

## **THE CONSERVATION FUND – RESTORING A FOREST LEGACY AT MARAIS DES CYGNES NATIONAL WILDLIFE REFUGE**

### **CLIMATE, COMMUNITY, & BIODIVERSITY ALLIANCE SUMMARY OF MONITORING ACTIVITIES**

The Conservation Fund has worked with the U.S. Fish & Wildlife Service to restore bottomland hardwood forests on the Marais des Cygnes National Wildlife Refuge (NWR), Linn County, Kansas, USA, in areas that had been converted to agricultural use<sup>1</sup>. This restoration initiative is benefiting fish and wildlife, enhancing water quality along the Marais des Cygnes River and surrounding waterways, creating new areas for public recreation, and trapping carbon dioxide<sup>2</sup>.

Using donor funds, the Fund restored these lands to native bottomland hardwood forest by planting native tree species selected specifically for the project. This effort was designed to decrease the effects of climate change via carbon sequestration, restore bottomland hardwood forests and wetland ecosystems, and create long-term community benefits in the form of hunting, fishing, wildlife photography, wildlife observation, environmental education, and environmental interpretation.

This conservation effort was validated in July 2009 at the Gold Level to the standards of the Climate, Community & Biodiversity Alliance (First Edition), which require periodic reporting on project monitoring related to carbon sequestration, biodiversity, and community benefits. The project was last verified on May 9, 2014, so this report summarizes the results of project monitoring for the period ranging from May 10, 2014, to March 22, 2019.

#### **Carbon Sequestration**

The Marais des Cygnes restoration project was successfully completed in two phases. The first phase, which consisted of several parcels totaling 776 acres, was planted in 2008. The second phase of the restoration began in 2017, and planting was completed in 2018, totaling 669 additional acres, for a project total of 1,445 acres.

Planted trees on the original parcels are now generally 10 years old and 1 to 2 years old on the recently-planted tracts. Survival of planted stock has been monitored beginning the first field season after planting. In 2017 a small wildfire burned approximately 16 acres of the area planted in 2008. In conjunction with planting additional areas in 2018, a supplemental planting in the burned area took place. In October of 2018, USFWS staff and Conservation Fund staff also established 12 permanent monitoring plots across the planted areas. The restored areas are currently estimated to sequester 76.05 metric tons (MT) CO<sub>2</sub>e/acre within the standing live trees, dead trees, litter, and soil carbon pools. Over the 776 acres of the first phase of the project, that totals 59,011 MT CO<sub>2</sub>e. As the trees grow, the project will continue to sequester more carbon.

#### **Biodiversity**

USFWS staff monitor the biodiversity benefits of the project using bird surveys conducted along the Marais des Cygnes River, including a sample of the adjacent planted tracts. As the trees on the planted

---

<sup>1</sup> <https://www.vcsprojectdatabase.org/#/ccb-all-project-details/CCB1595>

<sup>2</sup> <https://www.conservationfund.org/projects/go-zero-at-marais-des-cynges-national-wildlife-refuge-program>

tracts mature, the bird community is expected to transition to a species complex dominated by birds that are attracted to mature forest and forest edge habitats. During the current monitoring period, bird surveys were conducted in 2014 and 2016 with dominant species including yellow-billed cuckoo, Acadian flycatcher, northern parula, and prothonotary warbler.

### **Community Benefits**

Refuge staff monitor public use of the Marais des Cygnes NWR and pass by the reforestation tracts on regular, random schedules. Hunters have been observed using the tree planting sites, primarily for quail hunting. During the winter of 2018-2019, approximately a dozen short eared owls were also observed using some of the planted tracts, which attracted several groups of birders from the Kansas City metropolitan area. Looking forward, a homeschooling group will visit the Refuge in late April of 2019 and part of the teaching content will include visits to the planted tracts, with an explanation of carbon sequestration and habitat restoration. The Refuge Manager is also currently designing new interpretive signs for the Refuge, one of which will explain the tree planting projects, the value of carbon sequestration, and their importance as wildlife habitat. As the planted stock grow into larger trees, and forest conditions develop, public use of the reforestation tracts is expected to increase.