



Chains of Wetlands Project Reduces Flood Risks in City of Dallas

AUSTIN, TX – After years of serious flooding, the city of Dallas made a decision to reduce flood risk by redesigning an important ecosystem located in the heart of the city. The outcome not only solved a major problem, but also resulted in a beautiful public outdoor recreation asset in the greater Dallas area.

Historically, Dallas relied on structural flood control projects such as dams and levees with grass-carpeted floodways to lower flood risk. But a problem that was unique in origin had become an obstacle that was demanding a non-structural solution.

The main source of the flooding problem was the Great Trinity Forest that was coming back to life. This 6,000-acre forest stretches from the edge of downtown Dallas along the Trinity River to Interstate 20.

Much of it had been lumbered, ranched and farmed over the years. However, farmers and ranchers gradually abandoned the croplands and pastures in the last century. As a result, the trees and brush grew back into an increasingly dense forest, impeding Trinity River drainage through the city.

Six thousand square miles of watershed exist above downtown Dallas. That area drains through the half-mile-wide Dallas Floodway in a levee-lined channel near downtown skyscrapers. When the river exits the levee system it immediately enters the Great Trinity Forest, which acts as an obstacle.

Floodwaters would slow and back up the downtown levee system, claiming several lives and damaging or destroying homes and businesses.

In the early 1990's the U.S. Army Corps of Engineers (USACE), the city of Dallas, and the U.S. Fish and Wildlife Service collaborated on a plan to solve the problem. The agencies arrived at an environmentally friendly solution that avoided traditional concrete lined channels or a sterile grass-carpeted floodplain.

Called "chains of wetlands", the proposal was to build a pathway through the Great Trinity Forest to efficiently convey floodwaters through the upper reaches of the forest and alleviate the backup. The project to construct the man-made chain of interconnected wetland ponds called for the removal of 271 acres of woody plants, including many trees that would give clear passage for floodwaters.

The bottomland forest then would be replaced with a new, richer, and far more diverse wildlife habitat. Under National Environmental Policy Act requirements, removal of the woody plants required planting take place elsewhere. Consequently, the tree removal was offset by planting a higher-value habitat in the southern portion of the Great Trinity Forest farther downstream.

Trees, bushes and vines were specifically selected to provide food and cover for wildlife. Directed by the USACE Lewisville Aquatic Ecosystem Research Facility, students from the University of North Texas, Texas A&M University, Collin Community College and North Texas Central College helped remove trees and replant plants.

Although the chains of wetlands is a work in progress, the initiative has shown impressive results. The project helped transport floodwaters from the record May 2015, rains that were followed weeks later by the remnants of Tropical Storm Bill. The waters flowed effectively through the Dallas system as designed.

"Without the trees, the water now flows more efficiently through the upper reach of the Great Trinity Forest," said Jim Frisinger, public affairs specialist, Fort Worth District USACE. "There is no doubt that Dallas would have been in far more trouble without this solution."

"With rich wetland habitat replacing this section of woods, the water now flows efficiently through the upper reaches of the Great Trinity Forest," said Frisinger. "This new wetlands complex, which consisted of tree plantings downstream, proves ecosystem restoration paired with flood risk reduction can help solve challenging urban flooding issues."



For additional information visit:

- [Mitigation plantings in harsh North Texas climate challenge US Army Corps of Engineers team](#)
- [Green tech: Corps of Engineers wetland habitat lowers flood risk for Dallas](#)
- [Upper Chain of Wetlands Fact Sheet.pdf](#)



This photo shows construction crew clearing and chipping woody plants from the Great Trinity Forest to create wetlands.
(Photo courtesy of James Frisinger/U.S. Corps of Engineers)



The Trinity River flowed through the Chain of Wetlands, in addition to the main channel during the height of the May 2015 flood in Dallas.

(Photo courtesy of James Frisinger/U.S. Army Corps of Engineers)



This photo shows the elevated Trinity River Levels, stretching levee-to-levee in downtown Dallas, at the Commerce Street Bridge in May 2015.

(Photo courtesy of James Frisinger/U.S. Army Corps of Engineers)