

## **Applications and Potential of Ecosystem Services Valuation within USDA – Advancing the Science**

### **The “call to action”**

#### **Workshop goal**

Provide attendees, decision makers, researchers, and other stakeholders with an understanding of how innovative methods, advances in theory, efficient/practical data collection, and access to existing data can be used to improve the valuation of ecosystem services associated with US Department of Agriculture (USDA) programs and policies. A proceedings publication, with a thoughtful executive summary, will be published.

*Motivation:* Despite several decades of work and the development of a well-established literature, significant gaps remain. These knowledge gaps limit the ability of USDA to measure the value of ecosystem services delivered by its programs and policies. The workshop will explore new methods, data, and approaches to valuing ecosystem services and applying the results to Federal programs and policies.

#### **Workshop need**

USDA spends over \$5 billion yearly to support and improve ecosystem services on private lands (primarily through voluntary agricultural programs). USDA also owns and controls substantial public lands on which ecosystem services are a planning and management consideration (primarily through the 193 million acres managed by the United States Forest Service).

Valuing the ecosystem services delivered by conservation and stewardship policies is of growing interest within USDA and across the Federal government. A question of increasing importance is 'what has the public gained from USDA conservation and stewardship investments?' Put another way: *what is the ecosystem services value of USDA's conservation and stewardship policies and programs?* Examples of policies include:

- Targeting farmland conservation practices: which conservation practices (such as the changes in farm management supported by the Environmental Quality Incentive Program (EQIP) or land retirement via the Conservation Reserve Program (CRP)) should be placed where in order to yield the greatest public benefit?
- Guiding public land management: how should ecological and human needs be balanced to meet multiple use public goals and meet shared stewardship objectives?
- Evaluating broad conservation programs and policies: are the benefits at least as great as the costs for programs like environmental markets and Collaborative Forest Landscape Restoration Program?

Answering these types of questions requires accurate and scientifically sound measures of Ecosystem Service Values (ESVs). Ecosystem services are often “nonmarket” goods and services. They are not readily traded in markets, often due to their public-goods nature (non-competitive in consumption and non-excludable). Developing accurate ESV estimates raises considerable and challenging methodological and empirical issues. While there is a rich literature on valuation of non-market goods, the methods and analyses described in this literature are often difficult or impractical to use to estimate ESVs provided by USDA and other Federal agencies. For example, the ESVs associated with USDA programs and policies on private lands are often characterized by their ‘non-point’ nature. With a

myriad of small impacts diffused across a wide landscape, ESVs can have individually small effects on the well-being of a large and diverse population. Conversely, a single management decision can have impacts beyond the limited geography on which the program or activity is implemented.

*We are unabashedly talking about nonmarket valuation – since market methods are unable to measure the social value of many ecosystem services. That is, our focus is on benefits that are difficult to assign values to, and possibly even to characterize in measurable units. We stress that the calculation of benefit-cost ratios is not an explicit goal – we are not going to focus on “cost.”*

Papers that address the breadth of challenges analysts face when valuing the outcomes of USDA conservation and stewardship policies and programs will be favored.

### **What we will be looking for**

In addition to technical accuracy and innovative methodologies, presenters should keep foremost in mind the workshop’s overarching concern: *given a need for robust estimates of ESVs, how should the USDA improve and extend its capacity to value ecosystem services associated with USDA policy and program outcomes?*

The workshop audience (including its organizers) will be critiquing presentations with USDA policy-related issues in mind including:

- the recognition of dispersed and multiple ecosystem impacts that can flow from discrete actions
- the challenges of measuring impacts of widely dispersed changes in land use driven by “working lands” programs (changes in lands managed for production) and “land retirement” programs (non-permanent conversions)
- the variation in size and concerns of affected populations
- the potential for interaction of cultural and biophysical services
- the nonlinearities, complementarities, and substitution effects of program/policies
- the ease of updating estimates (as the population and environment change) is
- the capacity to be used when designing policy/program actions
- the capacity to be used for ex post valuations of actions