The National Atlas of Ecosystem Services: Spatially Explicit Characterization of Ecosystem Services

Anne Neale[1] and Ricardo D. Lopez[2]

[1]US EPA, National Exposure Research Laboratory, Research Triangle Park, NC
[2]US EPA, National Exposure Research Laboratory, Las Vegas, NV

The US EPA's Ecosystem Services Research Program (ESRP) is conducting transdisciplinary research to develop tools to enable decision-makers at all levels of governance to proactively conserve ecosystem services. One of these tools is a National Atlas of Ecosystem Services which is being developed in collaboration with other organizations including the USGS and the National Geographic Society. The Atlas will use the principles of landscape ecology and spatial analyses in order to display the production and beneficiaries of ecosystem services. A good illustrative example of the production/beneficiary paradigm is the retention of nutrients by inland wetlands and riparian buffers. The beneficiaries of these services are located at many points downstream of the service production and include drinking water recipients; recreational and commercial fishing industries, and consumers of food from the sea that depends upon wetland and upstream habitat to support fisheries. A key outcome of the Atlas will be the ability to view or "stack" multiple ecosystem services simultaneously, which will allow decision-makers to visualize trade-offs when making decisions. Ecosystem services to be included in the Atlas fall into the broad benefit categories of water quality, quantity, and timing; climate regulation; food, fiber, and fuel; storm surge and wave/tidal energy protection; aquatic and terrestrial habitat; and human health, cultural values, and recreation. The Atlas will be an Internet-based product; relevant at multiple spatial units and scales; inclusive of historical perspectives, as well as future scenarios; and continuously updated as new spatial data become available and as the science of ecosystem services matures. The presentation provides an overview of the Atlas design and implementation, including coastal wetland research for the program, and applications of landscape ecology to mapping of coastal wetland change and ecosystem services.

Contact Information: Anne Neale, US EPA, E243-05, NERL, ESD, LEB, RTP, NC 27711 USA, Phone: 919-541-3832, Email: neale.anne@epa.gov