Fate of Salvaging Water with Saltcedar Control on the Pecos River

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BACKGROUND

The Pecos River in West Texas is a major tributary to the Rio Grande. The flows of the Pecos River have declined due to many causes – some natural and some man-induced. For example, invasive saltcedar along the river banks now consume large quantities of water depleting river flows.

In 1999 a saltcedar control program was initiated along the Pecos River in Texas below the New Mexico State line with the expectation that water would be salvaged for other uses. It was also anticipated that water quality could be improved, in particular a reduction in salinity. Preliminary analysis indicates saltcedar control may yield as much as a 60% to70% reduction in water loss at the study site below the Red Bluff reservoir. However, the information used to develop this estimate did not account for the close interconnection between ground and surface water in the area. Accurate knowledge of the potential water savings from saltcedar control is crucial for determining the benefits and cost effectiveness of this program. This project is part of the Pecos River Watershed Protection Plan led by Dr. Charles Hart, Alyson McDonald, William Thompson, Dr. Lonnie Jones, Michael Mecke, Dr. Seiichi Miyamoto and Dr. Zhuping Sheng.

Alyson McDonald checking the water level logger on an untreated Salt Cedar stand

Saltcedar killed by Arsenal

OBJECTIVES

The primary objective of this study is to assess the water savings from salt cedar control on the Pecos River. To accomplish this, additional wells will be installed to monitor ground water levels and subsurface flow patterns and to characterize the aquifer beneath treated and untreated sites with borehole exploration. Corresponding measurements of river level and flow will be collected including releases from Red Bluff Reservoir. The combined surface and ground water information will then be analyzed to evaluate changes in water consumption between treated and untreated areas.

OUTCOMES AND BENEFITS

- Invasive salt cedar is a problem throughout the Southwestern U.S., yet there is limited knowledge regarding water consumption and potential water savings from its eradication. This research provided important new information about water savings from salt cedar control and ground and surface water consumption of salt cedar.
- This information will also be used to evaluate cost effectiveness of salt cedar control and to evaluate methods and policies for improved watershed management and riparian restoration.

USDA United States Department of Agriculture National Institute of Food and Agriculture

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