FARM OF THE FUTURE

Working lands for ecosystem services

BUCK ISLAND RANCH | Northern Everglades, Florida

Buck Island Ranch is a 10,500-acre ranch north of Lake Okeechobee in the Everglades region of Florida that uses existing drainage infrastructure to create seasonal wetlands. The ranch receives payments for the stormwater retention services it now provides while keeping its commercial cattle operation thriving.

With over 3,000 head of cattle, Buck Island Ranch is among the top 20 commercial cow-calf operations in Florida. The working ranch operation is owned by the John D. and Catherine T. MacArthur Foundation; the ranch doubles as a living laboratory for the MacArthur Agro-Ecology Research Center, which focuses on the role of ranches in sustaining Florida's ecosystem services. In addition to cattle sales, the ranch earns revenue from sod production, hunting leases, and cabbage palm harvesting.

Buck Island Ranch is one of eight participating ranches in the Florida Ranchlands Environmental Services Project (FRESP) led by the World Wildlife Fund and a coalition of state and Federal agencies, ranchers, and researchers. Now in the fourth year of a 5-year pilot phase, the project pays selected ranchers to modify existing water management systems on their ranch to capture water and reduce phosphorous loads. Learning by doing is the focus of the pilot phase. Management practices include the use of culverts with flashboard risers, impoundments, berms, and pumps. Project funding comes from a unique mix of public and private sources.

The eight demonstration ranches have informed the design of the new Northern Everglades – Payment for Environmental Services (NE-PES) Program. If successful, the program will provide ranchers with a new source of income and an incentive to implement on-ranch water management practices that are economically viable and support ecosystem restoration in the Northern Everglades. Profit is only part of what motivates the ranchers participating in FRESP; they also value this opportunity to provide a public service and demonstrate their land stewardship.

The new ranch. Buck Island has implemented alternative water management practices on over 3,700 acres. The ranch is holding back water within a large network of existing ditches, restoring seasonal wetlands, and retaining on average an additional 0.6 acre-ft of water per acre during the wet season.

The new water management practices provide a number of environmental benefits. Flood water retention helps to reduce the amount of nutrients flowing rapidly off cattle pastures; phosphorus loads are reduced by as many as 3,300 pounds annually. Longer hydro- or "wet" periods in the seasonal wetlands help maintain habitat for plants, frogs, and wading birds and enhance the wildlife experience of visitors and eco-tourists.

The business model. As a pilot project, Buck Island currently receives a participation payment, but under the NE-PES program payments will be based on verified water retention or nutrient removal. Buck Island receives an annual participation payment of $93,333, which was 5 percent of overall ranch revenue in 2009 and 7 percent in 2008. This payment covered operating costs, offset the risk of high water levels that reduced cattle production during wet years, and compensated for the large declines in sod production the ranch experienced due to the housing downturn. Since on-ranch water mangement projects require relatively low investment in new infrastructure, initial capital outlay can be low, and return on investment can be attractive.

Payments will vary under the NE-PES program. Ranchers will sell either water retention or phosphorus reduction services to the South Florida Water Management District, the buyer. Projects will be chosen through a reverse auction process, whereby multiple ranchers will compete to sell their services to a single buyer. The reverse auction allows ranchers to name their price, which fosters ranch participation, and enables the district to select to fund the most cost-effective environmental services. The water district will enter into 10-year contracts with selected ranches.

Farm Revenue Sources (Gross), Average 2007-2009

Source	Revenue	Customer
Cattle sales	89%	Feedlots
Other agricultural revenue (sod, cabbage palm)	3%	Sod and tree harvesters
Hunting leases and nature tourism	3%	Sportsmen and tourists
Payments from FRESP pilot	5%	State agencies

Revenue calculations and all financial information provided by the landowner.

LESSONS LEARNED

Leverage the creativity and experience of multiple stakeholders. PES programs are complex and require a mix of experience and skill sets to design. Ranchers, agency staff, researchers, and environmental groups contributed to FRESP's design process from the beginning. Their diverse expertise and knowledge were crucial to creating an economically attractive program, one feasible to administer yet flexible for ranches of various sizes and cost structures.

Field-test with a pilot phase. Sustainable PES programs have a better chance of success when they're created on the strong foundation of a well-designed pilot project. FRESP's 5-year pilot not only provided "proof of concept," but it also allowed for an iterative design process and troubleshooting along the way.

An ecosystem services buyer is critical. Like FRESP the success of many market-based initiatives depends at first on dedicated "seed funding" from state, local, and Federal partners. A dedicated buyer or set of buyers must be willing and able to pay for the desired services. With huge public demand for increased water retention and nutrient reduction in the Northern Everglades region, the water management district was keen to pursue a PES model as a financially sound approach, allowing FRESP to make the transition from pilot to program.

USDA

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