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Farming for ecosystem services: visualization of alternative working landscapes

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Abstract

Farming for Ecosystem Services: Visualization of Alternative Working Landscapes

There is growing recognition worldwide that the ecosystem services provided through natural ecosystem functions are critical in creating and sustaining productive and resilient societies. Furthermore, ecosystem services are integral to the sustainable agriculture paradigm, which seeks to integrate services such as biological pest control and pollination, water and nutrient cycling, and the prevention of erosion and floods to lower the costs of farming and enhance public benefits associated with agricultural landscapes. As societal demand for ecosystem services intensifies, it is imperative that private landowners, producers, policy makers, and the public can effectively work toward a common vision for these landscapes. A key barrier to achieving this goal lies in the complexity associated with the provisioning of ecosystem services—the underlying knowledge is hard to communicate, as it is perceived to be complicated, inaccessible, and fraught with uncertainty. To overcome this communication barrier, I propose to develop and visualize alternative agricultural landscape scenarios with diverse agricultural stakeholders in America's Heartland; scenarios will be strategically designed to capitalize on ecosystem services while maintaining high agricultural productivity. Project objectives are to: 1) survey stakeholders to determine the suite of ecosystem services considered critical in this region, 2) use their input to design alternative agricultural landscape scenarios, 3) analyze and visualize the ecosystem services associated with these scenarios, and 4) examine the effectiveness of visualization as a tool for enhanced communication among diverse groups. In the long term, this work will assist in creation of ecosystem service districts and facilitate communication on multifunctional farming systems among diverse groups of people.