USA: Mississippi Valley Reforestation

The project aims to reforest one million acres of the Lower Mississippi Alluvial Valley, an important ecosystem in need of conservation, having experienced sustained deforestation in recent decades. Tree planting will reduce an estimated 200 tons CO_2 equivalent per acre, while creating revenue for landowners and bringing jobs to the area, as well as improving water quality and biodiversity.

Project type: Forestry and landscapes

Region: North America

Standards:

American Carbon Registry

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Future growth: Aerial shot of the Lower Mississippi Alluvial Valley forest with four to five month old plantings.

Landowners, who voluntarily enrol in the project, commit to protecting and planting trees on land that has previously been used for agriculture.

The project

The Lower Mississippi Alluvial Valley was once covered by 22 million acres of dense forests but now supports less than 20% of that forest as a result of deforestation. Landowners, who voluntarily enrol in the project, commit to protecting and planting trees on land that has previously been used for agriculture. In the absence of the project, continued use of the land for crops or pasture would prevent natural regeneration of trees.

The Lower Mississippi Alluvial Valley supports less than 20% of its original forest due to deforestation

The tree planting activities consist of planting 50% native cottonwood and 50% native hardwood trees; cottonwoods are the fastest growing native tree, growing eight to 12 feet each year, and act as a 'nurse tree' by protecting the hardwoods from direct sun. The cottonwoods help accelerate the growth and quality of the forest, speeding up the sequestration of carbon while also creating habitat for wildlife within three years. The project allows for limited harvesting of the cottonwoods when crowding of the forest would naturally cause tree deaths – it is expected that all cottonwoods will be removed in the first 25 years of the project, creating biomass supplies and resulting in a native hardwood forest.

The forest provides a vital habitat for many species including the brown bear.

The project developer received the 2009 Innovation Award from the Southern Growth Policies Board for its unique business model in restoring hardwood forests. Through carbon revenues, economic incentives help encourage landowners to enrol and lease their land rather than the more typical conservation model of purchasing all the land to place it into easements. Using a program of activities, the project adds additional planting activities over time without having to revalidate the project. This has enabled the project to scale up continuously, and its success in selling high-quality forest carbon credits and remunerating landowners is starting to accelerate the commitment level from new landowners wanting to enrol.

Contribution to sustainable development

The project contributes to sustainable development in several key areas:

Biodiversity protection

The hardwood ecosystem of the Lower Mississippi Alluvial Valley is one of the most important on the North American continent. In general, the reforestation activities create a chain of environmental benefits, including helping protect against hurricane and flood damage, controlling soil and nutrient run-off and improving the water quality of the Mississippi River. The recent deforestation has resulted in a decline in the quality of the water and wildlife in the watershed because it has lost so much of its natural flood control buffer. The forestland is also vital habitat for numerous plant and animal species, particularly migratory birds – federal biologists estimate that in just seven years, the interplanted forest holds twice as many migratory birds than a comparable field planted with just hardwoods. It is estimated that 40% of North America's waterfowl and 60% of all bird species migrate along the Mississippi River, although their population has been dwindling from habitat loss.

Walking through a two year old standing forest.

Water stewardship

Water quality greatly benefits from afforested riparian (river edge) buffers. Reforestation minimizes soil erosion and reduces sediment and pesticide contamination of streams and groundwater, which can be a significant problem in this agriculturally-intensive region. According to the U.S. Geological Survey, for every 100,000 acres of farmland restored to its natural forest, the release of 1,550,000 pounds of nitrogen and phosphorous into the Mississippi River would be avoided annually. Large amounts of nitrogen and phosphorous leaching from agricultural land leads to reduced oxygen levels in the water, leaving the area uninhabitable for much aquatic life. This has created a 'dead zone' in the Gulf of Mexico, estimated at the size of New Jersey. Additionally, The Environmental Protection Agency (EPA) estimates that at least 12 tons of soil wash into the Gulf from every acre of cropland in the Mississippi Alluvial Valley. A one million acre restored forest - the objective of the project - would prevent about 12 million tons of soil being added to this dead zone in the Gulf each year. There are therefore numerous downstream benefits from transforming the agricultural land back to forested land.

The hardwood ecosystem of the Lower Mississippi Alluvial Valley is one of the most important on the North American continent

Economic growth

The project reforestation activity, along with the existing forest ecosystem, helps ensure good water quality for the Mississippi River which is a crucial waterway for commerce. The project also helps initiate sustainable tree harvesting, which creates jobs for harvesters, wood processors and those who support wood product production activities. The cottonwood harvesting will also help provide the region with a renewable biomass supply.

Financial security

Landowners participating in the project are entitled to thin the stand to produce biomass supply, which creates additional revenue to what they receive from the sale of carbon credits. The landowners, who receive 50% of the carbon revenues, have helped contribute to greater reforestation goals by sharing their conservation story with other landowners, encouraging them to join and subsequently scaling up the project activities.

Fast growth of cottonwood trees provides the right amount of light to promote hardwood growth but limit weeds and grasses, allowing hardwoods to grow freely.

Job creation

During the development phase of the project, 70 people were employed in a variety of roles including government lobbyists, forestry and carbon advisors and marketing positions. Approximately 20 people were employed during the project's implementation phase as project managers, regional administrators, and land sales representatives, as well as forestry advisors, policy administrators and carbon verification experts. There are 10 people working for the ongoing operation of the project.

The development and implementation phases of the project created a total of 90 jobs

The region

Project activities are concentrated in the Lower Mississippi Alluvial Valley, which includes parts of the states of Louisiana, Mississippi and Arkansas. The River is a critical body of water in North America for commerce, climate and energy. It is the largest river in the United States and drains the water of 33 states and two Canadian provinces.

Following World War II, the arrival of mechanised agriculture accelerated the area's deforestation; it escalated between the mid-1960s and 70s, when prices for soybeans were driven upward and much of the land was converted to farming. Intensive deforestation and land use change over the last 50 years have dramatically affected the ecosystem, particularly due to the connectivity of the waterways.

Location

As this project uses a program of activities, it is spread across a number of different regions and towns around the Mississippi River. Project activities are largely concentrated in Mississippi, Louisiana and Arkansas.

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