

Saltcedar Biological Control Along the Canadian River

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Support provided by: Texas Water Development Board in cooperation with: Canadian River Municipal Water Authority, National Parks Service and U.S. Department of the Interior Bureau of Reclamation

BACKGROUND

Since its initial introduction to North America in the mid-1800s, saltcedar (*Tamarix spp.*) has invaded more than 2 million acres of riparian land, primarily in the southwestern United States, including Texas. In the wake of the saltcedar explosion along our waterways, disruptions to native plant and wildlife communities have been observed, along with greater wildfire risk and soil salinity in heavily infested areas. Most critical to the Texas Panhandle, and other areas with low annual rainfall, is the impact of *Tamarix* establishment on our precious water reserves. Individual mature saltcedar trees are capable of diverting up to 200 gallons of water per day from streams and groundwater resources. Irrigation losses to saltcedar were estimated within the Texas High Plains at nearly \$72 million in 1998. In response to this serious threat on our water system, a biological control program was implemented in 2004 near Lake Meredith in Fritch, utilizing *Diorhabda elongata*, the saltcedar leaf beetle. Both adults and immature *D. elongata* larvae feed only on *Tamarix* foliage and have a proven track record for defoliating large acreages of saltcedar in Nevada and other states. Establishment, population increase and damage inflicted by this insect on its invasive host are being monitored at Lake Meredith.



Blooming saltcedar near Amarillo, TX.



Saltcedar leaf beetle, *Diorhabda elongata* adult captured near the Canadian River-release site.

OBJECTIVES

- Protect and preserve ground and stream-water resources along the Canadian River watershed by reducing invasive plant populations.
- Implement a self-perpetuating control measure for invasive *Tamarix* trees. Once established, *D. elongata* beetles should invoke repeated stress on saltcedar trees preventing annual re-growth, eventually killing the trees.
- Observe and record changes in the plant community at Lake Meredith as *D. elongata* beetles reduce the vigor of the target, *Tamarix* trees.

RESULTS

- Observations in 2004 show *D. elongata* beetles successfully increasing 10-fold within a single generation by feeding on *Tamarix* at Lake Meredith.
- Heavy feeding damage by the beetles was observed on saltcedar trees near the point of insect release in 2004 and on saltcedar tree branches throughout the study area in 2005.
- Early spring 2005 recoveries of adult saltcedar beetles indicated that the population had survived the winter and the population was spreading to at least 600 feet from the initial beetle release site.
- An addition release of 100 adult beetles was made in 2005 to augment the established *D. elongata* population.
- Results from the first year of this biological control program are very promising.
- Widespread damage to saltcedar populations is not expected to be visible for several years; however, the beetles have overcome their primary hurdles of acclimating to their new home, increasing in number and spreading throughout the saltcedar infestation.