Bottomland hardwood forests are one of the most productive and biologically diverse ecosystems in North America supporting hundreds of wildlife species and native plant communities. It is also one of the most imperiled. Once there were 24 million acres of bottomland hardwood forests in the Lower Mississippi Alluvial Valley. Since the turn of the century these forests have been reduced to just over four million acres limiting their ability to provide clean water, recharge depleted aquifers, sequester carbon and provide habitat for fish and wildlife including threatened and endangered species.

U.S. Fish & Wildlife Service

Upper Ouachita National Wildlife Refuge Mollicy Unit Restoration Project

History of Mollicy Unit

The Mollicy Unit is located on the east side of the Ouachita River within the Upper Ouachita National Wildlife Refuge in north Louisiana. Historically this land was a mature bottomland hardwood forest before it was cleared in the 1960s for agricultural use. In the early 1970s, a ring levee 30-feet high and 16-miles long was constructed on the west, north and south sides of the 16,000-acre Mollicy Unit disconnecting the floodplain from the annual flood of water, sediment and nutrients that once nourished the forest.

With assistance from The Nature Conservancy, the U.S. Fish and Wildlife Service acquired the Mollicy Unit in the 1990s as part of the refuge. Soon after, more than 10,000 acres were reforested with three million trees such as bald cypress and sweet gum making this the largest contiguous bottomland hardwood reforestation project in the country.

Today, the levee surrounds this reforested area on three sides disrupting the natural flow of the Ouachita River. Rainwater is held inside the levee creating a bathtub effect, which prevents natural backwater flooding, eliminates fish spawning habitat and limits nutrient recycling.

In 1991 the Ouachita River was at flood stage endangering the City of Monroe, located 20 miles downstream of the Mollicy Unit. When the Mollicy levee broke, the river flooded into the Mollicy Unit, relieving pressure on the levee at Monroe where the river dropped eight inches in a 24-hour period.

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Restoring the Hydrology

Through a partnership between the Service and the Conservancy, a plan was developed to restore the natural hydrology at Mollicy by reconnecting 25 square miles of floodplain forest with the Ouachita River. As one of the largest floodplain reconnection efforts in the country, this project involves breaching the levee in five specific locations and pushing the levee material into borrow pits created during levee construction.

The levee has roughly 2.5 million cubic yards of dirt and each breach of 1,000 feet will require removal of approximately 30,000 cubic yards of material. The breaches will allow the Ouachita River to once again spread across its natural floodplain during annual winter and spring floods.

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Monitoring the long-term environmental benefits of the project will be a key component. A detailed plan has been developed in coordination with many partners including the U.S. Geological Survey, Louisiana State University, University of Louisiana at Monroe and the Louisiana Department of Environmental Quality. Water quality, nutrients and sediments will be evaluated before, during and after the levee breaches and a variety of species including fish, aquatic insects, amphibians and birds will be studied using the best science available.

Restoration Benefits

Returning the river to its floodplain will provide numerous benefits for variety of wildlife found on the refuge including white-tailed deer, wild turkeys, alligators, bald eagles, Louisiana black bear and more than 265 species of migratory birds. The refuge provides excellent habitat for fish spawning, cover for juvenile fish and is a prime wintering spot for tens of thousands of ducks and geese. The restoration project will provide the public with enhanced fishing and hunting opportunities.

Water quality in the Ouachita River will improve as the restored forest filters out an estimated 200 tons of excess nutrients such as nitrogen and other fertilizers each year. In addition, the project will increase flood storage capacity benefiting downstream communities and reduce public safety concerns and property damage at the refuge from catastrophic levee failure during flood events.

U.S. Fish & Wildlife Service

Jay Harrod/TNC

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Serving as a model for other floodplain reconnection efforts across the country, the Mollicy Unit restoration project is a great example of the right conservation in the right places to benefit America's fish and wildlife populations.

For more information, visit http://www.fws.gov/upperouachita/

Jay Harrod/TNC

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