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Leadership in Conservation Thought, Policy and Action

Bay Bank—The Chesapeake's Conservation Marketplace

The collective actions of millions of farmers and woodland owners are the key to the restoration of the Chesapeake's streams, farms, forests, wetlands, and the largest estuary in the United States, the Chesapeake Bay itself. Private families and individuals own nearly 80% of the land in the Chesapeake region and live within minutes of the 100,000 streams and rivers that flow directly into the Bay.

New and innovative market-based approaches have emerged to offer landowners realistic financial incentives to implement conservation actions. Market-based conservation harnesses economic markets to effi-

ciently deliver environmental objectives. For many market-based projects, property owners who implement conservation practices that enhance ecosystem services generate credit supply in an environmental marketplace. For example, by installing a suite of practices that include planting of riparian buffers and other actions to manage nutrient runoff to streams, landowners can generate nutrient reductions that create credits. These credits can then be sold to buyers in a water quality market.

Buyers provide the established need and money that drives markets. For example, water quality markets will be driven by the demand for nitrogen

and other nutrient reductions across the watershed. The businesses, institutions, and citizens demanding these reductions do so to comply with regulations like the Clean Water Act, to prepare for future regulations, or for strictly voluntary reasons. Although these markets are becoming available nationwide, there is no efficient way to link landowners with this capital.

Bay Bank (www.thebaybank.org) fills this need by serving as the Chesapeake's conservation marketplace. As markets develop, Bay Bank will make sense of all developing rules and tools and present them so the main suppli-

(continued on page 5)

Status of Markets for Ecosystem Services

Sara Vickerman

In recent years, enthusiasm for market-based approaches to the conservation of ecosystem services appears to have increased. Private businesses, landowners and operators, government agencies, and other parties are all actively trying to determine their opportunities and roles. Organizations like the Bay Bank in the Mid-Atlantic and the Willamette Partnership in the Pacific Northwest are working to coordinate market-based projects among these varied interests.

Although an influential element of conservation today, the definitions

and diversity of markets are both interesting and complex. A description of several of existing and emerging markets and supportive policies may be useful.

Wetland Mitigation Banking

The most mature domestic market for ecosystem services is probably wetland mitigation banking. Wetlands are protected by the federal Clean Water Act, and the U.S. policy of "no-net-loss" triggers mitigation responsibilities for developers and others who impact wetlands. A his-

toric preference for on-site, in-kind mitigation projects produced a rash

(continued on page 3)

INSIDE

- Valuing Drinking Water as an Ecosystem Service. . . *page 10*
- Sustaining the World's Natural Capital. *page 14*
- Forestry Done Right: Precious Woods and the Future of the Amazon. . . *page 17*

of criticism from the scientific and conservation communities, who documented the failure of many of these projects to replace lost or degraded ecosystem functions and values. The sites tended to be small, located in developed areas, and inadequately maintained over time. In contrast, a landowner or restoration business can restore or enhance a large, properly situated wetland and provide long term management to protect its ecological values. Credits are generated and approved by regulators, then sold to developers to offset the adverse impacts to wetlands on the development site. Although some wetland banks have been more successful economically and ecologically than others, the general trend in wetland mitigation banking has been toward improvement in the regulations guiding the process and the application on the ground.

Water Quality Trading

Another example is a water quality trading program operated by Clean

Water Services, a special district that provides sewer and water services to Washington County in Oregon. Its treatment facilities must comply with the Clean Water Act, which regulates discharges of warm water. The Oregon Department of Environmental Quality authorized a water quality trading program in which the district compensates landowners for providing riparian vegetation that shades streams and cools the water. This approach provides a much broader spectrum of benefits than traditional engineering solutions, including improved fish and wildlife habitat, aesthetic and recreational values. It also pencils out at about ten percent of the cost of cooling towers at the end of the pipe. A number of other water quality trading programs have been authorized around the United States, each focused on a specific problem, like excess phosphorus or nitrogen. However, many of them have never executed a trade, largely due to the complexity of the regulations and associated transaction costs, and uncertainty on the part of the regulated community.



Riparian vegetation not only provides habitat by shading and cooling the water, but also supplies the local landowner with compensation for utilizing sustainable ecosystem management techniques.



Sara is the senior director of biodiversity partnerships for Defenders of Wildlife and director of the Northwest office. She has been an enthusiastic advocate for policies at

the state and federal level that assist landowners in conserving priority habitats for fish and wildlife. She initiated and managed one of the first statewide biodiversity assessments and strategies and published the results in 1998 as part of the Oregon Biodiversity Project. She and her staff have promoted several sustainability and landowner incentive bills in the Oregon Legislature, including SB 513 that establishes a policy framework for ecosystem service markets. Sara has received numerous awards, such as the Distinguished Achievement Award from the Society for Conservation Biology, and serves on several boards, including the Oregon Sustainability Board. Sara can be reached at svickerman@defenders.org for more information.

Carbon Trading

A quasi-regulatory market prominently featured in the news and policy debates is carbon trading. In a regulated version of this market ("cap and trade"), carbon dioxide emissions are capped, and companies are allowed to buy and sell credits or allowances not needed for compliance. Since the federal government has not adopted laws that mandate and guide a cap and trade market in the U.S., trades are voluntary, though some are driven by the anticipation of future regulation. There is potential for carbon trading to benefit forest ecosystems in the United States if the rules allow forest projects that sequester carbon to qualify. Ideally, forest conservation and sustainable management for a broad spectrum of values, including fish and wildlife habitat will provide revenue to landowners who sell carbon credits. However, the rules associated with an-



To avoid the loss of endangered and non-endangered species habitat, landowners will have market opportunities by establishing areas focusing on suitable habitat needs

cillary benefits to sequestration are not clear, and tend to vary according to different voluntary standards.

Conservation Banking for Endangered and Non-Endangered Species

An emerging ecosystem market is conservation banking, common in California but rare elsewhere. This program addresses the loss of endangered species habitat by allowing landowners to establish banks with suitable habitat and sell the credits to developers who impact habitat for the same species. Oregon's first example, the Agate Desert Conservation Bank, is operated by the state Department of Transportation to offset impacts from several highway construction projects. The 80-acre bank contains vernal pools, prairie and oak savanna in the Agate Desert area near Medford.

For non-endangered species, voluntary habitat-based markets are developing. The Bay Bank is developing a market-based approach to implementing State Wildlife Action Plans in the Mid-Atlantic. Initial market areas are focusing on habitat needs

for eastern brook trout and bog turtles as well as Atlantic white cedar and ancient sand ridge forests. Compliance driven markets have more defined sources of demand, but voluntary market-based approaches do provide a number of advantages including proactive protection for a greater number of habitats and species and opportunities to test innovative strategies.

Oregon Approves Ecosystem Markets Legislation

The Oregon Legislature approved SB 513 in the 2009 session, which addresses the development of markets for ecosystem services. The bill includes formal recognition that maintaining sustainable rural landscapes is important to people, and that landowners need assistance to maintain ecological values on the land and pass it on to future generations.

Specific provisions establish a state policy supporting the *maintenance enhancement and restoration of ecosystem services throughout Oregon, focusing on the protection of land, water, air, soil and native flora and fauna*, and explicitly authorizes the use of adaptive management.

The bill creates a working group to address several thorny issues, including the need to develop shared conservation goals, how to develop more consistency in ecosystem service accounting, how to integrate the activities of multiple agencies and other actors, and the appropriate role of government in guiding markets for ecosystem services. The work group will present recommendations to the 2011 legislature.

Challenges Ahead

Experiences with these programs have revealed a number of thorny challenges that frustrate practitioners and stakeholders. They need to be addressed before markets reach their po-

tential in providing broad ecological and economic benefits.

- **Ecosystem services are unevenly regulated.** For example, water quality, endangered species, air quality and wetlands are regulated to varying degrees, but other resources, like forested watersheds, native prairie, and functioning floodplains are not. This situation suggests that either regulations should be more consistent across resources, or that other approaches, like incentive payments and market-based approaches are needed to achieve holistic conservation goals.
- **Narrowly focused mitigation approaches remain imbedded in agency policy and culture.** To the extent that a separate program is created for each ecological element, confusion and complexity will continue to baffle landowners who are interested in selling multiple ecological services. A more consistent and integrated approach is needed.
- **The role of government in ecosystem markets is unclear.** Government agencies can either enable and encourage the development and efficient functioning of ecosystem markets, or strangle them with excessive administrative requirements. Ensuring the economic and ecological integrity while minimizing transaction costs is challenging but necessary for vibrant markets.

Making it work

Although multiple challenges must be addressed before ecosystem markets reach their full potential, the benefits of market-based approaches to the conservation are significant. Defenders of Wildlife looks forward to working with The Pinchot Institute for Conservation to meet these challenges. 