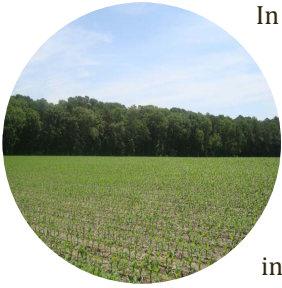


FARM OF THE FUTURE

Working lands for ecosystem services

MUDFORD FARM | Chesapeake Bay, Maryland

Mudford Farm is a 274-acre farm on the Eastern Shore of Maryland in the Chesapeake Bay region. In addition to growing corn, wheat, and soybeans, Mudford's owners have diversified their farm by restoring marginal farmland to wetlands, grass meadows, and riparian buffers, hoping to reap greater financial returns from the restored ecosystem services.



In 2005 Mudford Farm was like many other farms in the Chesapeake region. The land was rented to farm managers who cultivated any land that wasn't forested. But almost half of the cropland was marginally productive. An environmental assessment of the property concluded that significant areas of the farm contained poorly drained, anaerobic or "hydric" soils. Using a combination of private financing, USDA Farm Bill conservation programs, and state funding, its new owner, the Biophilia Foundation, remodeled the working farm to include the production of ecosystem services, creating a more economically viable enterprise in the process.

The new farm. Biophilia Foundation reserved the most productive 80 acres on Mudford Farm for continued cultivation and set about creating habitat and implementing new management practices to generate a net positive environmental impact. Five years later, the farm continues to produce corn, wheat, and soybeans under a conservation management strategy that also involves:



Grass meadows and filter strips (40 acres)



Strategically placed buffer strips along field borders, including 25 acres of warm season grasses, provide habitat for waterfowl, quail, wild turkey, and other wildlife. The subsequent increase in waterfowl populations improves Mudford's hunting revenue. Additionally the farm now receives a Conservation Reserve Enhancement Program (CREP) rental payment of \$12,000 per year.

Wetland bank (10 acres)




A portion of the restored wetland was put now under permanent easement so that wetlands credits could be sold to the State of Maryland in 2009 for \$8,000 per acre.

Water quality protection (36 acres)

Several restored wetlands, together with vegetated buffer strips, serve to reduce runoff from nitrogen, phosphorus, and sediment into nearby waterways. Verified nutrient reductions from these practices created water quality credits that the Biophilia Foundation registered with a credit trading platform for sale to private or public parties on a voluntary basis or to regulated entities in anticipation of a future compliance market. Recently, Biophilia sold a CREP easement to the State of Maryland to permanently protect the entire farm, including the cropland, wetlands, forest, and buffers; water quality credits resulting from the protective actions were retired. If sold on the voluntary market, Biophilia expected the nutrient credits to generate at least \$18,500 per year.

The business model. The Biophilia Foundation utilized USDA Farm Bill conservation programs to restore marginal agricultural land and produce measurable water quality, habitat, and wetlands benefits while keeping the most productive soils in farming. The Mudford story illustrates Biophilia’s unique conservation approach. The non-profit organization buys farm properties, restores the land for conservation and continued agricultural production, and sells the restored farms with permanent land use restrictions to secure conservation benefits. Profits at Mudford from the wetland bank, the sale of nutrient credits, and the future sale of the encumbered property will be reinvested in similar future projects. The next owner of Mudford Farm will receive CREP rental payments, which will continue on an annual basis for the next 12 years.

Farm Revenue Sources (Gross), 2009

Source	Revenue	Customer
 Corn, soy and wheat revenue	45%	Poultry companies
 CREP rental payment	35%	The state of MD
 Wildlife hunting leases	20%	Sportsmen

Revenue calculations and all financial information provided by the landowner.

LESSONS LEARNED

Public programs jumpstart innovation. Two USDA Farm Bill programs, the Conservation Reserve Program (CRP) and the Conservation Reserve Enhancement Program (CREP), helped Mudford Farm finance its restoration activities. Public programs can provide start-up funding for conservation activities and help landowners overcome financial barriers to environmental market access.

Local partnerships are a win-win. The Biophilia Foundation relied on local partners to design and implement its restoration plan, measure and verify wildlife population increases and nutrient runoff reductions, and bring nutrient credits to market. Involving regional expertise builds ecological credibility into the conservation plan and supports small businesses, employment, and workforce training in the community.

Voluntary markets can prime the pump. Mudford Farm serves as a demonstration site for measuring nutrient reductions produced by restoration activities. Voluntary, trial-and-error activity is already taking place on the ground and can inform the development of compliance-based nutrient trading markets.

One size does not fit all. Mudford’s experience is unique, involving a nontraditional landowner and a land purchase model that is not easily replicable. Landowner involvement in emerging markets is currently on a case-by-case basis and an entrepreneurial endeavor. However, as different payment for ecosystem markets develop, examples such as this one should evolve and become easier to replicate.



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