Development and Application of Quantitative Methods for Ecosystem Services

December 19, 2014

10:30 AM ABE 301

Rebecca A. Logsdon

Rebecca (Becca) is a Ph.D. Candidate in Agricultural & Biological Engineering (ABE) under Dr. Indrajeet Chaubey. Rebecca received her M.S.E. from Purdue ABE in 2011, and her B.S. in Biological Engineering from the University of Arkansas in 2009. An Arkansas native, Becca has always enjoyed the *natural state* of things and being outdoors, which inspired her interest in the environment. While at Purdue, Becca has been involved with the Women in Engineering Program, the Purdue Graduate Student Government, the Peer Ombudsman Program, and the Wabash River Enhancement Corp (WREC). She has received multiple awards including the France A. Cordova Leadership in Action Award, the ASABE Robert E. Stewart Engineering-Humanities Award, and the ABE Outstanding Service Award. She met her fiancée, Mike Muenich, at Purdue in Advanced Statistical Hydrology, and is set to marry him in Arkansas next June.

Ecosystem services are benefits that people receive from the environment. Despite recent exponential increases in ecosystem service research, the ecosystem service framework has made little impact on policy and management decisions, especially in the Untied States. Two of the main limitations for a lack of ecosystem service considerations in making management decisions are a need for more advanced quantification methods and the lack of engagement of key stakeholders who are responsible for making watershed management decisions. This research seeks to address these two limitations by testing and improving quantification methods and by evaluating agricultural managers' understanding and perceptions of ecosystem services. The main objectives of this research were to (1) test an existing ecosystem service evaluation method in the Upper Mississippi River Basin, (2) improve understanding of influences of aquatic genetic resource provisioning using the SWAT model, (3) improve quantification methods for climate regulation ecosystem services using the DayCent model; and (4) evaluate Indiana agricultural producers' and conservationists' perceptions of ecosystem services in order to identify the best ways to include ecosystem services in making agricultural management decisions.