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UNH Doctoral Student Wins 2011 Switzer Environmental Award

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Media Relations

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Matthew A. Vadeboncoeur. Courtesy photo.

DURHAM, N.H. -- University of New Hampshire graduate student Matthew Vadeboncoeur was recently awarded a 2011 Switzer Environmental Fellowship by the Robert and Patricia Switzer Foundation. The fellowship is one of just 20 awarded this year by the foundation for emerging environmental leaders who are pursuing graduate degrees and are dedicated to working towards positive environmental change in their career work. Fellows, chosen from universities in New England and California, each receive $15,000 to help them complete their degrees.

Vadeboncoeur, of Harrisville, R.I., is a Ph.D. candidate in the Natural Resources and Earth Systems Science (NRESS) program. His research is focused on understanding management- and disturbance-related changes to the cycling of nutrients in forest ecosystems. Currently he is using a detailed regional soil chemistry data set he collected with collaborators to characterize variation in the long-term sustainability of forest harvesting across the northern hardwood forest region.

"I'm trying to figure out what we need to measure and monitor if we are going to really intensify harvesting as an energy source," says Vadeboncoeur. "If you look at some of these forests today you'll see they're healthy and regenerating very well, but if they're harvested a few more times that could change in some places because of the complex underlying soil chemistry."

This question is highly relevant to current policy discussions about the potential to increase the use of local forest biomass for energy production in the northeast. Vadeboncoeur is particularly interested in investigating geochemical tracers of mineral weathering, the process by which most nutrients are ultimately derived from rocks and soils. He is working on nutrient limitation and element cycling in human-influenced forest ecosystems, in particular plant uptake of organic nitrogen and mineral forms of phosphorus and calcium as mediated by mycorrhizal fungi.

A large part of the Switzer Foundation's goal is fostering and developing leadership in people as they begin their professional careers. At the initial foundation retreat held in Essex, Mass., for new fellows, the emphasis was on communication and mentoring training, professional development and networking, Vadeboncoeur says.

"It was designed to get people thinking about bridging the gap between doing science, or whatever people are doing in their particular fields, to make sure they're more comfortable playing an active role in society, especially communicating results of science effectively, as opposed to letting it just circulate in academic circles," he says.

Vadeboncoeur holds a B.S. degree with honors in environmental science from Brown University. He has spent several summers leading field crews in soil and vegetation sampling at the Hubbard Brook and Bartlett Experimental Forests in the White Mountain National Forest, and he is also involved in tropical forest research in Taiwan and Malaysia.

His current research is focused on trying to better understand fungal weathering mechanisms as part of long-term nutrient cycles. At UNH he is advised by research associate professor Erik Hobbie of the Earth Systems Research Center within the UNH Institute for the Study of Earth, Oceans, and Space. Hobbie specializes in understanding the importance of mycorrhizal fungi in forests, both as a carbon sink and as a source for nitrogen.

The University of New Hampshire, founded in 1866, is a world-class public research university with the feel of a New England liberal arts college. A land, sea, and space-grant university, UNH is the state's flagship public institution, enrolling 12,200 undergraduate and 2,300 graduate students.

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Photograph to download: http://www.eos.unh.edu/newsimage/MV_Bartlett_lg.jpg.

Caption: Matthew A. Vadeboncoeur. Courtesy photo.

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