

# Michigan Chapter Soil and Water Conservation Society Seminar

## *A Matter of Balance: Ecosystem Services and Sustainable Agriculture*

### Presentation Abstracts

***Ecosystem Services Overview, Dr. Patrick Doran, The Nature Conservancy:*** What exactly are Ecosystem Services? Why are they important to me? How do Ecosystem Services affect me? Why do I need to understand and value the critical functions natural systems provide to humankind, as a means to insuring a mutually sustainable future? How would this understanding affect my life. How does understanding the role of Ecosystem Services impact my job, my role in my community, my County, my State, my Nation, my world? What do Ecosystem Services mean to me?

The answers to many of these questions can be confusing to say the least, but Dr. Patrick Doran of The Nature Conservancy will take us through a discussion to help bring attention to the role that ecosystem services can play in uniting conservation and the economy.

Just what are Ecosystem Services? Dr. Doran will focus on the big picture in the world around us, and on the day to day impact of Ecosystem Services on our lives and our work.

***Future Midwestern Landscapes Study, Dr. Betsy Smith, EPA, National Exposures Research Laboratory:*** The Ecological Services Research Project's Future Midwestern Landscapes Study (FML) is quantifying ecosystem services in 12 states that comprise the Midwestern US. By coupling existing databases on land cover and land use with economic projection methods, the FML Study is generating alternative future landscapes for the year 2022 that reflect two different drivers of landscape change – biofuels (our Biofuel Targets Landscape) and agricultural conservation practices (our Multiple Services Landscape). We are estimating ecosystem services for these landscapes by modeling projected changes in soil carbon, runoff, sediment and nutrient loadings, aquatic biological communities, wildlife habitat and air quality.

The landscape analysis methods developed for the FML Study are being implemented as a web-based environmental decision toolkit (FML-EDT). The FML-EDT will allow users to visualize alternative Midwestern futures and to compare them by examining tradeoffs, that is, changes in the complement of a wide variety of ecosystem services at both local and regional scales.

Major partners and clients in the FML effort include: USDA Farm Services Agency (for conservation practice data and policy); US Fish and Wildlife Service (for wildlife habitat modeling); and EPA Regions 5 & 7.

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***Making Markets work for Conservation, Carl Lucero, USDA-Office of Environmental Markets:*** Environmental markets are an innovative way to stretch resources, to take conservation beyond the boundaries of the farm, ranch and forest, while preserving productivity, maintaining and enhancing landowner livelihoods and producing environmental benefits. Market based solutions generally provide flexibility to undertake actions that have the lowest cost and result in more cost-effective achievement of natural resource conservation and environmental goals compared to traditional command and control approaches.

Payments for environmental solutions that provide benefits for others is an opportunity for landowners to receive financial returns on their working land in addition to those associated with traditional agricultural and forest products. Natural revenue streams will help cover the costs of owning and managing land, and provide new incentives for landowners to retain their holdings. Valuing environmental services encourages good stewardship and restoration of degraded areas, and supports innovative solutions to financing continuing production of agricultural and forest products. Redefining the value of working lands will increase the Nation's appreciation and support of private lands, and will help advancement of cooperative conservation across the landscape.

This presentation will discuss Section 2709 of the 2008 Farm Bill that directs USDA to develop the infrastructure to enable landowners to participate in environmental markets. It will discuss USDA's creation of the Office of Environmental Markets (OEM) and the activities OEM is pursuing to meet their Farm Bill mandate.

***Ecosystem Services from Crop Management: What they cost to supply and what citizens will pay, Dr. Scott M. Swinton, Department of Agriculture, Food and Resource Economics, Michigan State University:*** In managing their agro-ecosystems, farmers make choices that affect the mix of ecosystem services they produce. Improvements in such services as water quality regulation (via reduced nutrient runoff) and climate regulation (via less greenhouse gas emission) may reduce farm income or subject the farm to greater income risk. Research results from enterprise budget, farmer focus group interviews, and statistical analysis of surveys of Michigan crop farmers show how more sustainable practices can affect farm income. A parallel study of Michigan residents indicates that citizens are willing to pay for land use changes that could cover farmers' costs of providing selected ecosystem service improvements.

***Creating Market-Quality Credits from Ecosystem Services, Todd Parker, Delta Institute:***

Organizations and environmental entrepreneurs are examining new approaches to compensate landowners for implementing conservation practices that provide ecosystem services. Markets and payments for carbon sequestration, watershed management, water quality improvements and nutrient management may supplement traditional natural resource revenues and promote good stewardship. This session will discuss elements, such as protocol design, policy drivers, credit quantification, verification, registration and aggregation, payments, and stakeholder communications, necessary for a successful ecosystem service market.