

The Pueblo Colorado Wash Demonstration Project

Visit the Hubbell Trading Post National Historic Site to see a 1.5-mile rehabilitation project constructed to preserve the ecological and cultural resources of the Pueblo Colorado Wash.

What was done and why?

The Pueblo Colorado Wash is the most significant natural resource at Hubbell Trading Post. The wash is by far the most important element responsible for the presence of the cultural resources for which the national historic site was established. The wash has become severely degraded as a result of both historic and modern disturbances, including stream channeling by the National Park Service. These disturbances led to the establishment of dense stands of non-native vegetation, such as tamarisk and Russian olive. These dense stands have eliminated the view of the stream channel, thus downplaying the cultural connection of the waterway for visitors. The project design was unique in terms of its use of low-cost, low-tech approaches to stream enhancement. Livestock has been excluded from three-fourths of the 1.5-mile section of the wash via fencing. Also, non-native plant species have been removed and replaced with native plant revegetation. In-stream structures have been installed to harness storm flows to selectively remove streambank soils, thereby promoting sedimentation and increased stream sinuosity. Many volunteers using local, natural materials built these structures.

Who was involved?

Funding for the project was obtained from the US Environmental Protection Agency and the Arizona Department of Water Resources - Arizona Water Protection Fund. Bill Zeedyk, retired former Director of the Wildlife, Fisheries, and Rare Plant Program, Southwest Region, USDA Forest Service, consulted on project design and implementation. Volunteers that assisted with project implementation represented the University of New Mexico, Boy Scouts of America, Student Conservation Association, Ganado Unified School District and the Navajo Nation. Prescribed fires and non-native species removal activities were conducted by the Navajo Nation Fire Department, National Park Service Bandelier Fire Module, and Lake Mead National Recreation Area Exotic Plant/Riparian Restoration crew. Native plant materials used for revegetation were obtained from the USDA Natural Resources Conservation Service Los Lunas Plant Materials Center.

Where can I see the restoration project?

The project is clearly visible on the grounds of the Hubbell Trading Post National Historic Site.

Why is this a model project?

From its humble beginnings as a volunteer initiative, the project has grown into a multijurisdictional, multi-interest conservation partnership to enhance and conserve a significant cultural waterway. The wash is again visible to the public, reconnecting the cultural resources at Hubbell Trading Post with their appropriate natural setting. The project also has proved to be a successful demonstration project for other waterway enhancements within the Navajo Nation. The U.S. Environmental Protection Agency presented the park with a plaque for the project, which was the first *EPA Five Star Restoration Site*. Monitoring activities between 1997-1999 have revealed natural recruitment of native in-stream vegetation in addition to natural regeneration of native cottonwoods and willows. Groundwater levels and the quantity of water maintained in the stream have increased as a result of nonnative plant removal. Monitoring also indicates that restoration increased sinuosity in the stream by 20 percent, adding approximately 500 feet of stream length to the original 2,600 feet, and consequently decreasing the channel slope. The increased channel capacity and sinuosity greatly reduced bank erosion during an extremely high-water monsoon event (9,000 cubic feet per second) in summer 1999. The stream now supports 19 permanent pools, instead of the initial three. These pools are important sources of freshwater to the wildlife community that reside in or near the desert ecosystem surrounding Pueblo Colorado Wash.

Who can be contacted about this project?

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Volunteers construct small water-diversion structures within Pueblo Colorado Wash to encourage the formation of stream meanders.