The Pecos River Ecosystem Project

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Project Background

Project Summary

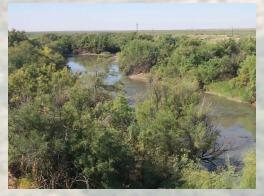
The banks of the Pecos River in Far West Texas are currently covered with dense stands of Saltcedar (*Tamarix spp.*), not uncommon to an increasing number of rivers in Texas. Saltcedar is known for its heavy consumption of water by evapotranspiration, and its contribution to salinity of the water and soil that it surrounds. The Pecos River Ecosystem Project is currently underway to attempt to decrease the impacts that Saltcedar has on the river ecosystem. The project is designed to increase water flow and decrease soil and water salinity by decreasing the number of Saltcedar along the banks of the river.

The Project is a joint effort between:

Texas Cooperative Extension
USDA Natural Resources Conservation Service
Texas Department of Agriculture
Red Bluff Water Power Control District
Upper Pecos Soil and Water Conservation District

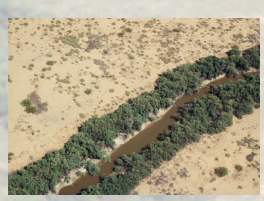
Red Bluff Historical Release/Delivery in the Pecos River

Over a five year average from 1993-1997:
Released = 68,142 acre feet of water,
Delivery = 30,333 acre feet of water
Leaving **37,809 acre feet of water lost to inefficient delivery**



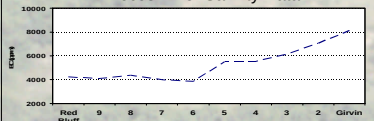
Riparian Effects from Saltcedar

- •Increased channelization
- •Increased fire and flood frequency
- •Excessive water consumption
- •Decreased water flow
- •Creates mono-culture along riverbank
- •Increased water/soil salinity



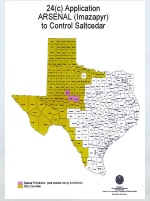
Saltcedar dominates the riparian zone of the Pecos River, each tree consuming as much as 200 gallons of water/day.

Pecos River Salinity Data



At the start of the project in 1999, the salinity of the Pecos River doubled from Red Bluff Lake to Girvin, Texas, approximately 160 river miles.

Application Technology



Recipe for Controlling Saltcedar

4 pints Arsenal™ herbicide

2 pints 90% a.i. aquatic surfactant

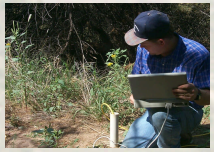
15 gallons total spray volume

Can be applied from August 15 to October 15

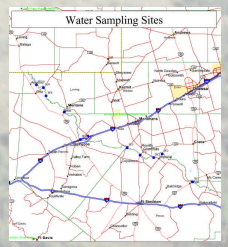
A 24C label was obtained for application of Arsenal® herbicide on Saltcedar for water conservation

Application along the River is accomplished with helicopter equipped with specialized nozzles to deliver large droplets, split-boom application, Trimble GPS guidance system, and on-site support trucks to minimize loading time. GPS system is capable of avoidance zones to eliminate application of herbicide within sensitive areas.

Monitoring Protocol



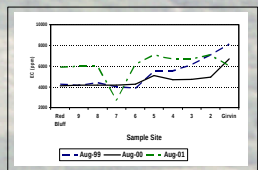
Extensive monitoring program allows for documentation of results. Ten water quality sample sites are monitored from Red Bluff Lake to Girvin, TX. Saltcedar water use is determined from diurnal fluctuations in groundwater levels measured from shallow groundwater wells equipped with pressure transducer continuous water level monitors.



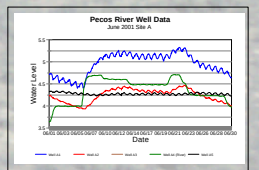
Project Results

Area along the Pecos River treated from 1999-2001

Initial results show 85-90% mortality of saltcedar trees with one application



Salinity of the river prior to treatment of saltcedar doubled from Red Bluff Reservoir to Girvin. The salinity down river appears to be relatively constant following treatment of saltcedar indicating saltcedar may be adding to the salinity of the river.



Monitoring wells show saltcedar uses about 4-5 ft. of water per year along the Pecos River. After three years of treatment, water savings from control of saltcedar is estimated at 11,000 to 14,000 acre-ft. per year.

Two years after treatment, native vegetation begins to re-establish and spread along the banks of the river and under dead saltcedar trees.

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The Texas A&M University System

North Star Helicopters

USDA-NRCS

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Upper Pecos Soil and Water Conservation District