U.S. Fish & Wildlife Service

Terrestrial Carbon Sequestration

Restoring native wildlife habitat and capturing carbon

Climate change is and will continue to impact the natural resources the U.S. Fish and Wildlife Service and its partners are charged with conserving. Whether it's change to native terrestrial habitats or sea level rise and impacts to vital coastal wetlands and marshes, we are only beginning to understand what is happening across the country, what is likely to occur in the years ahead, and how our agency will act.

Indeed, more than one-third of the Service's national wildlife refuges are located along the coast. Open space and farmland are being lost. In the Southeast, for example, nine of 10 states are ranked among the top 20 states that have lost the most open space and farmland to development.

Our challenges are stark. Our opportunities are significant. So we are moving forward aggressively to examine climate change, its impacts, and steps this agency can take through the prism of strategic, integrated landscape-level conservation to adaptively prepare its managers for the future. We will become more adept at working with partners to identify and connect critical important wildlife corridors! We will become increasingly capable of working across organizations to leverage and target conservation actions to the most ecologically sensitive portions of the landscape to sustain fish and wildlife resources!

One of the tools the Service has developed over the past decade to begin addressing some of the impacts of climate change is an innovative terrestrial carbon sequestration program. The first of its kind among natural resource agencies – was born out of conversations between the Service's biologists and representatives of Dynegy Corporation in 1997.

Today, the program has grown into a multi-pronged effort involving individual citizens, energy companies, and conservation organizations. It is a key part of the Service's effort to restore the Lower Mississippi Valley, which saw its forested wetland habitat shrink from 24 million acres to less than five million acres over the better part of the 20th century. The program's success in the Lower Mississippi Valley has led the Service to expand it nationally, providing restoration opportunities to refuges across the country.

The Service works with more than two dozen energy companies, Environmental Synergy, Inc., The Trust for Public Land, Ducks Unlimited, and The Conservation Fund, and so far has added 40,000 acres of restored habitat to its national wildlife refuges and restored more than 80,000 acres to native habitats benefiting fish, wildlife, and migratory bird populations.

Together these partners have planted more than 22 million trees that will capture more than 33 million tons of carbon over the next 90-plus years And it's not just bottomland hardwood restoration where the opportunities are being found.

- In the Prairie Pothole Joint Venture, the Service and its partners led by Ducks Unlimited work to secure habitat necessary for nesting waterfowl and other migratory birds. DU established a carbon credit program armed with the latest science about carbon storage in grassland ecosystems. So far, they have purchased carbon credits on more than 26,000 acres of private land

DUCKS UNLIMITED

AEP AMERICAN ELECTRIC POWER

THE CONSERVATION FUND

DTE Energy

Entergy THE POWER OF PEOPLE

THE TRUST for PUBLIC LAND

secured through perpetual easements. They provide a one-time "incentive payment" to landowners who enroll. The credits are conveyed to DU, which then sells them in the market. The current project will sequester 795,777 metric ton across the project area across North and South Dakota over 99 years. On average, the project will reduce carbon emissions by 8,038 metric tons per year.

- In the Sacramento Delta of California, partners are developing a process to "farm carbon" by restoring vegetation and re-hydrating organic peat soils. Carbon farming works as CO2 is taken out of the air by plants such as tules and cattails which in turn decompose and create new peat soil. Through this process farmers hope to restore wetlands, rebuild the Delta's unique peat soils, take CO2 out of the atmosphere, ease pressure on the Delta's aging levees, and infuse the region with new economic potential.

- In the Southeast, the Service is exploring the feasibility of alternative habitat restoration techniques to encourage carbon sequestration in the Florida Everglades and across the expansive pocosin wetlands of the Carolinas. A project at Pocosin Lakes National Wildlife Refuge involves verifying carbon sequestration benefits of the pocosin hydrology restoration work that began in the 1990s.

Early in the program, the companies simply restored natural vegetation on highly degraded lands already owned by the Service. Today, energy companies purchase high value lands, restore them based on wildlife conservation priorities, donate the restored lands to land trust partners and the Service, provide limited funds to support operations and maintenance, and reserve the carbon credits to report for themselves under long-term agreements.

In 2007, the Service announced a new partnership with the Conservation Fund and its Go ZeroTM initiative that gives individuals and organizations a way to offset their carbon emissions by contributing funds to plant native trees on national wildlife refuges. It's a voluntary, non-regulatory program to reduce carbon emissions. Working with the Service, The Fund expects to restore wildlife habitat through reforestation across the refuge system by planting at least 400,000 trees annually. That means each year, the Service will plant enough trees to sequester at least 300,000 tons of carbon over 90-plus years.

With ever-tightening budgets, the Service is working with partners to pursue strategic, landscape-level conservation activities aimed at ensuring the right conservation activities take place in the right places. Carbon sequestration will become even more prominent as a tool to support restoration of native habitats benefiting priority fish and wildlife populations. With this and other innovative conservation tools, the Service and its partners will enhance and connect critical wildlife corridors and blocks of habitat in the most important areas based on the best science available related to climate change impacts and mitigation needs.

The next frontier for this work involves working with private landowners. The Service will work closely with other federal, state, and private conservation organizations that use existing incentives or newly created ones to conserve and restore native habitats on private lands. Restoring native wildlife habitats and capturing carbon represents a "win-win" for the Service, its partners, and our constituents.

Expanding terrestrial carbon sequestration activities will be an increasingly important part of the Service's conservation work.

All photos: USFWS