplary communication skills, and landscape-level problem solving — will always be supremely relevant. Abandoning them is therefore unimaginable. But delivering this experience in ways that are more effective, more efficient, and more relevant *must* be imaginable. That's why it is so important that you share your experience, advice, counsel, exhortations, and ideas with us about what tomorrow's FNEPs really need. We rely on today's conservation leaders — YOU! — to keep us ahead of the curve. Our mission is too important, and the stakes too high, for us to settle for anything less. So continue to do your part, please, and stay in touch!

-Deane Wang, director of the Ecological Planning program & Jeffrey Hughes, director of the Field Naturalist program

Congratulations to our Field Naturalist director, Dr. Jeffrey Hughes, whose new book, *Environmental Problem Solving: A How-To Guide*, is now available through the University of New England Press. Get it while it's hot off the press!





## Field Notes & Ecolog



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The Field Naturalist (FN) and Ecological Planning (EP) Programs provide graduate-level science training for environmental professionals. EPs and FNs learn a “pieces, patterns, and processes” approach to landscape analysis, acquire powerful environmental problem-solving skills, and hone their abilities to communicate effectively with a broad spectrum of audiences.

Field Notes and Ecolog, an annual publication, encourages the exchange of news and ideas among past and present FNs, EPs, and friends, while presenting the programs to audiences beyond the UVM campus. We welcome all comments and submissions.

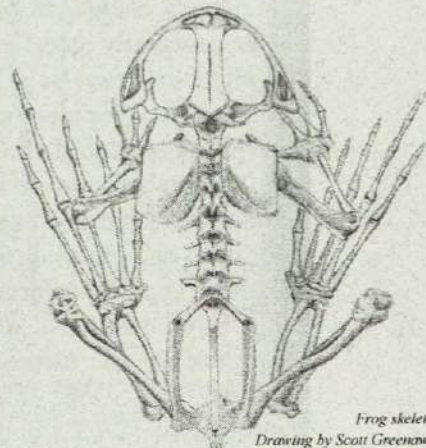
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*Frog skeleton  
Drawing by Scott Greenaway*





# Attention, Shoppers

Fostering a sense of place on a developing landscape

Each spring semester the first year students of the Field Naturalist and Ecological Planning (FNEP) programs take a course called Place Based Landscape Assessment (PLA). It has been a key part of the curriculum for years, where students apply the natural history and field observation skills gained during the previous fall semester in a real-world consulting role. But as in nature, evolution is a constant process in the FNEP world. When Walter Poleman, the instructor of the course, saw the headline, "Attention Shoppers: Williston is Not All Mall," he realized there was a great opportunity to evolve the course.

Poleman explains, "This front-page headline in last September's Burlington Free Press piqued my interest and set the stage for this spring's course. Despite being home to Vermont's largest retail box store complex, the Williston landscape has often been a favorite destination for Friday Field Walks celebrating salamander migration, ancient glacial lakeshore sands, and wetland ecology."

While past PLA teams have focused on single tracts of land, such as the Hinesburg Town Forest tract inventoried by the 2006 team, Walter's vision has enlarged the scale of this year's focal landscape to encompass the entire town of Williston. He explains, "Though it may seem counter-intuitive, I think Williston is an especially good choice of landscapes for the course precisely because of the recent economic development and land-use changes. It represents mainstream America far better than most Vermont towns, and provides a unique opportunity to explore the link between education and planning in a town undergoing relatively rapid transformation."

Another new aspect of the course this year is its partnerships. Students are working with the Williston Conservation Commission (WCC) and the PLACE (Place-

based Landscape Analysis and Community Education) program. The WCC advises the Williston Planning Commission on matters concerning conservation. PLACE currently has programs in several towns around the state and several FNEPs have conducted their master's projects on the implementation of such programs.

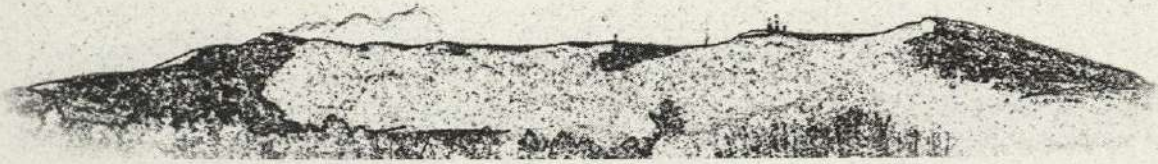
Carrie Deegan of the WCC, an Environmental Planner for the Town of Williston, sees great potential in the partnership saying, "Over 75% of Williston remains a very rural area of low-density residences and working landscapes, and the PLACE program can help inform the wider community about Williston's significant natural heritage. Among Williston residents, the WCC hopes the PLACE program can help encourage a sense of place, belonging and pride in the community's resources. With this type of community support, future conservation projects will be more likely to succeed."

So how exactly are the students going to inventory and assess the Williston landscape? They begin by dividing the landscape into five different layers: substrate, hydrology, vegetation, wildlife, and cultural features. The ten students then divide into groups of two, each studying one of the layers.

The primary aim of the course stems from its partnership with the PLACE program, whose mission is to "promote a sustainable relationship between communities and their local landscapes by engaging residents in exploring, understanding, honoring and celebrating the natural and cultural features that contribute to their town's character." The class has chosen four specific sites to study in more depth. Some of these sites are on private land, giving students the opportunity to collaborate with private landowners. The PLA team will be producing a map-rich website covering the

Home to Vermont's largest big-box store complex, Williston has often been a favorite destination for Friday Field Walks.





five landscape layers, with detailed reports highlighting the four specific sites.

Just how the students will help inform the wider community is an evolving part of the picture and one that is enhanced by support from FNEP graduate Jesse Mohr. "This year we have put an increased emphasis on telling the town-wide story. Geographic Information Systems (GIS) allow us to step back and take the broad-scale view that is necessary to understand town-wide patterns and processes. Developing this large-scale understanding is only part of it, though. GIS is also a powerful communication tool; the students will be assembling a 'Williston Map Viewer.' From this GIS-driven interactive map, computer users who are connected to the Internet will be able to view, create and print maps of their own," said Mohr.

Deegan hopes that such innovative communication efforts will "encourage public participation in conservation planning in Williston and [she] would be thrilled to see more community involvement in the WCC's activities."

This year's PLA partnership does not end with the WCC and the PLACE program.

The PLA team will also engage with the students and faculty of the Pine Ridge School, a school for young adults with learning disabilities. Through interactive site visits, Pine Ridge students will share what they know of their landscape and learn from the PLA team. Pine Ridge faculty Reese Hersey and Paul Brown see this opportunity for their students to interact and share information as "play[ing] to many of their alternate intelligences, and so reopen[ing] avenues back into the more traditional scholastic realms." They hope their students "will see how other folks go about studying the same ground and simultaneously have some of their ideas about serious studentry illumined and demystified."

The prospects for what might develop after this course are exciting. According to Walter, the PLA students are "hard at work deciphering the natural and cultural history of this landscape in transition, and will be presenting their findings to the Williston community in May. Their work will set the stage for the possibility of a full-blown PLACE program next fall."

*-Matt Peters EP-X8 & Ryan Salmon FN-X8*



Matt Peters and Jesse Fleisher examine bobcat tracks near Lake Iroquois.



The PLA team investigates a dry oak-hickory-hophornbeam forest in Williston. Back row (left to right): Matt Peters, Walter Poleman, Ryan Salmon. Middle row: James Barnes, Emily Schadler, Ashley Lidman, Rebecca Washburn, Sara Mulford. Front row: Jesse Mohr, Erin Haney, Jesse Fleisher. Not pictured: Bob Zaino.





# Nine Ways to See a Nest

*Katie Pindell spent her summer searching for birds' nests at the Audubon Center in Huntington, Vermont. Here, she offers an insider's view on the subtle art of seeing nests. Read more about her summer work on page 18.*

**1.** Using a stick to brush aside the hobblebush leaf, set like an acorn cap atop the nest, you can peer into the cup to see four white eggs. The eggs glow from within, the color so rare in the natural world, vulnerable against the mottled tones of bark, leaf, and litter.

(Black-throated Blue Warbler)

**2.** Laying on your belly on guano-crust rock, you are face to face with a growling bird guarding the entrance to a miniature labyrinth. Disregarding the discretion your mother taught you, you reach behind the snapping black bill and feel two soft downy chicks.

(Razorbill)

**3.** Knee deep in forest ferns, you hear a frantic, pleading sound from within an aspen. A flurry of wingbeats moving through the mid-canopy intensifies the noise. A bird squeezes through a

tight, perfect circle, and disappears into the tree, just above a shelf fungus.

(Yellow-bellied Sapsucker)

**4.** A bird hesitates on a low branch near the edge of a beaver pond. Her beak is brimming with dead leaves. You stand so still you almost lose your balance. She disappears into a swath of ferns and reappears with nothing in her beak.

(Veery)

**5.** Feet stomping, you chase the bird carrying grasses. In no more than ten meters or ten seconds she alights on a birch bark platform nestled in the first fork of a maple sapling. She pushes the grass in and settles chest down, rocking her body into the mass of litter. You feel embarrassed, seeing her here, in her most vulnerable moment, tenderly moving to the rhythm of instinct.

(Chestnut-sided Warbler)

**6.** You have to walk deliberately to avoid stepping on a nest. The birds hammer at your head, leaving a blood trickle running out of your ski cap and down your cheek. A bird stuffs a finger-length white hake down the throat of the young, but a rival quickly swoops and yanks out the fish before the chick can choke it back.

(Common Tern)

**7.** Small strips of tundra vegetation attract your attention from the monotony of arctic sand, ice, water, sky. Seconds before you step on them, four mottled cranberry eggs appear in a mossy depression, nosed together at their pointed ends.

(Baird's Sandpiper)

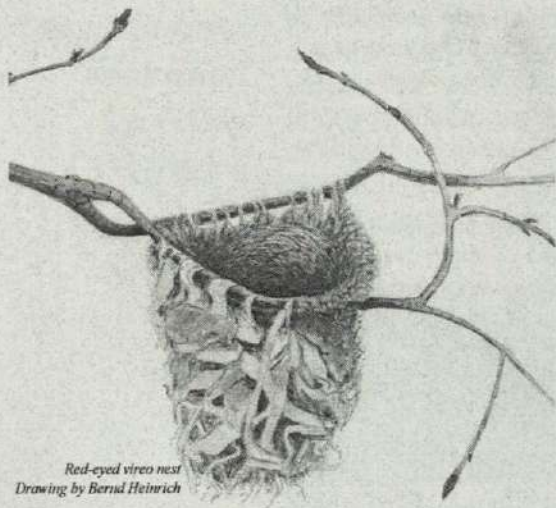
**8.** In the forest you are drawn to a line of old matriarch sugar maples. Out of the sky fall talons, feathers, and a screech like a nightmare. The bird reaches within inches of your ducking head and you retreat. You look back and the beast is perched at the edge of a pile of sticks in a pine tree.

(Northern Goshawk)

**9.** Casting your line against the backside of a half-submerged boulder, your eyes are caught by motion around the next bend in the river. Not fish, but birds dart in and out of perforations in the bank like they are stitching it up. You stop, mesmerized, because their motion is fluid above the water.

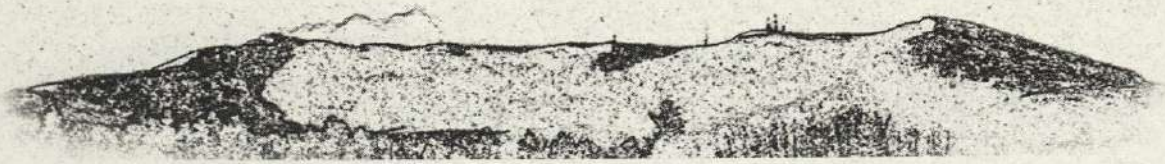
(Bank Swallow)

-Katie Pindell, FN-W7



Red-eyed vireo nest  
Drawing by Bernd Heinrich





## Reflections at Mirror Lake

A misty, early October morning, with thick linear clouds hovering just above the lake, envelops me as I slowly walk up the hill to campus. I quietly make my way to Giselle (the Botany van) where my cohort is waiting.

I sit alone in the back of Giselle and watch the van carry us south through the fog-laden Winooski River Valley. Wiping away the condensation that has collected on the window next to me, I get a glimpse of the Mansfield mountain range. The mountaintops and ridgeline are free of clouds. They are magnificently defined against the rising sun, as if nature had enhanced the mountain line with a fine-point pen.

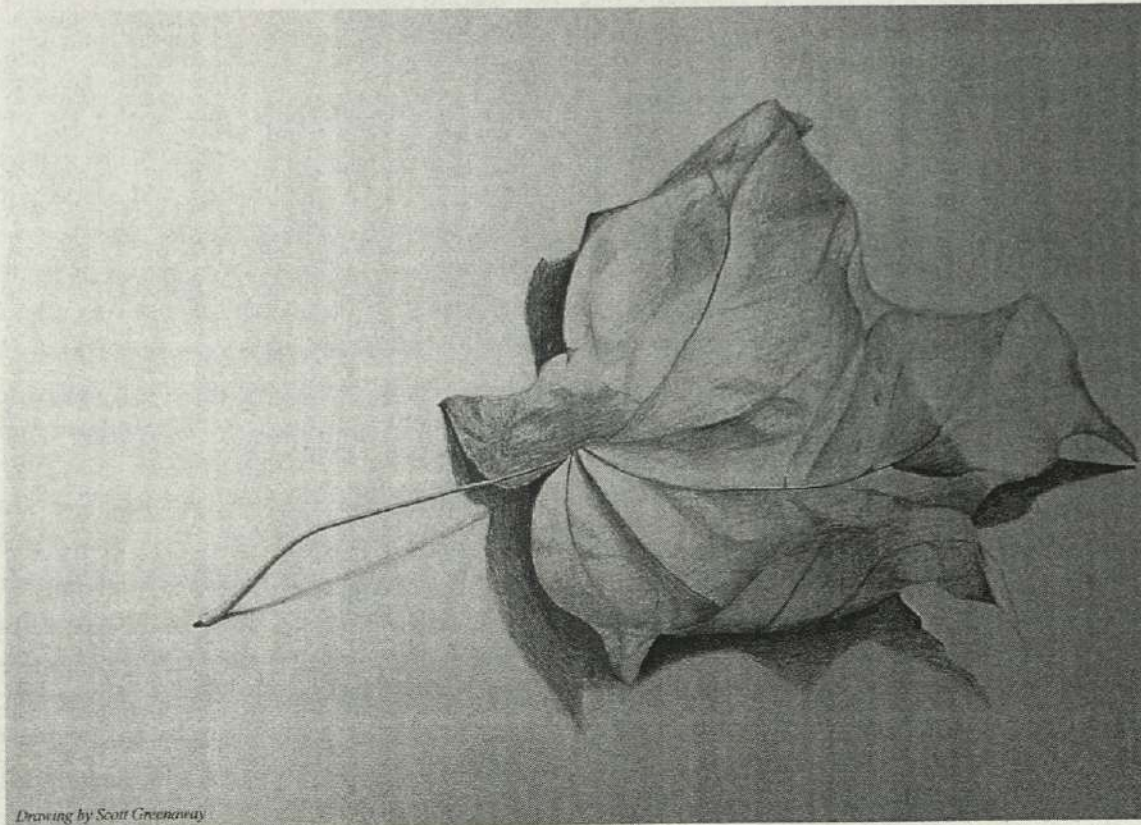
The theme of the day is indigenous landscape knowledge led by Susan Grimaldi, a practicing shaman who has traveled to the Amazon and China to study and practice direct

revelation with nature and humans. She does not use scientific jargon to describe the plans for the day instead she speaks as if she is creating an illustration.

Susan exudes a tranquility and slowness foreign to me in my hectic graduate school world. She begins our walk by asking us to listen to the sounds of a drum and to “set an intention.” She encourages us to use our senses and intuition to recognize the patterns and knowledge of the landscape.

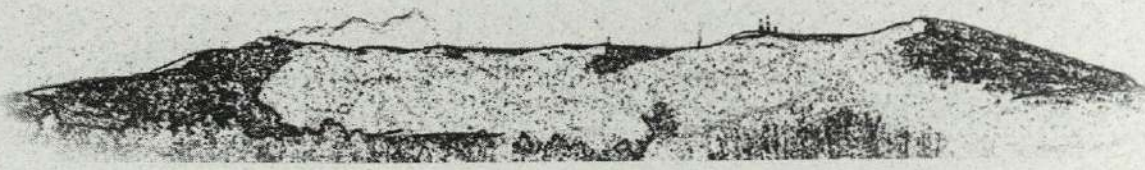
During the ten minute drumming, I “set an intention” to plug into my five senses and put aside my scientific understanding of landscapes. The rest of the day drifts into a collection of sounds, images, smells, feelings and textures, all mirrored by reflections from within.

-Erin Haney, EP-X8



*Drawing by Scott Greenwood*





## Meet the X8 Team: A Field Guide to the Field Naturalists and Ecological Planners, Class of 2008

If **Ryan Salmon's (FN)** professional goal could be summed up in one sentence, it would be to make a big splash in the world of conservation, turn that splash into a wave, and that wave into a tsunami. He came to the Field Naturalist Program believing that an ability to seamlessly communicate science across disciplines is a key to conservation leadership.

Ryan comes from the high desert region of central New Mexico where he grew up climbing cottonwoods on the banks of the Rio Grande. His childhood love of the outdoors matured during his high school years, when he developed interests in wildlife tracking and wilderness survival skills.

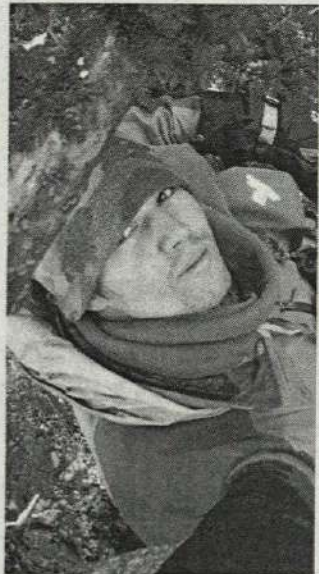
These interests led Ryan to the coast of northern California to continue his studies at Humboldt State University. There, Ryan designed his major entitled Wilderness Systems Analysis, which combined wildlife biology, natural resource conservation, and wilderness skills. For the final part of his degree, he took a year-long hiatus from the university scene to participate in a residential program at Wilderness Awareness School in western Washington where each class day began with the making of a friction-fire, often in pouring rain. Upon his return to California to finish his degree, he co-founded the Student Naturalist Club, whose members still naturalize every weekend.

After graduation, he worked as a Youth Conservation Corps supervisor in Texas. Then he spent five months in Latin America, studying Spanish and Latin dance, before landing in Burlington, Vermont for graduate school. When not busy polishing his skills as a conservation leader, you are most likely to find Ryan on the dance floor, spinning any willing partner to the infectious grooves of Latin music.

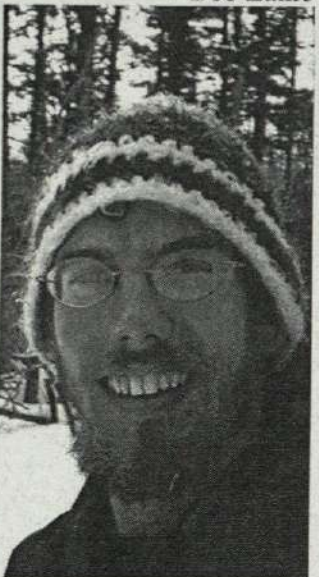
**Bob Zaino (FN)** grew up in a New Jersey suburb. Fortunately, it was within walking distance of Cushetunk Mountain where he spent countless hours tromping back and forth over the low, forested ridge. He followed deer tracks, scrambled over rocks, and became a dedicated woods wanderer. That urge to wander soon took him further afield. Along with his father—his frequent hiking companion—Bob explored all places wild and natural in New Jersey. In the process, he wore out several pairs of hiking boots and gained a lasting respect for the natural beauty of his native state.

Bob's next journey took him north to the coast of Maine and Bowdoin College, where he majored in biology and environmental studies. He completed a senior project on the behavioral ecology of Savannah Sparrows and also took classes in environmental philosophy. By the time he graduated, he had concluded that neither science nor philosophy alone could adequately answer two important questions: "What are we trying to conserve?" and "Why are we trying to conserve it?" With the goal of inspiring others to think about these questions, Bob stayed in Maine to teach ecology and sustainable living to middle-school students at the Tanglewood 4-H Camp and at the Morris Farm Trust.

After several years of teaching, Bob has become a student again. He hopes the Field Naturalist program will help him better answer both what and why we should conserve. And, of course, Bob is still a woods wanderer. You can often find him out hiking in the mountains, telemark skiing, or making comical attempts at canoe poling (the delicate art of standing up and pushing your boat upstream).

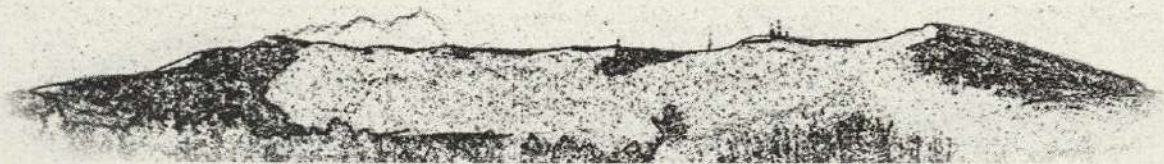


Ryan Salmon



Bob Zaino





**James Barnes (FN)** hails originally from the mountains and foothills of northwestern North Carolina. Throughout university James gravitated towards the sciences, particularly the molecular sciences. An interest in cutting-edge work and the human mind led him to specialize in neuroscience at North Carolina State University.

Following graduation, James found employment as a research technician in a neurobiology lab at Davidson College. While the work was fascinating, it soon became apparent that something was missing. James found himself attending ecological seminars, and becoming active in the local land trust. While browsing the websites of various medical science degree programs late one evening, James reevaluated his relationship to the central crux of medicine. "I want to help people" made total sense when changed to "I want to help the environment."

James spent the following year pursuing practical conservation knowledge. He joined the Nevada Conservation Corps Americorps program and worked on restoration and preservation crew projects throughout the American West. This experience enlightened James to the complex and important relationship between governmental land agencies, NPO land agencies, and the public at large. The experience also forced him to ask some hard questions about the nature and direction of the conservation movement. Following Nevada, James volunteered at an animal shelter in Guatemala, worked on his Spanish while traveling throughout Latin America, and volunteered at organic farms in New Zealand.

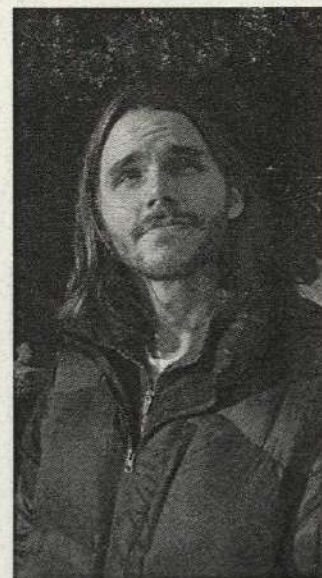
At present, James finds himself for the first time in what he considers the arctic tundra of the Northeast. As a Field Naturalist, James wants to derive ecologically sustainable solutions that create momentum for conservationists and the public at large. When he's not dreaming about saving the world, James enjoys pickin' and grinin', an occasional homebrew, and awkwardly learning how to snowboard.

Growing up in central Ohio, **Emily Schadler (FN)** was landlocked and flat-landed as a kid, happy with a tree house in her backyard and a salamander-filled creek down the road. When her dad took her on her first backpacking trip in California's Cascade mountains, though, she was instantly hooked, and her love for wilderness hasn't subsided since.

By the time college rolled around, she knew that she wanted to work towards environmental problem-solving. At the College of Wooster in Ohio, she studied cultural connections to nature through writing, as well as environmental science and politics. She gained valuable experience through hands-on work, organizing environmental campaigns on campus, studying natural resources in the Brazilian Amazon, and serving as a representative for the US Student Climate Summit.

After college, she decided that writing and politics meant spending more time indoors than she wanted, so she headed west to Colorado to hike, mountain bike, and poke around bear dens in the Rocky Mountains near Boulder. Later, she taught middle school students at an outdoor education center back in Ohio, and eventually landed in New England, 1/2 mile down the road from Walden Pond in Concord, Massachusetts, where she explored the local landscape with the help of Thoreau's natural history journals. She also began working as a naturalist for a nearby Massachusetts Audubon Society nature sanctuary and sustainable farm, where she was happy to be a field teacher one day, a gardener or trail designer the next.

While she enjoyed working as an environmental educator, Emily wanted to focus her work more directly on conserving land in a way that strengthens our culture's stewardship ethic. Through the Field Naturalist Program, she is happy to be concentrating on the big picture surrounding conservation science. When not at school, Emily is most often found sledding head-first down the access road at Mt. Philo.

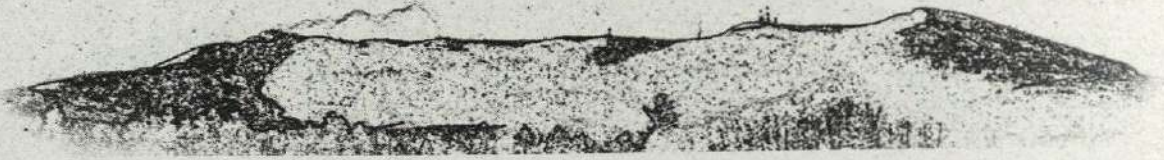


James Barnes



Emily Schadler





**Sara Mulford (EP)** grew up with three brothers and an assortment of pets in Virginia Beach, VA. Since her dad was a professor and had a lengthy summer break, she and her family escaped the asphalt and strip malls of suburbia for weeks at a time to camp and hike in the Adirondacks, coastal Maine, and the hills of Virginia and West Virginia. Interacting with nature, frequent trips to the mountains, and getting away from developments and consumerism are the themes of her childhood.

Sara earned her B.S. in Biology at Houghton College in western New York, slipping in a semester in the Himalayas and a semester in Tanzania. Field Botany, Sustainable Agriculture and Alpine Ecology are the three courses that Sara considered to be life changing and inspiring. Living in an intentional community, taking extra courses in photography, ceramics, kayaking, rock climbing, and equestrian studies, and spending the seemingly endless winters cross-country skiing and making quilts provided Sara with a wide range of outlets for fun and creativity and friendships during school and beyond.

After college, Sara traveled to the mountains and wilderness in Colorado to work with adjudicated youth. Since then, she has worked as a teacher's assistant in East Africa, a barista at an independent coffee shop, an Assistant Crew Manager with the VYCC in a Vermont State Park, and as the Aquatic Nuisance Species Sticker Coordinator for the Vermont Department of Environmental Conservation.

Through her frequent outbursts of, "I love Vermont!" and, "That was the most exciting day of my life!" after a day in the field, she leaves little room for doubt that she is thoroughly excited to be living here and studying at UVM. Sara's life guidelines are: every day is an adventure, take time to enjoy the simple things, cultivate friendships, leave the cell phone at home sometimes, get enough sleep, call a family member every week, and don't forget to eat.

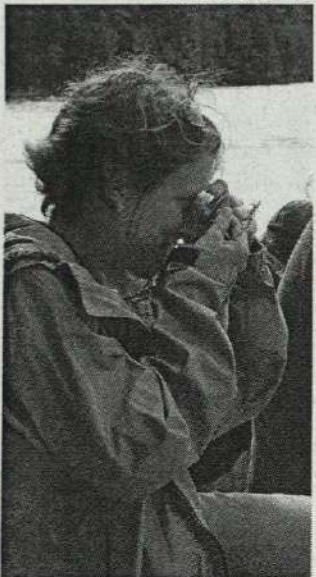
"A curious naturalist" is a suitable title for **Erin Haney (EP)**, although she would also add "analytical and passionate." Erin's passion for everything natural developed in the bucolic landscape of Chester County, Pennsylvania. During her adolescence, Erin romped in the Laurels Nature Preserve, a mixture of hardwood forests, streams, open fields and covered bridges. This quiet and remote setting allowed Erin to explore the environment and her self.

Erin attended Franklin Pierce College, a small liberal arts college in New Hampshire focused on integrating individuals with a community. During a visit to the Laurels while home on break, Erin had her first conscious epiphany: a calling to immerse herself in understanding how she could conserve the delicate processes of the natural world. The epiphany led Erin to the field of Environmental Science with a concentration in Conservation Biology, Natural History and Botany. During her junior year, Erin participated in "The Walk Across Europe," a three and a half month journey. On this walk, she studied the tenets of Sufism, sauntering through the Alps, and jumped off cliffs in Corsica. As you can imagine, she formed lasting friendships and killer leg muscles, and had more epiphanies.

After graduating with a degree in Environmental Science, Erin worked as a breakfast chef, baker, census worker and finally an environmental consultant in Massachusetts. Eventually, Erin took a fellowship with the New England Wild Flower Society. Just as that ended, she accepted a position in Vermont as a state wetlands ecologist, in which she spent three and half years assessing wetlands throughout Vermont. Knowing that she wanted to further her education, but not necessarily become a specialist in any one discipline, she chose the Ecological Planning Program. Erin is ecstatic about being a part of this community. When she is not with the X-8 cohort, you can find Erin hiking and taking photos in the Greens, in a yoga studio, or at home baking and caching for the winter.

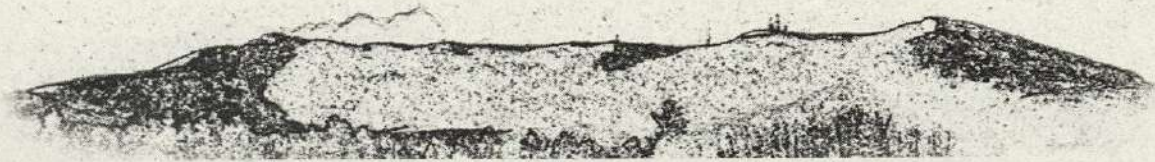


Erin Haney



Sara Mulford





As a child and to this day, **Matt Peters's (EP)** most precious times are spent out of doors, wandering and exploring whatever undeveloped lands may be close at hand. This has fostered a deep and vital relationship with the natural world that has always been the motivating core of his interests and actions. Growing up in suburban Minnesota, a backyard garden, an unruly neighborhood greenspace, and a neglected wildlife management area served as his daily teachers. Coupled with an early predilection toward field guides, they led Matt toward study in the natural sciences.

Matt studied biology at the University of Minnesota, Morris. During his summers and after graduation, Matt pursued field jobs in ecological research. From Maine to Southeast Alaska to Idaho, Nebraska, and back Matt absorbed these landscapes and the challenges that face them. He returned to Minnesota for a year of research in prairie restoration at the St. Croix Watershed Research Station. Through this travel and work, Matt pondered the questions of how conservation efforts could become more successful and how he could become part of them. He became aware that research alone is not sufficient to motivate conservation - social and economic realities are also a vital part of the conservation process.

To explore this idea, Matt apprenticed at St. John's Pottery, which integrated local, sustainable resource use with artistic expression, land stewardship, and quality of life. This experience stimulated not only a love of playing with mud, but also a deepened realization of the need for conservation to address human needs in concert with those of nature. It is to further this goal that he joined the Ecological Planning program.

When not engaged in academic efforts, Matt is most likely to be found exploring the woods and fields, making wood-fired pottery, or foraging outside to fill his belly with the fruits of the land.

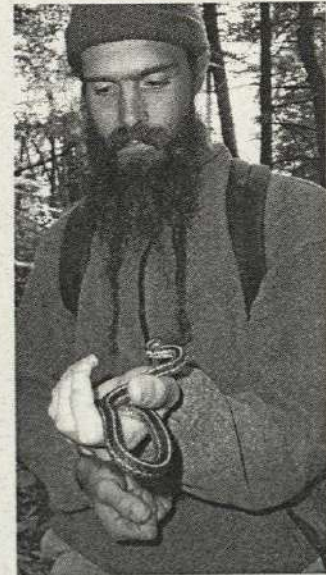
Growing up, **Jesse Fleisher (EP)** spent many hours looking under rotting logs, climbing trees, picking up frogs, and ill-advisedly sticking his head into holes in the ground. Unlike many people, however, Jesse never got over this phase of life, and spent many of his youthful hours accompanying a local naturalist on expeditions to hunt fossils in quarries, listen for frogs, and crawl through caves in search of crayfish.

Attending Earlham College, Jesse pursued a degree in Human Development & Social Relations. He also led caving and backpacking trips. While spending a semester doing field study in Kenya, Jesse considered both modern and traditional pastoralist land use patterns, and came home with an appreciation of the challenges facing many sub-Saharan ethnic groups and ecosystems.

After college, Jesse joined the Peace Corps, and relocated to a remote village in the densely forested Central African nation of Gabon. Jesse passed his first night contentedly communing with the thousands of small bats already living in his traditional mud-brick home, and spent the next two years working with local subsistence farmers to develop ecologically sustainable and economically viable alternatives to slash and burn agriculture.

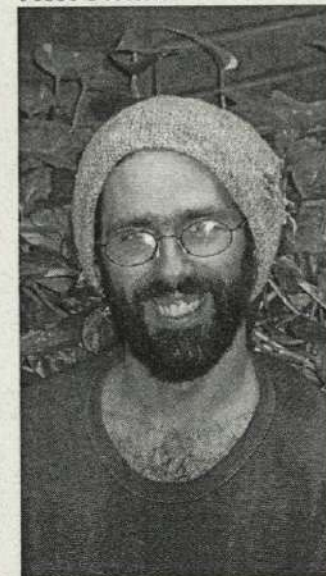
Over the next three years, Jesse continued to work in Africa, acting first as a technical advisor in conservation planning, and later as a consultant managing a growing environmental science education program. Eventually, Jesse began to reach the limitations of his non-science academic background, and his desire to deepen his practical understanding of both conservation science and its human context led him to the Ecological Planning Program.

In the future, Jesse plans to continue working at the tricky interface between human development and ecological conservation. In the meantime, he has just purchased his first pair of snowshoes, and is learning how to stay warm during his first New England winter.

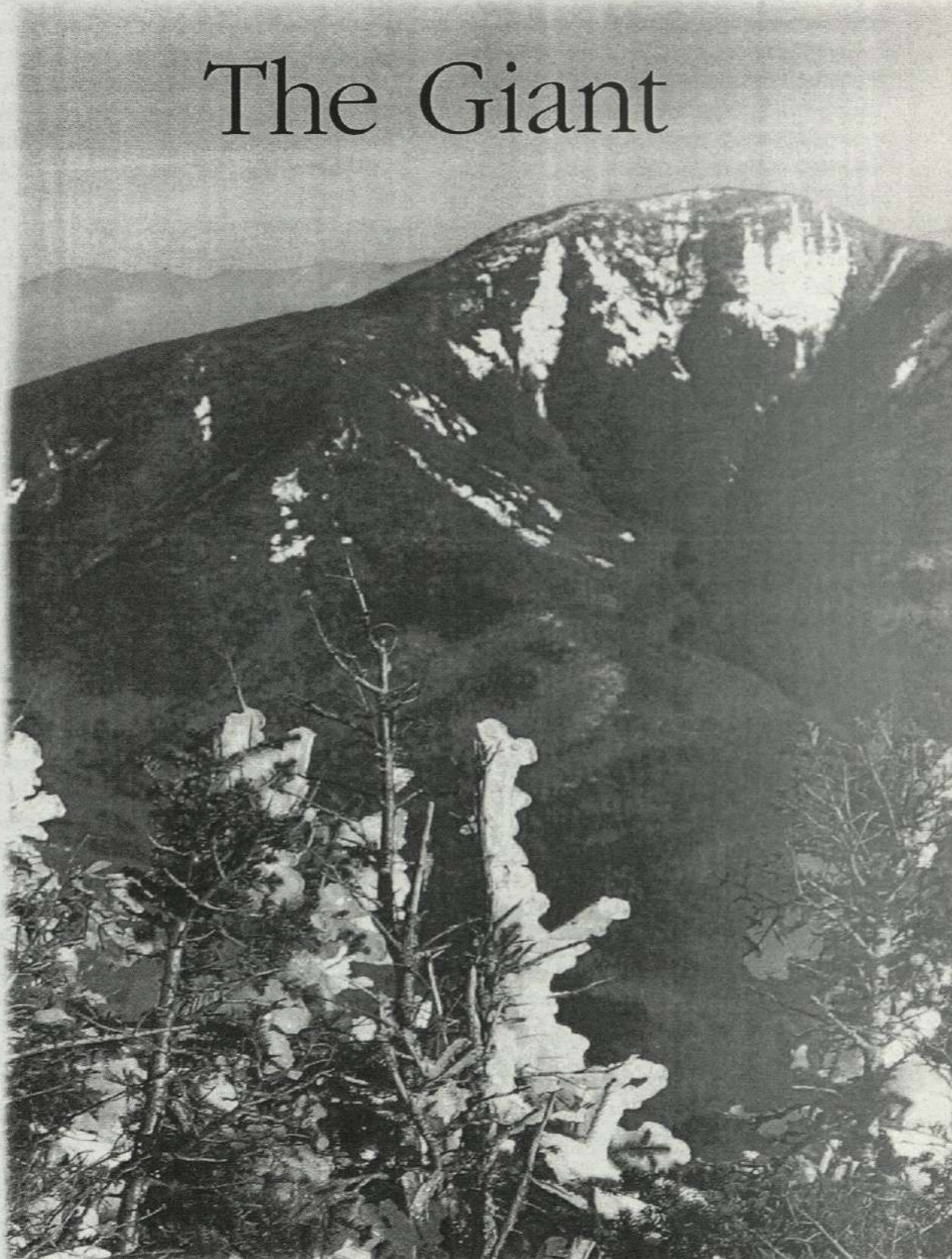


Matt Peters

Jesse Fleisher







View of Giant Mountain from Gothics Mountain by Bob Zaino FN-X8

# The Giant

*In late fall of 2006, the Field Naturalists and Ecological Planners visited Giant Mountain, a western Adirondacks peak that has experienced tremendous change, both on geologic and recent timescales. The following poem, set to traditional southern Appalachian ballad meter, tells its story.*

Up high upon on the mountain, the Giant does slumber,  
'Neath the spruce trees and the birch leaves he dreams of the clouds.  
Till one day in summer when the sky and rocks thundered,  
And the water flowed quickly and washed all away.

*Chorus: Come ocean, come fire, come warm sandy beach,  
Come mountains from the valleys and the secrets they keep.  
Rise water, pour rain and wash them away,  
but the Giant is strong and he grew back one day.*

If your father is old, the Giant is older,  
His skin is tough leather though his trees may be young.  
One billion years passed his bones have been weathered,  
And the Giant knows much through the songs he has sung:

When the long winter entered and the seedlings were few,  
The Giant lay huddled like a fox in his den.  
The ice came and the ice left and the ice came again,  
Till one day in autumn when the Giant shown though.

His land it lay barren, his soils were thin,  
No basswood nor bluebeech did grow on his slopes.  
But the beauty of life is the way it begins,  
In the hardest of places where there is little hope.

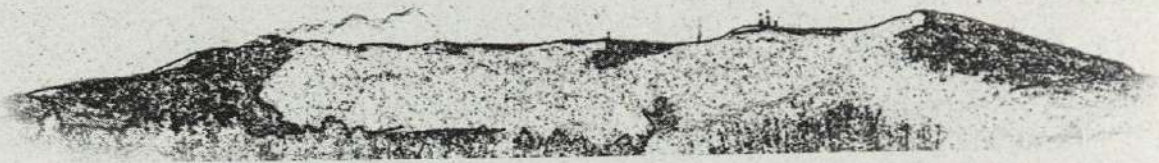
Years passed and the Giant did return to his splendor,  
Of golden fall colors and songbirds of spring,  
Of mighty old hemlocks that give life to winter,  
And warm summer nights when the thunder doth sing.

But one lesson learned and never forgotten,  
By the Giant and his brothers of the old mountains here,  
Is that peace may be nice but change is for certain,  
'Tis best to lie sleeping and live not in fear.

*Come ocean, come fire, come warm sandy beach,  
Come mountains from the valleys and the secrets they keep.  
Rise water, pour rain and wash them away,  
but the Giant is strong and he grew back one day.*

*-James Barnes, FN-X8*





## Reports from the Field: Members of the FNEP class of 2007 share stories from their Master's project field season

### **A Sharing Among Neighbors**

*Monica Erhart*

There is more wisdom stored within the town of Jericho, Vermont than will ever be uncovered—an old-timer farmer spends his life tilling fields, an artist sees the minute twisting of forest twigs, a newly-trained forestry student imagines the endless possibility in the future of a forest. For me, the summer was about fitting into this landscape amid the stories, the wisdom, and the community.

The backdrop of my summer was the Jericho landscape; the foreground was the Jericho community. Somewhere in the midst of the two, I began to tease out my own version of what made this place unique. With a focus on Mills Riverside Park, a public-access property often used by local schools as an educational setting, I began the creation of a guide to the town's natural history, highlighting specific places that would reveal the area's distinctive features.

But there are many ways to see a landscape, and throughout the summer I ran into people who saw the land through background experiences quite different from my own. My guide showed only one perspective, but these other perspectives were equally valid, and equally intriguing. So the guide changed. It became not a single work, but a database of local knowledge, provided not by myself alone but by the community as a whole. The guide became an online, interactive encyclopedia to the local landscape, a forum where community members could learn from one another while also sharing their own expertise.

The UVM Research Forest, located in Jericho, provided an additional opportunity to promote a sharing of local natural history. In

an effort to include the resources that UVM research brings to the Jericho community, the Research Forest became the setting of a celebration of the diverse ways to interact with the local landscape. Workshops brought together people from various backgrounds and political views to share their respective knowledge.

The conclusion? Our neighbors know a *lot*. We just need a few tools to make the sharing of this knowledge commonplace.

### **Tackling Invasive Species**

*Shana Stewart*

What do sharp thorns, impenetrable vines, vicious ticks, wet muck, lovely butterflies, and a playful mustelid have in common? They are all part of my summer experience on the Rhode Island coast. For my Master's Project, I spent the summer inventorying invasive plants at Fort Greene, Narragansett, RI in a collaborative effort between UVM and the US Army Reserve's 94th Regional Readiness Command. Fort Greene is a 104 acre parcel acquired by the military to armor the coast against German invasion during World War II. Since then, the area has been invaded by another formidable foe, invasive plant species. These plants have the potential to alter the hydrology or nutrient cycling of a site, reduce the abundance of native species, create habitat suitable for other harmful exotic species, and generally impact the health of human, economic, and natural landscapes.

After tackling an invasive plant inventory that included vegetation plots in six of the delineated wetlands and two upland parcels, I began to wrestle with some of the larger questions surrounding invasive species research. For example, the seemingly simple process of defin-

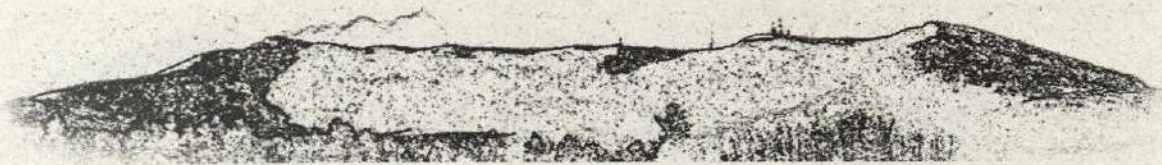


Monica Erhart



Shana Stewart





ing invasive species and listing which species are invasive in any given area can be contentious and culminate in definitions that are pliable and ever-changing. Choosing management treatments to alleviate their negative impacts often depends on the goals that landowners have for a property. At Fort Greene, military training objectives may necessitate very different treatment alternatives than historical preservation goals. Moreover, the goals of one landowner—in this case, the US Army Reserve—may not be achievable without also addressing the issue of invasives in the larger community.

Researching invasive species control at a military training facility in Rhode Island has provided me with an opportunity to translate field science into long-term management alternatives. My findings on the thirteen invasive plant species at Fort Greene will be incorporated into a natural resource management plan for the site.

### **At Home in the Prosper Valley**

*Corrie Miller*

My love affair with Vermont's Prosper Valley began with a herd of cattle. I had just gotten a job in Woodstock and was driving along Rte 12 to look at an apartment in Barnard. At the urging of a flashing yellow light, I slowed my car to a stop in front of a line of cows crossing the road. At the time, I didn't know that I would take the apartment and travel this corridor every day for a year, eventually becoming familiar with every turn in the river and every slope on the surrounding hills. I also didn't know that I would return to this valley three years later to do my Master's research, this time leaving my car behind and donning a pair of hiking boots to explore the same stream and hills in greater depth. At that moment, as I watched the cows cross the road, I only knew that the valley already felt like home.

Each day, during my commute, I was awestruck by the beauty of green fields against blue sky and by the way evening sunlight lit up the autumn foliage like wildfire. That first year, my love affair with the valley was new and, like many new loves, it was based entirely on attraction.

When I returned, however, things were different. I wanted to delve deeper—past the good looks—to really understand the valley. My purpose was to learn about its natural landscape and cultural history so I could share them with the local community in a celebration of their place. I traipsed through lowlands and highlands collecting knowledge of the landscapes pieces—tree species, rock types, animals, land uses... I took note of the way these pieces organized into patterns on the land—red spruce forests at the high elevations, black bear on the ridgelines... I considered the thousands of processes that could be responsible for the landscape patterns that I saw—climate, ancient continental collisions, ice storms, and land development... And then I shared the stories I had collected with the people who also consider the Prosper Valley “home.” It was my goal to spark, rekindle, or stoke their love affair with the valley.

The summer of field work seasoned my relationship with the Prosper Valley—the black flies made sure it wasn't all sunshine and roses—but the feeling I am left with, after returning to my Burlington university life, is a deepened connection to that corner of the world, to the place and to the people. The valley and I now have a shared history; I'll notice a smell in the wind that takes me back to the fields of wildflowers atop Pomfret's Dana Hill, or I'll encounter dankness in the air that turns my thoughts to bygone investigations of Bridgewater cellar holes.

### **Engaging Minds, Building Community**

*Kate Wesdijk*

UVM's Rubenstein School (RSENr) is known for the application as well as the creation of knowledge. Dean Dehayes speaks of good science as “necessary but not sufficient; scientific evidence needs to be put in the context of long-term societal welfare.” Knowing this, I was surprised to find some faculty and community members struggling to make the connections. RSENr needed a structure in place to facilitate partnerships between scientific evidence and societal welfare.



Corrie Miller

Kate Wesdijk







This realization and an interest in building the capacity of RSENR and the community to collaborate and confront real-world environmental issues led to my project. In cooperation with RSENR faculty and staff, and the Office of Community-University Partnerships and Service-Learning (CUPS), a graduate assistantship position was created to facilitate environmentally-based partnerships. As the first RSENR Community-University Partnerships Coordinator, I surveyed faculty to find out what was already being done in the community, to identify opportunities to improve community engagement in RSENR, and to make recommendations about how this coordinator position could best support future work in the community.

This research revealed that many RSENR faculty are working with the community, and there is interest in continuing to do so. Many faculty, however, are facing serious time constraints, and are concerned that their community activities are not supported by university systems that place more value on traditional academic research. In addition to basic match-making, RSENR faculty need help reducing the time commitments posed by community engagement, and they need someone to advocate for the value of this work. Based on surveys, interviews, and published literature, the primary recommendation of this project is to create a permanent staff position to plan and implement programming to facilitate community-based teaching and research. The CUPS office and RSENR are currently working to institutionalize a position to fulfill this role.

### **Place-based Education for Public School Educators in Hinesburg, Vermont**

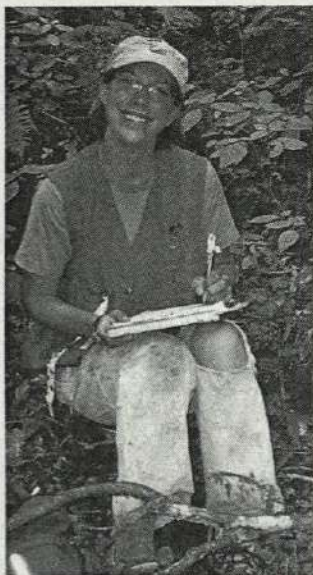
*Kristen Sharpless*

For teachers, an essential component of being able to design curricula that uses the local landscape as a starting point is having access to place-based knowledge themselves. Information on local geology, ecology, land use history and wildlife for a particular town or

region may or may not exist. Regardless, what information does exist is rarely in a format that educators can easily access or apply to their teaching.

I tackled this problem in Hinesburg, Vermont by spending the past summer gathering information on a 100-acre portion of the Bissonette Farm. The Farm is a 627-acre property in the process of being conserved that forms the headwaters of the LaPlatte River and is located about two miles from the Hinesburg Community School. First, I conducted an in-depth landscape inventory of the property by: (1) categorizing the parcel into forest stands, natural communities and critical wildlife habitats, (2) documenting plant and wildlife species, and (3) unraveling geologic and human land use stories. My second step was to interpret my findings for teachers in a written field guide that they could use as a resource for planning lessons, projects and field trips on the property. The guide focused on language and concepts addressed in the Vermont Standards, made suggestions for activities and investigations on the property, and included a map of "educational hotspots." The guide also provided a list of further resources and local contacts.

The inventory and field guide were just one component of my larger project to support K-8 educators at the Hinesburg Community School in their effort to integrate place-based education into their teaching. I also gave slideshow presentations on the town's landscape, coordinated a field trip around town for educators, and partnered with individual teachers needed help implementing place-based projects. At the end of this project, as a teacher and a naturalist, I am left more motivated than ever; I want to continue providing educators with support to provide their students with experiences that will help them to grow into active citizens who are motivated to make informed land use and community planning decisions.

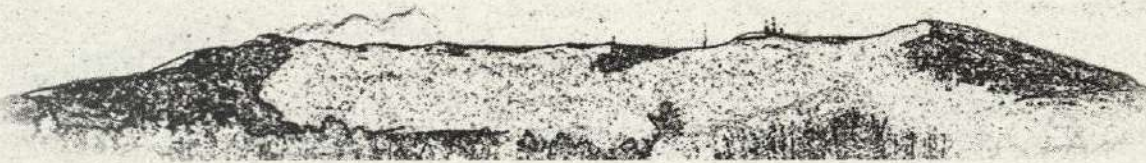


Kristen Sharpless



Brendan Weiner





## Forests for the Future

*Brendan Weiner*

While exploring UVM's Jericho Research Forest, I often tried to picture what the area looked like when the site's numerous plantations were established sixty-five years ago. I knew the land was in poor condition at the time, having seen historical photos of abandoned fields, eroded gullies and even sand dunes, with hardly a tree in sight. Standing among seventy-foot tall trees that were home to a multitude of birds and wildlife, however, and walking across a soft carpet of fallen needles and woodland grasses, made this hardscrabble past hard to imagine.

Seemingly endless forests blanket Vermont today, but it wasn't long ago that forests were an exception on the landscape, rather than the rule. Today, climate change, acid rain, and invasive exotic species threaten the stability of our renewed forests, and a growing population places greater demands on forest resources. If healthy forests are to be part of Vermont's future, an ethic of conservation and stewardship must be cultivated among the state's thousands of landowners.

Over the past year, as part of UVM's Green Forestry Education Initiative, I have been working at the Research Forest to develop an educational tool that outlines a sustainable approach to forest management that is applicable to the small, private forests that comprise the majority of forestland in Vermont. Balancing ecology, economics, and ethics, the Green Forestry Initiative connects broad principles of sustainable forestry, such as conserving biodiversity, soil, and water resources, with specific, on-the-ground management practices.

As my time at the Research Forest comes to an end, I imagine what the area will look like sixty-five years from now. I picture large, native trees, deep soils and abundant wildlife—a result of wise, committed stewardship. But as I widen my view, the vision becomes less clear; conserving Vermont's forests will require the collective understanding and concerted effort of thousands of landowners in the state. Hopefully,

my work will help guide local management decisions that collectively promote healthy forests on a regional level.

## Learning on the Land

*Chris Nytch*

Landscapes are dynamic, interconnected systems, yet traditional education frequently emphasizes detached, abstract thinking. Consequently, people often lack connection to and experiential knowledge about the place where they live. But what if the blueprints were changed so that students learned about the heritage of the ground right beneath their feet, and its relation to the surrounding ecologic and human geography? In addition to focusing on disciplinary concepts, they could anchor their learning on concrete, mutual relationships around place, and use that foundation to make meaningful decisions as citizens and caretakers of the land.

That has been the focus of my project in Putney, Vermont. The Putney Central School has a 176-acre parcel of upland forest and low-lying wetland, but it is much more than a piece of property. It is a public space that provides an opportunity to promote place-based learning for the school and town as a whole. It could also provide a practical education model that reflects the interdisciplinary nature of the natural world and our role in it.

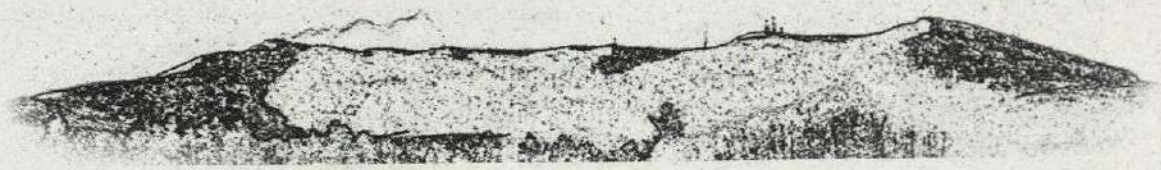
This past summer, I tapped into the natural and cultural history of this forest to create an educational document to help teachers engage students in learning about their backyard and its broader regional context. Following UVM's Place-Based Landscape Analysis and Community Education (PLACE) Program model, I pieced together integrated stories of people, places, and landscape processes through time. Accounts of rock and soils, flora and fauna, and water were intertwined with tales of past and present human land use.

As this knowledge is incorporated into the local curriculum and made available to the



Chris Nytch





town, my hope is that it will inspire people to explore and celebrate their relationship with one another, and with the land that sustains them. Hopefully, this will plant the seeds of community responsibility that engender future resource stewardship. Through a tangible connection to the place in which they live, citizens will be better prepared to take the collective actions that contribute to long-term community health.

**Avian Habitat Use and Implications for Land Management**

*Katie Pindell*

My study examined habitat use by three bird species at the Green Mountain Audubon Center and Birds of Vermont Museum Important Bird Area (GMAC/BOVM IBA) in Huntington, VT. The chestnut-sided warbler, yellow-bellied sapsucker, and veery are included in a group of "priority species" by regional bird conservation initiatives and "responsibility species" by Audubon Vermont. The purpose of this study was to document the distribution and abundance of these species across the property, estimate breeding productivity, and analyze vegetation attributes within these birds' territories. The breeding habitat of each of these focal species will be factored into management decisions at the GMAC/BOVM IBA.

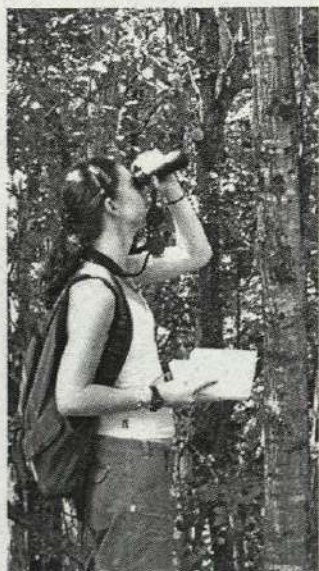
The distribution, abundance, and productivity information provides a baseline against which the success of management activities can be measured in the future. I suggested an assessment program where land management at the GMAC/BOVM IBA can be adaptive based on the focal species' populations, both at a property-wide and regional level. The project provides a link between the analysis of the GMAC/BOVM IBA carried out in 2005 by the UVM Landscape Inventory and Analysis class, the point count data of the entire property for 2005 and 2006 carried out by Matt Kolan (FN-05), and the future of research and education on the property.

**Natural and Cultural Heritage on the Land**

*Sarah Bursky*

Out on Lakota Road, in Barnard, Vermont, Bob Pearson drives his John Deere dutifully across his lawn every Monday and Wednesday. Ask him directions, and he is likely to invite you into his home for a glass of water. Though he has a framed letter from Laurence Rockefeller on his bureau, he's more likely to tell you about his boss from a construction crew in the fifties, when they were rebuilding the old Gulf Road. It was on a hot day in June when I found myself sitting at Bob's kitchen table, listening to his stories of working as a boy at his father's mill on Atwood Brook. Bob's great-great-grandparents were among the first European settlers to Barnard in the late 1700's, and the region has been his and his family's home for two centuries.

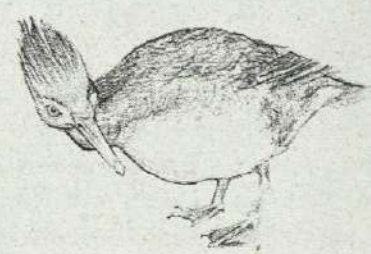
Bob's story, and others like it, were part of my research this past summer as part of the PLACE program, an initiative between Shelburne Farms and the University of Vermont to engage Vermont communities in their natural and cultural heritages on the land. Corrie Miller and I brought the program to the Prosper Valley, a rural area shared by the towns of Barnard, Bridgewater, Pomfret and Woodstock that is under great development pressure. We researched and explored the landscape with community members on field walks and in presentations, with the goal of celebrating connections to the land and hopefully inspiring greater stewardship. While my summer involved managing partnerships and doing research, at the heart of it was meeting people like Bob – hearing their stories, and sharing the places that are central to their identities and lives.



Katie Pindell



Sarah Bursky



*Drawing by Amanda Devine*





## How Academic Writers Reach Popular Readers

The writing begins in August. Nine second-year graduate students from UVM's Field Naturalist and Ecological Planning programs assemble for a writing retreat at the Fairfield Farm, an hour north of the university, to compose a popular article based on summer research projects. This program requirement prepares academically trained graduate students to write lucidly about ecological science to lay audiences—the kind of writing commonly expected in the world outside of college.

The Friday night cookout encourages shared stories about diverse summer projects. The evening ends with roasted marshmallows, songs, and camping out. On Saturday, the writing begins in earnest, as each student imagines a story others might care to hear. With big ideas hard to find, **Chris**, begins, "It all started when I tripped over a big hunk of something in the Putney Central School Forest." He remembers finding a mostly-buried rusty object and asks, "What was a milk can doing in the middle of the woods?" For the rest of the term, Chris tracks down, first, the origin of the milk can and, second, the nature of cultural change in Vermont as nineteenth-century settlement gives way to twenty-first century ecological practice.

**Katie**, fresh from nest-counting at the Green Mountain Audubon Center, writes about bird habitats near electric power lines: "Birds are adjusting to the changing environment. Birds are finding man-made structures useful. In fact, birds are using our broadcasting systems as their broadcasting systems." When she asks, "What is the meaning of a bird on a wire?" she outlines an approach to conservation in New England combining the interests of an ever-expanding electrified culture with those of an ever-adapting wildlife population.

A summer spent researching environmental options for Rhode Island's Fort Greene, leads **Shana** to begin a feature story for *The*

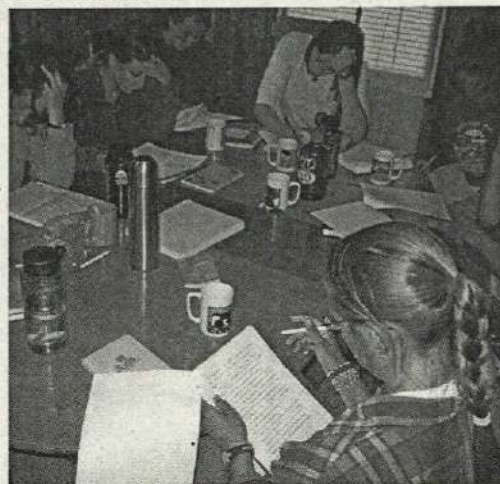
*Narragansett Times*: "Over the past 30 years there has been a quiet invasion of Narragansett... not the invasion by German U-boats against which the coastline was once armored, but an unexpected plant invasion for which the town was unprepared." Shana's finished article includes photographs to help residents identify invasive species along with recommendations for planting attractive native species in their stead.

At the same time, in work spanning two semesters, **Brendan** designs a Web page to teach landowners to assess the health of their woodlots; **Kate** writes to help local organizations develop service learning projects with the university; **Kristen** prepares a set of outdoor field-trip guidelines for Vermont teachers aimed at *Northern Woodlands*; **Corrie** creates nine(!) vignettes about the natural and cultural history of Prosper Valley to be published weekly in *The Vermont Standard* newspaper; **Sarah** delves into the nature of "endangered human communities" in rural Vermont; and **Monica** explains to the *Jericho/Underhill Mountain Gazette* the ins and outs of building a local community through Internet village greens. Whew! Lots of good writing!

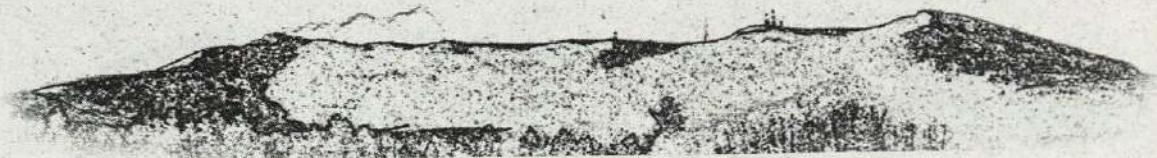
These are activist graduate programs, so writing gets the word out. All year long, each draft is shared with classmates who ask each other: Who is your audience? What is your purpose? Does it sound like you? When will your next draft be done? With the coming spring, in the hands of these capable writers, all drafts are, in fact, finished.

-Toby Fulwiler,  
Emeritus professor of English

This program prepares graduate students to write lucidly about ecological science to lay audiences.







## With Moxie and Mud

### A Tribute to Hub Vogelmann

*In the spring of last year, Hub Vogelmann, founder of the Field Naturalist Program, was awarded the 2006 UVM Honorary Doctorate degree. The following address was delivered in his honor at a reception to celebrate this event.*

Nineteen years ago this month while living in Texas, I opened an envelope from a friend in Massachusetts, and a clipping fell out. It was an article written by a New York Times correspondent entitled: "UVM's Field Naturalist Program Offers a Holistic Scientific View:"

*Dressed in patched jeans and a chamois shirt, his wool cap set at a rakish angle, Mark Gershman muscles an earth auger into a hole in the ice on a beaver pond in Richmond. Clustered around him on the melting ice are a handful of colleagues, who shout their approval as he hauls up the auger. Gershman has struck dirt.*

*To Gershman and his colleagues—graduate students and professors at the University of Vermont—the muck dredged from the pond bottom is not simply dirt but a key to the natural history of the area. Studying a beaver pond, they say, requires knowledge of hydrology, geomorphology, geology, botany and zoology . . .*

*"We felt that we needed scientists who could look at the whole picture, and communicate their understanding to the general public," Hub Vogelmann says "in medicine, these people would be the general practitioners, not the specialists."*

*His models, says Vogelmann, are the "great naturalists of the past," scientists like Charles Darwin, who "were widely known and respected and had a vital role to play in society."*

By the time I finished reading the article, I was salivating. I knew all I had ever wanted to be was a Field Naturalist . . . even though I had never met one. I also knew enough about graduate schools to know that in April the deadlines for admission had passed. But I fired off a letter figuring that they'd send me a packet of informa-

tion and we'd take it from there. The next thing I know I get a phone call, then I'm on a plane, then I'm standing next to director Dan Mann in a field in the middle of nowhere in front of a pair of the sorriest looking caves I'd ever seen.

Now I knew something about caves because I had been surveying bat caves in Texas. I knew immediately that there were no bats in these caves. For one thing, they were flooding. It was now June, and while I thought I was in the middle of nowhere, it turns out that I was in Colchester. And you know around here in June things can get pretty wet. No sane mammal will enter a flooding cave, and I wouldn't have either, but I was being polite.

Dan and I crawled in one and slogged around in a damp, cramped kind of way while he grilled me on theories of cave formation. Then we hiked up to the other cave, which, if possible, was smaller than the first. Some of you know Dan. He's over six feet, broad shouldered, and he was preparing to go into this burrow. "You know I've never been through this cave," he said. "I might get stuck."

He did get through, bless him, and then he deposited me on the threshold of the Marsh Life Sciences building, soaking wet, to continue my interviews. Remember this because I'm going to return to it.

Now, even while I was desperately seeking admission to the program, others from around the country and from around the world were applying, too. Word of the program was spreading through the conservation community like wildfire. People were telling people about it. Hub knew what he was looking for. FN's were selected because they were, and are, in his words "highly motivated, environmentally conscious, energetic, creative and committed."

I won't argue with that, but I have met a



By the time I finished reading the article, I was salivating. I knew all I had ever wanted to be was a Field Naturalist . . . even though I had never met one.

-Alicia Daniel





lot of FN's, and I think this is only a partial list. I would add: stubborn, iconoclastic, rebellious, independent, irreverent, and funny. I have to believe that Hub didn't fully realize what he was in for when he took 10 of these highly charged human particles and enclosed them together in a small space. We know now that you can get an earthquake, a wildfire, lightning, or more often a perfect storm. And under it all was Hub's calm.

People appreciated him for it. On the occasion of his retirement, we collected memories. "I have wonderful memories of Hub's plant communities courses, the field problems. His love of the natural world and commitment to preserving it continues to be inspirational. I'll never forget his story of how the land around Shelburne Pond was purchased for the Nature Conservancy," said Jill Bubier.

Several people, including Jude Rubin, remembered his green winter coat. At one time, it must have been full of down, but by the time I met it was just full of eider dust. Essence of goose. He always looked so at home in the forest in that coat. Maybe because you could look right through it and see the trees.

And just about the time a class had been broken in, they'd go off and the process would start again. The whereabouts of the graduates are generally known and their successes are legendary. I will leave it to you to talk to Jeffrey and Hub about them, because for me to speak of them would surely take at least three to five minutes more.

Sometimes we'd hear from graduates: a newspaper clipping, a can of soup. Those of you in the front probably can read that this is a can of Campbell's Black Bear soup. It came in the mail from Alaska with a very official looking letter written on Department of the Interior

stationary. The letter said that the Department of the Interior in conjunction with the Campbell's Soup Company was launching an initiative to fund the National Parks by culling the tastiest bears and offering them for sale to the public. Reading from the label, I see the ingredients are: water, fully cooked black bears, (it doesn't say how many per can) and high fructose corn syrup. This is the soup and dip variety and is a product of Chris Fastie's imagination.

Where was I? Oh, yes, standing on the threshold of Marsh Life soaking wet. Now the next part of this story will probably seem quaint in this age of heightened security. It was the custom in those days to interview with the entire Botany faculty. They gave me a manila folder to carry with me. I would take it to Bud Etherton; he'd jot some remarks; and then I'd take it to Phil Cook, etc. I did this dutifully about 5 times. Then I found myself alone with my folder in a restroom stall. It suddenly occurred to me "there might be something in here that's relevant to me." In my

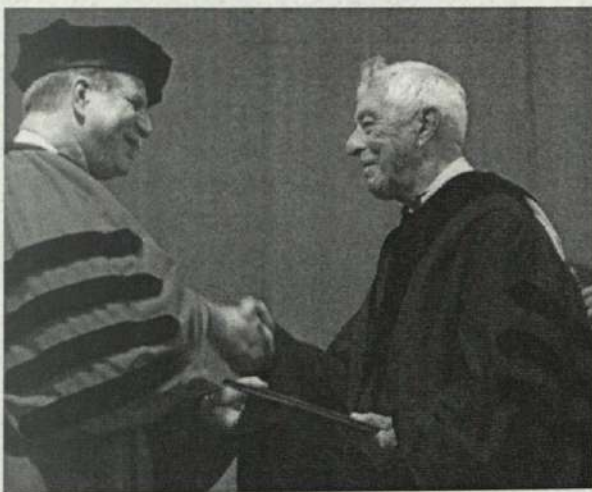
defense, no one actually told me not to read it. I guess we had some kind of gentlemen's agreement. I think you'll agree that left a pretty big loophole.

So, I opened it. I don't remember what it said. We all know it must have been generally positive or I wouldn't be here today. Actually, there is one word I remember:

Moxie. It was Hub's word. It wasn't written by Hub, but it was written for Hub. And it is a very good word to describe him.

It means: courage, verve, vigor, nerve. Hub started a program to change the world and in the process he changed over 100 lives for the better. It is on their behalf, it is on our behalf, that I am here to say "Thank you."

-Alicia Daniel, FN ('89)







## A Naturalist's Bookshelf

Recommended readings from the FNEPs

### Agriculture and Ecology

- Wendell Berry, *The Unsettling of America: Culture & Agriculture*
- Dan Dagget, *Beyond the Rangeland Conflict*
- Gene Logsdon, *The Contrary Farmer*
- Bill Mollison, *Permaculture: A Designers Manual*
- F.H. King, *Farmers of Forty Centuries*
- Nina Planck, *Real Food: What to Eat and Why*

### People, Places, and Sustainability

- David Abram, *The Spell of the Sensuous: Perception and Language in a More-Than-Human World*
- David Orr, *Earth in Mind: On Education, Environment, and The Human Prospect*
- Michael Stone and Zonobia Barlow, *Ecological Literacy: Educating Our Children for a Sustainable World*

- Deborah Tall, *From Where We Stand: Recovering a Sense of Place*
- Alan Weisman, *Gaviotas: A Village to Reinvent the World*
- Nancy Jack Todd, *A Safe and Sustainable World: the Promise of Ecological Design*

### Natural History

- Nona Estrin and Charles Johnson, *In Season: A Natural History of the New England Year*
- Bernd Heinrich, *Winter World*
- Aldo Leopold, *Sand County Almanac*
- William Bryant Logan, *Dirt: The Ecstatic Skin of the Earth*
- Ralph Tiner, *In Search of Swamplands*
- Elizabeth Thompson and Eric Sorenson, *Wetland, Woodland, Wildland*
- Tom Wessels, *Reading the Forested Landscape*
- E.O. Wilson, *The Future of Life*

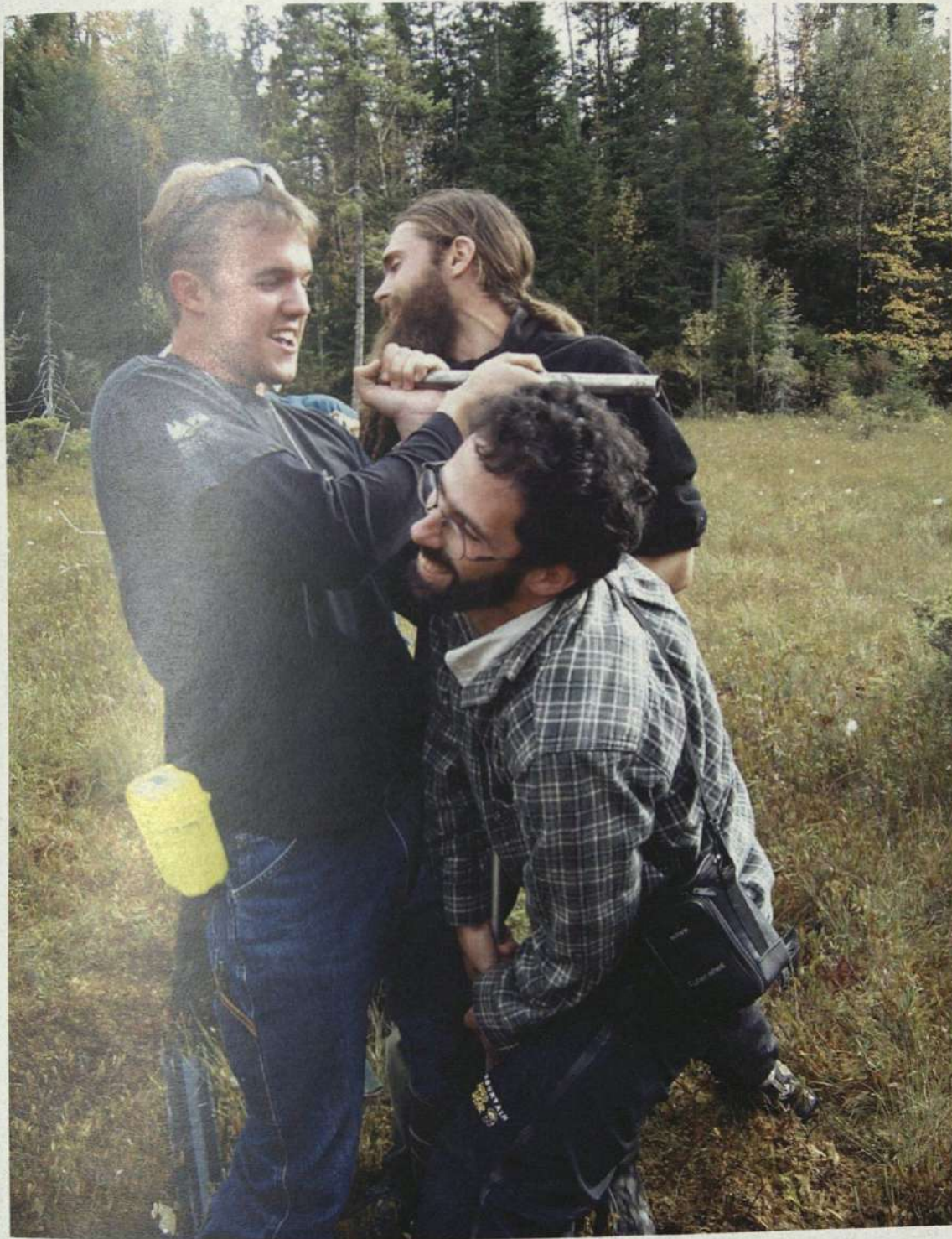


*Drawing by Scott Greenaway*





“All right,  
everybody  
on three...”



### *Parting shot*

On a perfect fall day in northwestern Vermont, members of the X8 class joined Jill Bubier ('89) and Alicia Daniel ('89) to explore the hydrological story of Belvidere Bog. Here, Ryan Salmon (FN), Matt Peters (EP), and Jesse Fleisher (EP) (clockwise from left) work to dislodge a bog corer that had been plunged 15 feet into a peat mat.