

Restoring native riparian vegetation

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Abstract.-In the lower Pecos Basin, an unusual coalition of conservationists, agriculture producers, business owners, and state agencies have joined together to save what is left of the once-naturally diverse Pecos River ecosystem. This organization is going to show a state-of-the-art, economical, effective, efficient, and environmentally safe method to control salt cedar and reestablish native riparian vegetation. The objectives of the project are to demonstrate native wetlands and wildlife habitat improvement through salt cedar management; to demonstrate effective, economical, and environmentally sound salt cedar control; and to monitor possible hydrologic effects from salt cedar control and management.

The spread of salt cedar in the Pecos River Basin has been phenomenal since the turn of the century. Estimates are that it has replaced 75,000 to 100,000 acres of native riparian vegetation, thus displacing native wildlife species by eliminating their habitat. The Pecos River Flood Plains has, in effect, become a one-species thicket providing limited habitat for wildlife. A large salt cedar can transpire as much as 200 gallons of water per day - or about the amount a family uses each day. The loss of water resources costs New Mexico millions of gallons of water annually, but the value of the natural diversity loss to the ecosystem cannot be measured. This increase in. Salt cedar is common along all major rivers in the Southwest United States.

In the lower Pecos Basin an unusual coalition of conservationists, agriculture producers, business owners and state agencies has joined together to save what is left of the once-naturally diverse Pecos River ecosystem. Rather than depending on state or federal agencies to take the lead in dealing with the problem, this coalition has formed a non-profit corporation made up of four soil and water conservation districts: the Carlsbad SWCD, Central Valley

SWCD, Penasco SWCD and Dexter-Hagerman SWCD; along with the Pecos Valley Artesian Conservancy District and the Carlsbad Irrigation District. Each entity has a representative on the Board of Directors who volunteers their time toward this project. This organization is going to show a state-of-the-art, economical, effective, efficient and environmentally safe method to control salt cedar and reestablish native riparian vegetation. We have enlisted the help of Dr. Keith Duncan, New Mexico State University, Weed and Brush Control Specialist.

The objectives of the demonstration are:

1. To demonstrate native wetlands and wildlife habitat improvement through salt cedar management;
2. To demonstrate effective, economical and environmentally sound salt cedar control;
3. To monitor possible hydrologic effects from salt cedar control and management.

The demonstration area is along the Pecos River east of Artesia, New Mexico. The area begins just south of the Artesia bridge where US highway 82 crosses the Pecos River and runs a little over six miles in a southerly direction along the west side of the Pecos River at the northern end of an area known as the McMillan delta.

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An integrated approach of mechanical and herbicide treatment is being used to manage the salt cedar. The herbicide application methods have been aerially applied according to EPA labeling and under the supervision of the New Mexico State University Extension Service and the New Mexico Department of Agriculture. The mechanical treatment has been done by dozing and root plowing the salt cedar in and around the remnant stands of cottonwoods and black willows. The remaining stumps were treated by hand with Arsenal.

Re-sprouts that appear in the following growing season have been treated individually with a tank mixture of Arsenal and Round-Up. Most of the project area supports a heavy, dense stand of salt cedar. These expansive areas of dense salt cedar have been aerially treated with a combination of Arsenal and Round-Up. A 100-foot buffer zone was left along the river and will act to prevent drift from reaching the river. Areas of scattered salt cedar, found at the project area fringes and where significant stands of native vegetation are present, will be treated with ground-based foliar applications of Arsenal and Round-Up, or by cut-stump treatments with Arsenal.

Follow-up measures utilizing prescribed burning and mechanical clearing will be used to remove the remaining salt cedar once the native vegetation has been reestablished. Several different species of plants and methods of re-vegetation are planned depending on the soils and vegetative sites. In some areas, the dead salt cedar plants may be left standing to provide soil stability and wildlife cover. A delay in follow-up practices to remove the dead salt cedar will insure ample vegetative ground cover to protect against possible soil erosion once the standing, dead salt cedar is removed.

A properly designed and conducted program will have minimal long-term negative impacts on fish and wildlife resources in the area. Short-term losses of habitat could result in decreases or relocation of local populations of some species, but a proper re-vegetation program will allow a quick recovery. Additional habitat diversity, numerous species of native vegetation vs. a monoculture of salt cedar will have a positive long-term impact on native plant and wildlife populations.

The re-vegetation plan developed by the Natural Resources Conservation Service, based on soil types, soil quality, water availability and quality

will be implemented as a post-treatment activity. The New Mexico State University Fisheries and Wildlife Department, in conjunction with the New Mexico Game and Fish Department, will conduct pre and post treatment surveys of all wildlife species found within the treated area with a control area being sampled outside the treated area.

The proposed management and program activities will continue over a period of about ten years. From the very beginning, we have involved all interested parties, from agriculture industry groups to environmental groups. The Natural Resources Conservation Service has provided leadership to our organization in the development of an environmental assessment (EA) of the proposed actions and a plan based on the alternatives that are available. The EA team was structured to represent all interested parties such as the U.S. Fish and Wildlife Service, the New Mexico Environment Department and the New Mexico Department of Game & Fish.

This corporation has been able to help secure federal funds that are being administered by the Natural Resources Conservation Service to the Central Valley Soil and Water Conservation District for the soil, water, vegetation and wildlife studies as well as all re-vegetation activities. Funds have been appropriated by the New Mexico State Legislature for the removal of the salt cedar and are being administered by the New Mexico Energy and Minerals Department, Forestry Division, through a Joint Powers Agreement with the Central Valley Soil and Water Conservation District. Additional private funding sources have also been secured to initiate the development of the project plan. Countless volunteer hours have gone toward the process of making this project a reality. Meetings have taken place for four years working to include any interested or effected parties. The group has sponsored field trips to the project area and testified before Interim Legislative committees. It is very important in the beginning of the process to package or present your ideas for the project area in an acceptable manner that is not offensive to any one group. Being able to find common ground should be your focus.

A great impact on the Pecos River Basin resulted from the U.S. Supreme Court ruling in *Texas v. New Mexico*. The Supreme Court amended the 1947 Pecos River Compact placing more stringent

requirements on the State of New Mexico to deliver water to Texas. The economic benefits of this project really come into play if this project can demonstrate that water can be salvaged as the dense stands of salt cedar are replaced by native riparian vegetation and additional water accrues to the river.

The project is a great opportunity to demonstrate modern integrated techniques in the management of salt cedar and reestablish native riparian vegetation, which is applicable to all of the river valleys of New Mexico and throughout the Southwest. But more important, it shows how concerned citizens can work together to gain the cooperation of the government agencies to solve their own problems.

In today's world of tight budgets and a wider diversity of people who are interested in our work, it requires more creativity in how we work with people to meet their needs. The benefits of our technology and programs, and how to help solve environmental issues, must be stressed in different ways with many types of customers-agricultural, environmental, legislative, business and others who can benefit by working with us. Marketing our Conservation Services is going to help the conservation partnership. As state and federal funding sources are being reduced in the future, this is the kind of partnership we need statewide to take care of other problems and help protect New Mexico's Renewable Natural Resources.