



BEETLE - MANIA

BIOLOGICAL CONTROL OF SALT CEDAR IN TEXAS

VOLUME 2, NO. 1

SPRING 2010

Leaf Beetles Attack Saltcedar on the Colorado, Pecos and Rio Grande Rivers

The saltcedar leaf beetle feeds only on saltcedar and relatives in the genus *Tamarix*.

If saltcedar trees are not present, the larvae starve to death.

Saltcedar beetles were first established in Texas in 2004 at Big Spring, TX. Since then, there have been no reports of beetles or larvae feeding on any other plant.

Saltcedar leaf beetles are again thriving in west Texas. The population at Big Spring has been in the field now for seven years and last summer dispersed about 25-30 miles from Big Spring, TX along Mustang Draw. Jack Deloach, USDA-ARS reports beetles were again attacking saltcedar as far south as Stanton, TX in early June. This population also dispersed west along Beals Creek and is expected to merge with another smaller population established on Sulphur Springs Draw in Martin County. This area has extensive stands of saltcedar along the draws leading north and west all the way to New Mexico.

On the Pecos River, Mark Muegge, Texas AgriLife Extension, reports the Crete beetles there are back in force and defoliated trees along about 2 miles of river by mid-June of this year. Beetles have been at this location for five years. Some of the trees at this site have regrowth following herbicide treatment several years ago. Beetles were originally released in trees not treated with herbicide but soon dispersed into the herbicide-

treated trees across the river. The added stress from beetle defoliation should complement the earlier herbicide treatment and further reduce growth of these surviving trees.

Beetles overwintered at all five release sites initiated last year on the Upper Colorado River, and many trees were defoliated by larvae in

late May at most of these new sites.

Another species of saltcedar beetle, *Diorhabda sublineata*, collected from Tunisia, has established and is increasing on the Rio Grande River near Presidio, and holds promise for suppressing saltcedar there. It looks like 2010 will be another good year for biological control of saltcedar.



Saltcedar trees defoliated by leaf beetles on the Pecos River, June 2010. Trees on right were treated with herbicide several years ago and beetles have since defoliated the regrowth on these herbicide-treated trees. Trees on left were not treated with herbicide. Photo: M. Muegge.

Tunisian Beetle Establishes on the Rio Grande River

Larvae of the saltcedar leaf beetle feeds on saltcedar leaves and tender bark. Larvae feed for about 12-14 days during the summer. Full grown larvae are about 1/3 inch long. Several generations are completed per year.

Texas has a diverse climate and climate-matching studies by USDA-ARS suggest that different species of saltcedar leaf beetle are better adapted to some areas of Texas than are other species.

Large thickets of saltcedar infest the Rio Grande River from El Paso down river to Big Bend National Park. These stands slow the river flow, backing up flood waters and increasing sedimentation, and compete with native vegetation.

Jack Deloach, ARS and Chris Ritzi, Sul Ross Uni-

versity, compared the subtropical tamarisk beetle, *Diorhabda sublineata*, to the Mediterranean tamarisk beetle, from Crete, *D. elongata*, at study sites on the Rio Grande River near Presidio.

Despite floods and fire at these site, these studies demonstrated that the Tunisian species, *D. sublineata*, frequently increased to much larger numbers and defoliated trees, while the Crete beetle rarely did. Re-distribution efforts planned along the Rio Grande and lower Pecos

Rivers are now focusing on the Tunisian beetle as it seems the best adapted to this region of Texas.

This subtropical tamarisk beetle occurs along the Mediterranean from France to North Africa and in the subtropical deserts east to Iraq. Like the Mediterranean tamarisk beetles, which is widely distributed in west Texas, the subtropical leaf beetle species feeds only on saltcedar and has a similar appearance and life cycle.



Large thickets of saltcedar along the Rio Grande River down river from Presidio, TX. An estimated 39% (15,281 acres) of the riparian corridor between Ft. Quitman and Presidio, known as the Forgotten River reach of the Rio Grande, is dominated by *Tamarix* either as a monoculture or in a mixed stand with mesquite.

Biological Control of Saltcedar Underway at Lake Spence and Lake Ivie

The E. V. Spence Reservoir and O. H. Ivie Reservoir, located on the Colorado River, are major water sources for the surrounding regions and are operated by the Colorado River Municipal Water District (CRMWD). As part of a program to improve the water quality in the upper Colorado River basin, 7,475 acres of saltcedar in the E.V. Spence lake basin were treated with herbicide in 2007.

This year, the Texas AgriLife Extension Saltcedar Biological Control program began releasing saltcedar beetles within the lake basins of Lakes Spence and Ivie. These efforts are a continuation of a program to integrate biological control with the

herbicide control program which targeted saltcedar on the Upper Colorado River during 2005-2007. In 2009, the Texas AgriLife Saltcedar Biological Control program collected about 275,000 saltcedar leaf beetles from the Big Spring area and released them at five sites on the Colorado River from Lake Thomas to the confluence with Beals Creek. Allen Knutson, Texas AgriLife Extension, found that beetles established at all five sites and increased in the spring of 2010 to numbers sufficient to defoliate trees at each site.

The long term goal of this project is to establish self-sustaining populations of beetles that will suppress saltcedar

growth and seed production, increase tree mortality, and reduce re-infestation by seedling plants. Once beetle populations are established, they are expected to disperse naturally throughout the Colorado River basin.

USDA-ARS is working with the project by monitoring beetle populations and documenting vegetation recovery as saltcedar canopies dieback due to stress from beetle feeding.

The biological control program on the Upper Colorado River is supported by a grant to Texas AgriLife Extension from Wal-Mart Stores, Inc., the Texas Parks and Wildlife Foundation and the Colorado River Municipal Water District.



A female saltcedar leaf beetle deposits her eggs in masses of 2-20 eggs per mass which are glued to saltcedar leaves. A single female will deposit about 280 eggs during a 16-20 day period.



Saltcedar beetle release site on Lake Ivie Reservoir, June, 2010. About 9,000 acres of saltcedar occur in the lake basin. Prior to 1995, saltcedar was not known to occur at Lake Ivie.



BEETLE-MANIA is a newsletter on biological control of saltcedar in Texas, and is written and produced by Allen Knutson, Texas AgriLife Extension. To be included on the mailing list, please contact Allen Knutson.

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