

# FARM of the FUTURE

Working lands for ecosystem services

The **Farm of the Future** project profiles working farms, forests, and ranches that are currently participating in environmental markets or receiving payments for ecosystem services. Through case study and illustration, the project documents how five landowners changed their land management practices to provide water quality, wetlands, wildlife habitat, and carbon benefits—managing working lands to generate new revenue from ecosystem services as a supplement to traditional income. The project highlights lessons learned from these early experiences and some of the challenges and rewards of market-based conservation.

**Big River and Salmon Creek Forests** demonstrate a new approach to sustainable forest management that involves a “light-touch” harvest regime, the protection of wildlife habitat and water quality, the sale of carbon offsets, and job creation in local, rural communities. | **North Coast CA**

**Buck Island Ranch** is one of eight ranches in the Lake Okeechobee watershed supplementing its cattle sales with payments for water retention as part of a pilot project. | **Northern Everglades FL**

**Sacramento River Ranch** sells wetland and habitat mitigation credits to local developers in addition to its food production on 3,600 acres of cropland and orchards. | **Central Valley CA**

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## Buck Island Ranch

*In a pilot project where Florida ranchers are paid to retain water on their pastures, wetlands and native areas, the Florida Ranchlands Environmental Services Project (FRES) is laying the groundwork for a Payment for Ecosystem Services (PES) program that would yield critical water and nutrient retention services while*

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## Mudford Farm

*Keeping core farmland in production while addressing pollution problems in the Bay, the Biophilia Foundation buys degraded farm properties and implements conservation measures with Chesapeake Wildlife Heritage to increase the ecological and economic value of the land.*

**Chesapeake Bay**  
Mudford Farm is located within the Chesapeake Bay region on Maryland's Eastern Shore. The Chesapeake Bay is the largest estuary and one of the biologically richest areas in the United States. Historically an important fishing and seafood production region, it has been adversely impacted by nutrient runoff causing algal blooms and the creation of a dead zone in the Chesapeake. Non-point source agricultural runoff from fertilizer and manure comprise a significant portion of excess nutrients in the Bay.

**Field Borders** 15 acres habitat for grassland birds, established through Conservation Reserve Enhancement Program

**After**

**Before**

**Silve Strips** 25 acres warm season grasses, established through Conservation Reserve Enhancement Program

**Wooded Wetland** 10 acres, established through Maryland Department of the Environment mitigation easement

**Ditch Plug Wetland** restoration technique

**Emergent Wetland** 30 acres established through Conservation Reserve Enhancement Program

**Crop Areas with Poorly Drained Soil**

**Crop Fields** 80 acres Corn/wheat/soybean rotation

**Temperate Woodland** 112 acres, naturally occurring

**Field Borders** 15 acres habitat for grassland birds, established through Conservation Reserve Enhancement Program

**Programs:**  
 The Biophilia Foundation is restoring 30 acres of wetland, creating 40 acres of warm season grass meadow, and restoring 10 acres of wooded wetland on Mudford Farm.  
 These conservation practices set up a natural filter for agricultural runoff, and create a habitat for waterfowl, shorebirds, turtles, frogs, and song birds, thus increasing the ecological value of the land.  
 The Biophilia Foundation is negotiating an easement sale through CREP to permanently protect the nutrient reduction credits treated wetlands and buffers plus an additional 40 acres of woodlands.  
 Once the protection of the property is complete, it will be resold and the buyer will continue to produce crops on the 80 acres of land with the most productive soils. Revenue from the wetland mitigation easement and nutrient reduction credits will be reinvested in similar projects.

**Farm Income Sources, 2009**

Source	% of Income	Customer
Corn, soy and wheat revenue	41%	Private companies
CREP rental payment	31%	The state of MD
Wildlife hunting leases	28%	Spartanburg

Post restoration revenue (2009) is 12% greater than pre-restoration revenue (2006)

For more information, please contact Richard Pritzoff at the Biophilia Foundation at [biophilab@wilderness.net](mailto:biophilab@wilderness.net) or the Office of Environmental Markets at the USDOA at [OEM@usdoa.gov](mailto:OEM@usdoa.gov), or EcoAgriculture Partners at [info@ecoagriculture.org](mailto:info@ecoagriculture.org)

**Mudford Farm** maintains corn, soybean, and wheat production on its most productive soils while restoring wetlands and wildlife habitat on marginal agricultural land. This management strategy generates returns from a wetland mitigation bank, hunting permits, water quality enhancement, and row crops. | **Chesapeake Bay MD**

**Watson Partners Farm** receives payments for planting a cover crop with its sugar beets as part of a phosphorus trading program within its cooperative. Cover cropping sequesters phosphorus and offsets discharge from the cooperative's wastewater treatment facility. | **Minnesota River Basin MN**

# Lessons Learned

*Working lands for ecosystem services*

**Public programs jumpstart innovation.** Many market-based conservation initiatives depend on dedicated “seed funding” from state, local, and Federal partners to help cover program development and landscape modification costs. In four of the five cases, public funding from a combination of USDA, state, and local conservation programs was necessary for project success.

**Creative financing is often needed.** To cover upfront costs, participants should seek out creative financing mechanisms, such as low-interest loans and capitalization of future payments. The Conservation Fund’s use of the existing State Revolving Fund highlights the potential for leveraging existing public finance vehicles to bring ecosystem services projects to fruition.

**Securing demand is critical.** Landowners must identify a clear, reliable source of demand in order to generate additional ecosystem services on their land. In many cases regulation from the Clean Water Act, Safe Drinking Water Act, and Endangered Species Act drives demand.

**It takes a team.** Environmental markets involve farming, ecological, legal, and financial expertise as well as buy-in from landowners, environmentalists, investors, regulators, and other government agencies. All five cases achieved success through partnerships. Landowner networks, cooperatives, conservation districts, and third-party aggregators can play crucial roles in building partnerships and integrating the necessary expertise.

**Diversify to alleviate risk.** Payments for ecosystem services can diversify income sources and alleviate financial risk. The sale of carbon offsets enabled the Conservation Fund to weather the dramatic decline in timber prices in 2009 and 2010. The fixed, scheduled payments that Sacramento River Ranch receives for its wildlife habitat insulate the property from fluctuations in crop yield and prices.

**One size does not fit all.** Landowner involvement in emerging markets is currently on a case-by-case basis and an entrepreneurial endeavor. There is no one blueprint for success. Each case is grounded in the particulars of its environment context and main actors. However, as different environmental markets develop, program models should evolve and become easier to replicate.

**Aggregation is advantageous.** Organizations such as landowner cooperatives can help bring the delivery of ecosystem services to scale. In the case of Watson Partners, working through the sugar beet cooperative enabled greater, more cost-effective impacts on water quality in the basin than would many small projects involving multiple landowners. Because ecosystem services function at a landscape scale, it makes sense to aggregate best management practices through group participation.

**Keep it simple.** Current markets are time-intensive to build, involve many players, and have high transaction costs. More streamlined models would make it easier and more affordable for landowners to participate.



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