

THE CACHE RIVER WETLANDS JOINT VENTURE

A Watershed Scale Restoration Project



The half-million acre Cache River Watershed in southern Illinois, with its forested hills and ancient cypress swamps, looks more like Louisiana than Illinois. Its unique landscape results from the intersection of four major geographic regions of the United States. East meets West and North meets South creating an unusual area with a rich natural and cultural history.

Making up only 1.5 percent of Illinois' total land area, the Cache basin harbors 91 percent of the state's high quality swamp and wetland communities. The wetlands support cypress trees that are more than 1,000 years old - some of the oldest living things east of the Mississippi River. The area also shelters more than 100 species listed as threatened or endangered in Illinois, including river otters, little blue herons and the Indiana bat, federally listed as threatened.

The Cache River Wetland has been designated as a RAMSAR "Wetland of International Importance" putting it in the same ecological league as Okefenokee Swamp and the Everglades.

The Cache River Wetlands Joint Venture Partnership, a unique public-private partnership between the Illinois Department of Natural Resources, the U.S. Fish and Wildlife Service, Ducks Unlimited, and The Nature Conservancy, was formed in 1991 in recognition of the international significance of the Cache River Wetlands. The vision of the Joint Venture Partnership is to restore habitats and processes necessary to sustain the plants, animals and natural communities of the watershed — habitats and processes that are also important to the people who depend on the health of the Cache River basin for their livelihoods and quality of life.

The Cache River: Past

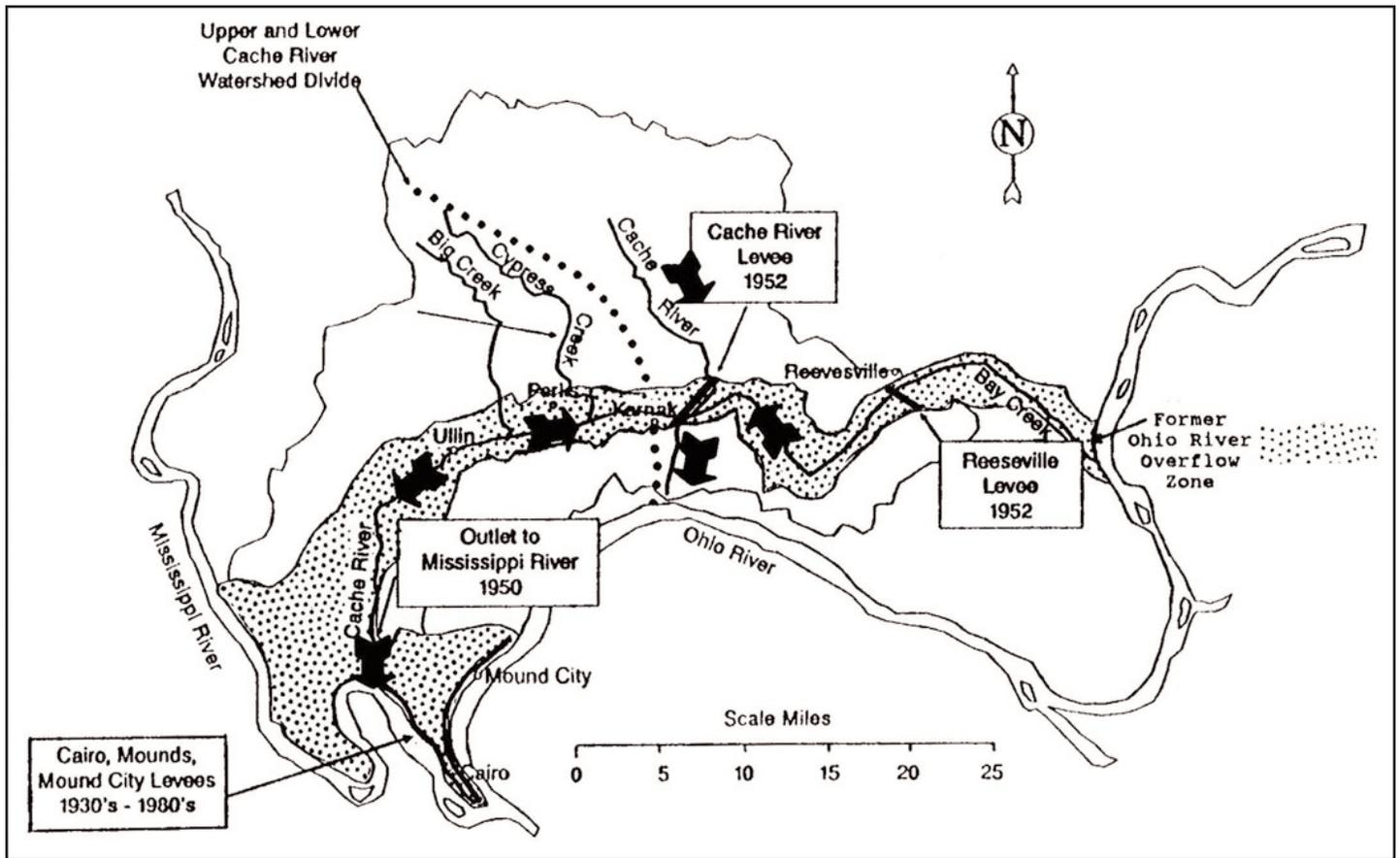
The lands and waters of the Cache River Watershed are important parts of Illinois' natural heritage. But over the last 100 years, the basin has been affected by widespread hydrologic alterations and land clearing. The Post Creek cut-off, completed in 1916, was especially damaging to the wetlands because it diverted the upper segment of the Cache River directly into the Ohio River and isolated 40 miles of the shallow lower channel.

After World War II, the forests of southern Illinois began to disappear at an alarming rate. In the 1960s and the 1970s, thousands of acres of floodplain forest were cleared, drained and converted to agriculture.

By the 1980s, it became clear that the Cache River Wetlands were in critical condition. Natural and agricultural lands began to flood more often. Silt from cleared land and unstable stream channels choked springs and natural drainage paths, and sedimentation rates in the Lower Cache were as high as 24 inches per year. Natural ponds that had held water for as long as local residents could remember were going dry, resulting in large scale fish kills. The thousands of migratory waterfowl that had always used the Cache wetlands as rest stops were disappearing as their stopover sites were converted to fields. Everyone began to realize that something was very wrong with the Cache.

Partnership and Restoration

Local, citizen-based conservation efforts initiated in the 1970's, most notably the Citizen's Committee to Save the Cache River, received a significant boost with the formation of the Joint Venture Partnership in 1991. Working with the Natural Resource Conservation



Cache River Watershed map

Service, Friends of the Cache River Watershed, other groups and private citizens, the Joint Venture Partnership is uniquely positioned to address the scale and complexity of the efforts needed to protect and restore the Cache.

The Joint Venture Partnership has a goal of protecting and restoring a 60,000-acre wetland corridor along 50 miles of the Cache River. To date, almost 35,000 acres have been protected. But land protection alone is not enough. Efforts are underway to restore the natural functions of the system. To accomplish that goal, the Joint Venture Partnership has broken the task of restoring the system into three components: forest and wetland habitat restoration, reduction of sedimentation and streambank/bed erosion, and a managed reconnection of the Upper and Lower segments of the Cache River.

Forest and wetland habitat restoration is necessary to help buffer the remaining high quality cypress swamps and reduce the amount of sediment entering the Cache River. The Joint Venture Partnership also plans to work to reduce sedimentation and channel degradation by addressing stream bank and stream bed instability, excessive overland runoff, and scouring river flows. The managed reconnection of the Upper and Lower seg-

ments of the Cache will ensure that the Lower Cache River receives at least some oxygen-rich water throughout the year. This will significantly improve water quality and aquatic habitat for fishes and other animals in the river.

Within this three-pronged strategy, the Joint Venture Partnership has proposed and implemented a significant amount of restoration work in the Cache River basin. As of 2003 this restoration effort has received more than \$30 million in public and private funding for land acquisition and \$9 million for habitat restoration, research projects, and environmental education in the watershed. A large portion of those funds has been matched by additional funds and in-kind contributions, boosting the total investment in protection and restoration to more than \$48 million. This level of investment would not have been possible without the Joint Venture Partnership and community support of the restoration effort.

Forest and Wetland Habitat Restoration

Almost 30,000 acres within the Cache River Watershed, most of which were marginal farmland, have been reforested or restored to wetlands. (A significant portion of these acres are in public ownership at the

Table of Accomplishments

Conservation Action	Planned	Completed (as of 2003)
Land Acquisition	60,000 acres	32,323 acres
Reforestation	50,000 acres	21,859 acres
Wetland Restoration	12,000 acres	8,050 acres
Upland Sediment Impoundments	23 impoundments 5 acres each	10 impoundments
Rip-rap Riffle Weirs	40-60 riffle weirs	27 riffle weirs
Lateral gully plugs	25-30 gully plugs	13 gully plugs

popular Cache River State Natural Area and the Cypress Creek National Wildlife Refuge.) The continued enrollment of cropland in the Wetland Reserve Program is also an important tool for the preservation of the Cache River wetlands. Reforestation and wetland restoration address many of the conservation issues affecting the Cache River Watershed by restoring the function of the floodplain, increasing habitat available to wildlife, and reducing the amount of sediment entering the river from adjacent lands.

Reducing Sedimentation

Replanting forests and restoring wetlands is an important part of fixing the Cache River’s hydrology and reducing runoff. But public ownership and restoration of all lands that have been cleared within the floodplain is not a realistic option. A sediment control project popular with private landowners in the Upper Cache involves the construction of in-stream rock weirs and strategically located flow retention ponds within the Big Creek and Cypress Creek basins, both major contributors of sediment to the Cache River.

Several five-acre impoundments have been completed and have already demonstrated their effectiveness at reducing the amount of overland sediment being deposited into the Lower Cache. A planned series of rock weirs in Big Creek and other tributaries of the Cache will greatly reduce in-stream soil erosion preventing further channel incision and lateral gullying that threatens to drain many isolated wetlands, like Heron Pond, in the Upper Cache.

The Conservation Reserve Program and the widespread

use of conservation tillage have also helped landowners make tremendous progress in reducing sedimentation. From 1987 to 1995 alone, erosion on more than 175,000 acres in the Cache River Watershed was reduced by more than 1 million tons annually.

Reconnecting the Cache River

The third component of the restoration of the Cache River ecosystem will be the managed reconnection of the Upper and Lower segments of the river. The hydrologic alterations in the Cache River have eliminated the river’s structure and function and ultimately threaten the long-term sustainability of the area’s biological diversity. If the Cache River system is going to be restored, some degree of reconnection will be required.

The Joint Venture Partnership, working closely with the U. S. Army Corps of Engineers, has compiled an extensive array of information on the area’s biological, geological and hydrological characteristics. This information has allowed the development of a set of reconnection measures. Several of the most important aspects of a reconnection and river restoration are described below.

Reforestation efforts have resulted in a sedimentation reduction of more than 98,000 tons every year. By keeping the soil on the land, restored forests prevent the equivalent of more than 6,500 dump truck loads of sediment from flowing into the Cache River every year.

The Karnak Levee is critical to the reconnection of the Upper and Lower segments of the Cache River and important to the protection of surrounding homes, businesses and cropland from the threat of floods. A portion of the Karnak Levee failed in 2002 and as of 2003 the breach had not been repaired, resulting in damage to the area’s natural systems by draining wetlands west of the levee. A proposed repair would restore the vital flood control function of the levee, provide drainage for private lands within the Cache Valley, and maintain critical low water levels in the wetlands.

The Joint Venture Partnership’s plan for a managed reconnection of the Upper and Lower segments of the Cache River calls for a low water rock weir to be built in the channelized portion of the Lower Cache in combination with an upstream diversion structure through the Karnak Levee. These measures will allow a regulated



Heron pond (©Harold E. Malde)

volume of Upper Cache water to be directed into the Lower Cache River providing critical low levels of water flow necessary to sustain aquatic and wetland communities in the Lower Cache.

Complementing the reconnection structure would be a proposed in-stream structure in the Lower Cache River downstream of an area known as Buttonland Swamp. This structure would prevent the river and adjacent swamps and wetlands from going completely dry in drought years. In addition, the structure would facilitate sediment removal in portions of the river to restore deepwater habitat.

The Joint Venture Partnership received funding from the Illinois Department of Natural Resources' Conservation 2000 Program in 2003 to help restore deepwater aquatic habitat in the Buttonland Swamp area. Historically, the Lower Cache River featured a wide expanse of open water with depths of more than 10 feet, but because of excessive sedimentation, this deepwater habitat has been almost entirely lost. Today, the depth of the river rarely exceeds 3 feet. This deepwater habitat restoration is an effort to improve the health and long-term viability of the plants and animals that depend on deep water for reproduction and survival, including several species of game fish.

The Joint Venture Partnership is currently working to finalize the engineering design of each restoration structure and pursuing the development of a water management plan, in cooperation with local interests, that will guide the reconnection effort. In addition, the Joint Venture Partnership is continually working to convey an understanding for and support of the restoration measures through education and outreach. Finally, there are

monitoring efforts in place to ensure that these efforts are having the desired effect on the resource.

Education and Outreach

The support of the citizens of Illinois and the residents of the Cache River Valley for this work is essential to conservation success. To that end, the Joint Venture Partnership has devoted significant time and resources to increasing individual knowledge, building community partnerships, and initiating citizen participation in the restoration process. As some measure of our success local citizens' groups and volunteers have broadened support for the effort to protect what remains of the Cache River Wetlands. In addition, Friends of the Cache River Watershed has formed with the objectives of securing funds, providing volunteer assistance, and serving as an advocate for restoration.

Perhaps the most exciting tool for education and outreach is the new Henry N. Barkhausen Cache River Wetland Center near Cypress, Illinois. This state-of-the-art facility will be an important place for visitors and local residents to gather information about the ecology of the wetlands, the history of the Cache River Basin, and the vision for the restoration effort.

Vision for the Future

The Joint Venture Partnership's vision of a restored Cache River basin includes a functional, healthy wetland ecosystem that supports plants, animals, and natural communities similar to those which historically occurred in the wetlands. It is also a vision of a future where residents live, work and play, and where a healthy landscape sustains thriving communities.

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