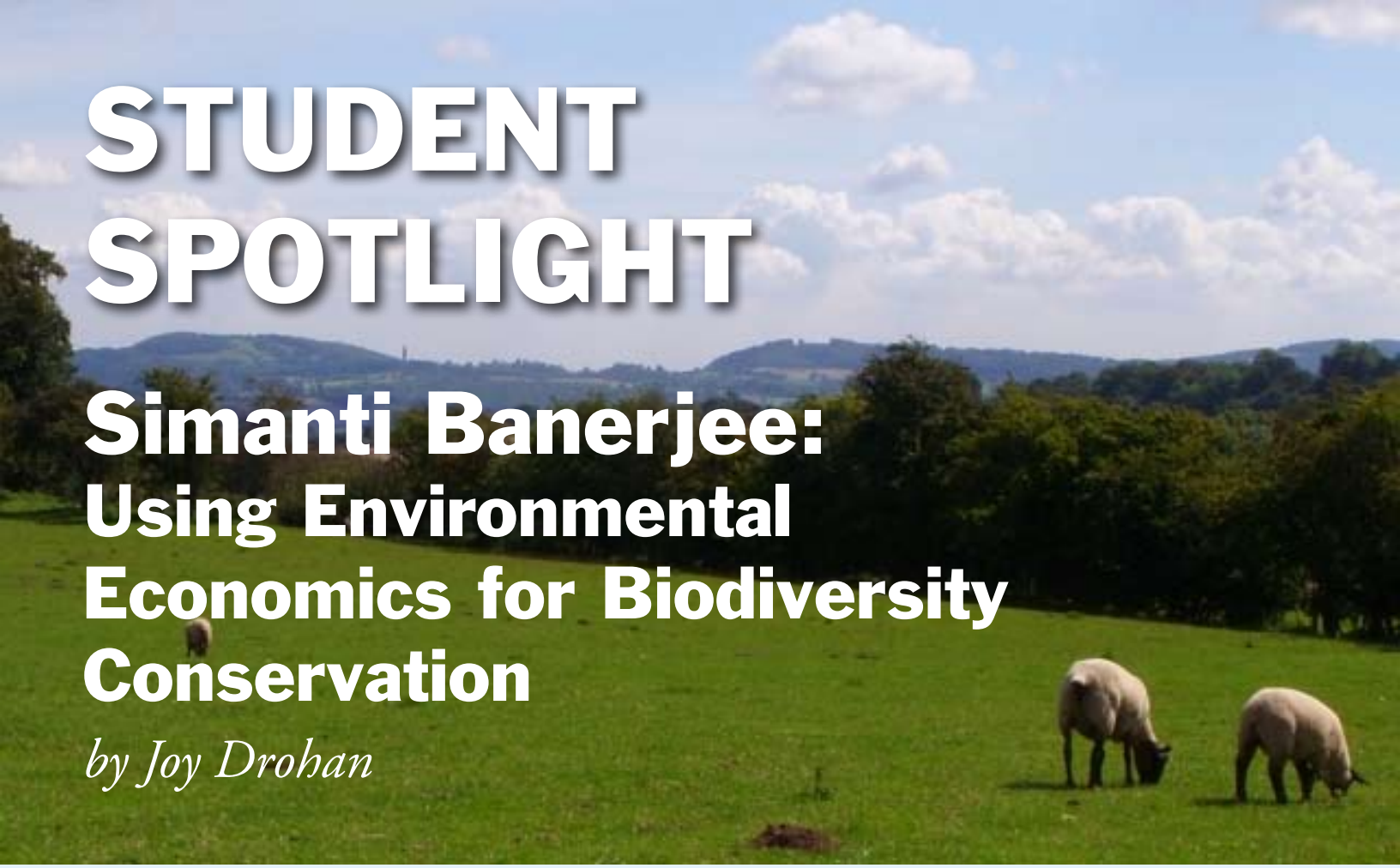

STUDENT SPOTLIGHT

Simanti Banerjee: Using Environmental Economics for Biodiversity Conservation

by Joy Drohan

Ph.D. candidate Simanti Banerjee discovered her passion for environmental economics while she was earning her master's degree in India when one day she was in the wrong classroom when the professor showed up. "In India, the student-professor relationship is very formal – it is not proper to leave – so I was stuck there for the remainder of the class," says Banerjee. The class was in environmental economics and what she heard that day motivated her to switch her focus of study from financial to environmental economics.

Banerjee is now working with Dr. James Shortle, distinguished professor of agricultural and environmental economics, to develop a market-based policy instrument – essentially a government-funded auction – for biodiversity conservation. Banerjee says she is "pursuing the ecological objective of biodiversity conservation with the help of an economic instrument." The auction for payments to landowners to implement certain land management practices would be loosely modeled on the U.S. Department of Agriculture's Conservation Reserve Program (CRP), in which eligible farmers and ranchers receive technical and financial assistance to address soil, water, and natural resource concerns on their lands. However, CRP does not include an incentive for implementation on spatially contiguous lands. This is one ecological deficiency that Banerjee's auction will address.

Spatial contiguity is important ecologically because many species require large undisturbed tracts of land on which to breed and subsist. These are becoming more difficult to find as natural lands are broken up for homes, mining, and other land uses.

Banerjee says that besides encouraging spatial contiguity of managed habitat, another unique aspect of her instrument is that she will analyze and control for collusion, in which program participants discuss their bids before the auction and secretly agree on prices. This invariably ups the bids and decreases cost-effectiveness. Banerjee is designing her policy tool to be generalizable to many different types of lands and wildlife species to increase its potential utility.

Because currently no ecological financial incentive program addresses the need for spatial contiguity, Banerjee is starting by generating data to illustrate how people behave in such a program. "I just don't have conventional data available that I can use to validate the auction I am designing," she explains. "So I have to generate my own data with the help of experimental methods. In doing so, I find myself at a frontier area of research." She plans to have undergraduates complete a competitive bidding exercise to implement biodiversity conservation measures on an experimental landscape. Research shows that subjects' responses in these experimental environments are reliable indicators of real-life outcomes no matter the background of the participants--whether undergraduates or seasoned business executives. The experimental environment removes contextual factors that can influence responses, such as a tendency to be sympathetic to environmental causes, and induces participants to respond only to financial incentives. In conducting these experiments, Banerjee will use the Laboratory for Economics, Management, and Auctions in the Smeal College of Business.

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After completing her Ph.D., Banerjee has concrete career plans. Working perhaps as an employee of a think-tank or consulting agency, Banerjee hopes to field test the resultant policy tool with actual sheep farmers in Britain. Migratory birds such as the curlew benefit from lower numbers of sheep because of lessened grazing pressure. But because most sheep in Britain graze in common, unfenced fields, everyone must agree to reduce their stocking density of sheep to achieve lower total numbers. Banerjee believes this will provide a great test of her model's encouragement of spatial contiguity.

This is not Banerjee's first economic study of biodiversity conservation. She previously studied biodiversity valuation through a willingness-to-pay survey for wetland preservation in her native Kolkata. "I saw how important habitat and biodiversity preservation was," she explains. "It provides livelihood and ecological enrichment to the area."

Banerjee came to the United States for her Ph.D. in 2005 because most of the tools in environmental economics are being developed here, and to experience a new country. She chose Penn State after conducting a thorough search of U.S. universities. "Penn State just drifted to the top in many categories," she says. The proximity to Washington, D.C., with its profusion of policy organizations, also attracted her.

She is thoroughly pleased with her choice. "I love the freedom to choose my classes and my Ph.D. project," she says. "I love my research because of the very real possibility of it being adopted as a policy tool." She enjoys the camaraderie of the Department of Agricultural Economics and Rural Sociology and the opportunity to attend and present her research at professional meetings and invited talks.

In addition to her Ph.D. work, Banerjee is the 2008-'09 president of the State College chapter of the Association for India's Development (AID), a grassroots nonprofit. The group earns money to donate to carefully selected development and social services programs in India by volunteering for food concessions at Penn State sporting and other events and through the annual food festival--Taste of India--held every April. The group sent about $40,000 to India in 2008. ■

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