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Newsletter from students of Ecological Planning, School of Natural Resources, University of Vermont
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Ecological Planning: A curriculum to meet a changing world

by Deane Wang

The Ecological Planning (EP) curriculum within the Natural Resource Planning Program (NRP) reflects an exciting new collaboration between the Field Naturalist (FN) Program and the NRP Program. It arises out of the need to integrate natural science and the social sciences in the understanding, planning, and management of the human-nature symbiosis. This non-thesis program provides an intensive field and classroom experience designed to build a strong foundation for tackling the tough interdisciplinary issues of ecosystem and landscape stewardship.

Human societies have been redesigning themselves since their beginnings. However, given the unprecedented stress on ecological systems due to increasing land development, levels of consumption, population growth, etc., the need to redesign the human environment is ever more urgent. Ecosystem management, new forestry, ecological design, bioregional planning, ecological economics, land conservation, industrial ecology, voluntary simplicity, and landscape ecology are just a few of the recent themes becoming part of the conceptual and practical "toolbox" of the new cohort of redesigners. The EP curriculum provides a foundation from which to consider these approaches and move towards a synthesis and practical application.

A two-year program can only hope to begin to provide the necessary tools for the "new" natural resource professional. The EP curriculum prescribes a

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Marshfield Mountain. *The landscape perspective is an integral part of the EP curriculum.*

EPs on EP: The students' perspectives on the new program

By Jillian Butler

To learn a little bit more about the new concentration in the Natural Resources Planning Program, I decided to go to the source directly and ask Brian, Elissa, and Heather (as well as myself) a few questions.

All four students were introduced to the program when they came to interview for the Field Naturalist Program in the Botany Department. The Ecological Planning concentration was born out of a "marriage" between the Field Naturalist and Natural Resources Planning Programs. Both Brian and Elissa joked that the biggest difference between the two programs was the FN's statistics requirement. Brian continued, "On one hand the programs are very similar, but the fact that we are in the School of Natural Resources makes us pretty different. It frequently exposes us to the other disciplines and perspectives that are involved with natural resource planning." Elissa finds that she is learning the mechanics behind conservation, "discovering how to take what I learn in the field and transform it into actions." She made an analogy to a candy machine: "You want the candy behind the glass, but your success depends on the proper function of the machine and having the currency to engage the process."

Heather was attracted to the extra social dimension that the EP program brought to land conservation. Brian loves being out in the field learning natural history but wanted to learn how to apply his skills to conservation planning, "I looked at traditional programs,

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Introducing the EP Class of 2001

Elissa Arnheim

On the summit of Mt. Kilimanjaro, Elissa Arnheim realized how small our planet really is. "I could see the Earth curving away from me," she recalls, "and thought about everything that's disappearing: clean air and water, whole habitats, and so many species." Since then, with an environmental studies degree from Middlebury College and a taste for adventure, Elissa has been exploring and protecting the natural world. She tracked snowshoe hares in the Green Mountain National Forest, worked as a conservation ranger on Martha's Vineyard, and volunteered for the Student Conservation Association monitoring Northern spotted owls in Oregon. Then, in a series of research assistantships, she observed, tracked, netted, counted and evaluated wildlife, from flying squirrels to harlequin ducks to slender salamanders.

Moving to the state of Washington, Elissa spent eleven months assisting a Master's student with his study of northern pygmy owls, tracking the tiny, fierce raptors up and down mountains of the northern Olympic Peninsula. "My favorite moment was watching three nestlings take their first flights." While crossing both majestic old forests and bleak clearcuts, mapping where the owls nested and hunted, she frequently wondered, "how much of the natural resources that *we* use do we really need?" She began teaching at the Olympic Park Institute, where her job was to inspire in her students, young and old, a deep and reverent enthusiasm for the natural world. "Ultimately, my goal is that more people recognize their connection to the natural world, feel responsible for stewarding it, and have the appropriate tools to act."

Through all of these experiences, she gained insight into the human side of science and the players in land management. Saving the world takes art, science, teamwork, and communication. Elissa jumped at the chance to be part of the Ecological Planning concentration because it makes critical links between field science and the people's action, through active learning and practical experience. "The reason I'm here is because I want to *do* something to conserve biodiversity, and this program is all about *doing*. "

Elissa enjoys backpacking, playing the fiddle, speaking Spanish, and snow. Currently her friends in Nova Scotia have to steam their small boats at least 20 miles off-shore to have any chance at finding fish. She hopes that someday a couple of kids might be able to take out a dinghy and catch their own dinner, like she used to do with her sister.

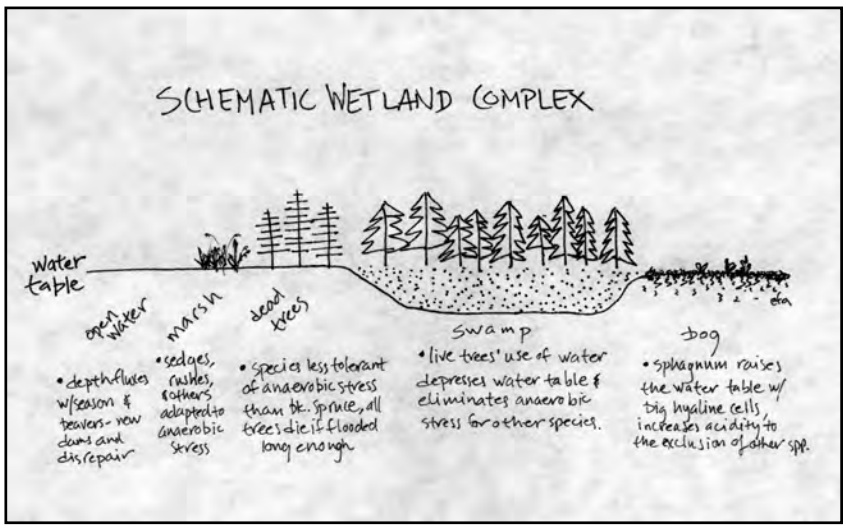
Jillian Butler

Jillian most appreciates life when she is immersed in the natural world. Whether she is sitting atop a mountain peak, backcountry skiing, horseback riding across a seemingly endless meadow, or floating belly-up in an alpine lake, her curiosity for the natural world stirs. This curiosity, combined with witnessing the degradation of pristine landscapes, has lead to her strong desire to actively sustain our wild places. "One of my life's passions is to conserve our wildlands."

Jillian earned a bachelor's degree in biology from Skidmore College with a focus on conservation. Her interest in nature took her to Kenya for a semester abroad to study wildlife management. During that time she began to recognize that effective conservation planning requires more than just a background in biology. Conservation issues are influenced by local and global committees, and in order to be a successful manager, it is necessary to understand the political, social, and economic variables involved in each issue.

Returning to Skidmore, Jillian sought a more integrative approach to her education. She was granted internships with the New York Fish and Wildlife monitoring bald eagle populations, and with Saratoga Open Spaces designing interpretative trail brochures. Following graduation she took the opportunity to explore other avenues of conservation by working with both state and private organizations around the country. She studied water quality in Vermont, researched factors affecting plant biodiversity in Minnesota, and monitored the raptor migration in the Florida Keys. Intrigued by raptors, she moved to Montana to research nesting Golden Eagles in the Elkhorn Mountains.

While Jillian enjoyed field research, she desired more training in the management of conservation lands and so chose to continue her



Belvidere Bog. *Elissa's represenation of a fall field practicum site.*

education in ecological planning. She sought a graduate program that emphasized a holistic approach to environmental problem solving; a program that supplied a strong background in the field sciences but also in integrative planning. The Ecological Planning concentration at UVM was an appropriate match. Following graduate school, Jillian hopes to continue promoting the integrity of our ecosystems by ensuring their health and diversity through effective land management and conservation planning.

EP Class of 2001. *Elissa Arnheim, Brian Carlson, Heather Fitzgerald, Jillian Butler, and Sadie.*

Brian Carlson

Growing up in Vermont, Brian saw a change slowly creeping across the landscape. One by one, farms and forested hillsides around his home were being converted to housing developments and roads. He was especially disturbed when his favorite running trails were being cut short by new gravel pits and big, grassy lawns. But, it was not until spending a summer studying wildlife management in Kenya that he first began to recognize the ecological values that were being lost with the changes in his town. When he returned home he looked at his surroundings with a new perspective. "I suddenly realized that I didn't have to travel to Africa to see wildlife, it was just a matter of opening my eyes to what was in my own backyard." This new awareness, combined with his study of biology at Colby College, heightened Brian's understanding of the impacts of development on habitat and wildlife diversity, and inspired his interest in conservation.

With a desire to see more of the world, Brian headed to Hawaii after college where he worked on a project examining the decline of endemic rainforest birds. His next stop was in North Dakota doing wetland ecology research and then he moved on to the Republic of Congo to experience an entirely new culture. Most recently, Brian worked in state government at the Maine Natural Areas Program assisting with rare plant conservation efforts. In that position he developed an interest in botany, natural communities, and conservation planning.

Throughout his varied work experiences, Brian witnessed many conflicts between the economic needs of communities and the maintenance of biological diversity and healthy ecosystems. Although these conflicts are complex and controversial, Brian believes there are usually sensible, win-win solutions. "The Ecological Planning concentration, with its mix of natural resource planning and field science, provides the ideal training for this type of problem-solving. It will prepare me to provide valuable input to the conservation planning that will shape tomorrow's landscape."

Heather Fitzgerald

After graduating with a degree in biology from Swarthmore College, Heather spent a summer weeding and sorting blades of grass to species at an ecology research station in Minnesota. "It gave me lots of time to consider what I wanted to do with my life, " she recalls.

She spent a few years working through the possibilities she'd come up with while sorting biomass out on the prairie. She worked as a lab technician, a field assistant on a wetland restoration study, and a botanist for a consulting firm, doing "ecology from every angle." Knowing that powerful communication was an important angle as well, she also worked at a non-profit organization devoted to land use issues and as a teacher for several years. Now 27, she reflects, "all of these jobs were what I wanted to do, but I wanted to be able to address more than one small part at a time." Growing up in Massachusetts and then in Texas, she experienced the power of place in some very different locales. But it wasn't until fairly recently, when designing a curriculum on sense of place, that she realized this was her common theme.

Heather is interested in looking at the landscape level. "I want to know about all of the pieces, and how I can put them together, so I can get at what I keep coming back to—knowing this place. I think people can be touched vividly by this sense of place, and that what often seems to follow from it is a greater understanding of how powerfully their personal actions, good and bad, affect their place—and others' places too. The Ecological Planning Program is giving me the tools to know the pieces of a place and to put them all together in a job where I can make them visible."

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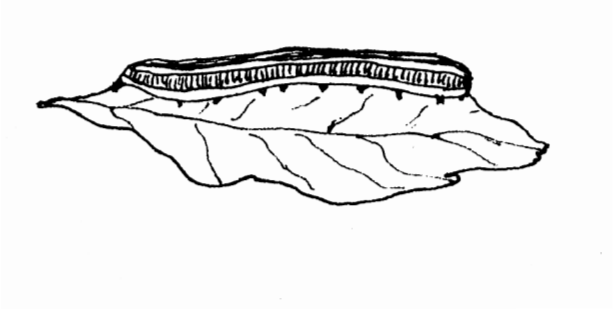
set of field-based natural science courses to provide a common set of experiences and science tools from which to understand and analyze ecosystems and landscapes. Further course work in theory and application of planning provides some of the social context in which environmental problems become defined and acted upon. An interdisciplinary course on integration provides an epistemological and ontological basis for working across disciplines, understanding the interface between the ecological and social sciences, and reconciling different perspectives on environmental issues. Case studies and applications complement conceptual content in most of the course work. Finally, a strong emphasis on communication via writing and speaking pervades the program.

Despite a long list of relevant (maybe crucial) courses that can be used to complete the program, only a few elective courses remain in the two-year curriculum. The obvious conclusion is that the EP concentration is just another step in a life-long learning process to gain the skills and understanding needed to work in a complex and evolving environment. The goal of the curriculum is to make this step a solid, rigorous experience from which future steps can confidently proceed.



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like botany, but wanted my education to be directly tied to planning." I too have a background in the field sciences and sought a program that trained in both the field and social sciences.

Heather noted that "being a new program we have discovered some minor wrinkles that needed ironing out, but overall, we have been welcomed and incorporated really well - especially in the Field Naturalist community." Looking back on last semester, Brian said he couldn't believe how much he has learned, "I feel so much more confident in my ability to understand and interpret what I see out in the field." For Elissa, one of the best benefits of the program has been the SNR community. The people and community have played a large role in making this program what it is. We are all being challenged and are furthering our understanding of the approaches to effective land management and conservation.

For More Information

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Belvidere Bog. *Jillian summarizes the day's lesson on wetland hydrology during the fall field practicum course.*

Summit of Mt. Philo. *The landscape perspective is examined by this year's EP students during summer coursework.*