



# BEETLE - MANIA

BIOLOGICAL CONTROL OF SALTCEDAR IN TEXAS

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## Beetles Sweep Through Big Spring, TX

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

If saltcedar trees are not present, the larvae starve.

Since saltcedar beetles were first released in Texas five years ago, there have been no reports of beetles or larvae feeding on any other plant.

During June and July, a tsunami of saltcedar beetles ate their way through the saltcedar thickets lining Beals Creek as it winds through the city of Big Spring, TX. Travelers on the I-20 bridge crossing Beals Creek just west of the city could see a long, brown line of defoliated saltcedars receding in the distance in both directions. While millions of beetle larvae consumed the leaves of saltcedar, they left all other vegetation untouched. The only evidence of their pres-

ence was the leafless, saltcedar trees, turning brown in the sun. This immense population of larvae developed into millions of beetles, many of which flew off in search of saltcedar in the surrounding area. Small pockets of beetles, assumed to have flown from the Big Spring site, are now attacking saltcedar as far as 15-20 miles away.

The Big Spring population was initiated in 2004 and during the first years, increased slowly and dispersed along Beals Creek. In 2008, the

population rapidly increased and satellite populations were found several miles distant from Beals Creek. Although efforts during the past several years to establish these beetles at other sites in Texas have resulted in some success, the population at Beals Creek remains the largest and most impressive. This epicenter of beetles is now sending forth pioneer beetles that are establishing colonies far and wide.



Saltcedar defoliated by saltcedar leaf beetles along Beals Creek, Big Spring, TX. July

Educational programs of the Texas AgriLife Extension Service are open to all people without regard to race, color, sex, disability, religion, age or national origin.

## Which Beetle Best Fits Texas' Diverse Regions ?

The Mediterranean tamarisk beetle from Crete is well established at several sites in Texas, but two other species may be better adapted for the Panhandle region and south Texas.

The species of saltcedar beetle at Big Spring is *Diorhabda elongata*. This beetle, named the Mediterranean tamarisk beetle, originated from a collection of beetles from the island of Crete in the Mediterranean. However, there are five other species of saltcedar (or tamarisk) beetles found in southern Europe, Asia, and north Africa. In addition to the species from Crete, two other species are being evaluated for release in Texas.

James Tracy and Thomas Robbins, entomologists with the USDA-Agriculture Research Service in Temple, TX, have studied these species and climates where they naturally occur and matched them with similar climates in Texas. Releasing beetles species into Texas conditions similar to

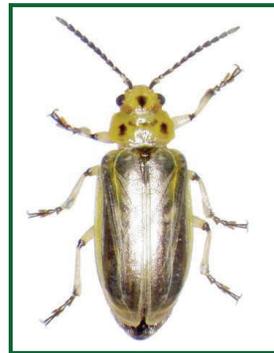
their native climates should increase the chances the beetles will survive and increase, leading to better control of saltcedar.

The larger tamarisk beetle, *Diorhabda carinata*, was collected in Uzbekistan. This species occurs in grassland, deserts and forests of southern Ukraine south to Iraq and east to western China. Climatic matching studies suggest *D. carinata* is best adapted to the northern Rolling Plains and High Plains regions of Texas.

The third species released in Texas is the subtropical tamarisk beetle, *Diorhabda sublineata*. It was collected in Tunisia and occurs along the Mediterranean from France to North Africa and in the subtropical deserts east to Iraq. Climate matching suggest

this species is best adapted to the Trans-Pecos and Rio Grande region of southwest Texas.

All three species look very much alike, feed only on saltcedar and have similar life cycles. Small populations of the Uzbek beetle, *D. carinata*, are established near Lake Meredith and Seymour, and are being evaluated at other research sites in the South Plains. The Tunisian beetle, *D. sublineata*, is being studied at research sites near the Pecos River and along the Rio Grande in west Texas. While the Crete species is doing well at several sites in Texas, the Uzbek or Tunisian species may prove better adapted to the southern or northern regions of Texas.



Tamarisk leaf beetles (*Diorhabda* spp.); Left to right: Mediterranean tamarisk beetle, *D. elongata* (Crete); Larger tamarisk beetle, *D. carinata* (Uzbekistan) and Subtropical tamarisk beetle *D. sublineata* (Tunisia) (photos courtesy of James Tracy, ARS.).

# Leaf Beetles Return on the Pecos River in Texas

After a slow start this spring, saltcedar beetles are again thriving on the Pecos River. Mark Muegge, Entomologist with Texas AgriLife Extension at Ft. Stockton, recently found saltcedar beetles along two miles of the Pecos River and expects all of the saltcedar trees along this stretch and more to be defoliated later this fall. Mediterranean tamarisk

beetle collected from Big Spring, TX were first released at this site in 2006. Surveys in the fall of 2008 found beetles had defoliated all of the saltcedar trees along about 1 3/4 mile of river. This population is expected to expand even further during 2009. Texas AgriLife, NRCS, and ARS personnel are releasing beetles at additional sites in the west Texas.



*Above: Defoliated saltcedar along Pecos River, June, 2009.*

## Upper Colorado River Project Funded

As a part of the "Water for Texas Initiative", the Texas Parks and Wildlife Foundation, with financial support from Wal-Mart Stores, Inc., and the Colorado River Municipal Water District, is funding Texas AgriLife Extension to implement biological control of saltcedar on the Upper Colorado River.

Since 1991, the Texas Parks and Wildlife Foundation (<http://www.tpwf.org/>) has served as the official non-profit funding partner for the Texas Parks and Wildlife Department.

Walmart is a major supporter of the Texas Parks and Wildlife Foundation's Conservation Hall of Fame celebration and the sole underwriter for the **Water for Texas** initiative for restoring habitat and protecting water throughout the Colorado River watershed.

The Colorado River provides public drinking water to west Texas residents through three reservoirs operated by the Colorado River Municipal Water District (CRMWD). During 2005-2007, much of the saltcedar adjacent to the Colo-

rado River beginning at Lake J.B. Thomas and extending down river to Lake Spence was killed by herbicide spraying. However, some areas were not sprayed.

The goal of the Upper Colorado Biological Control Implementation program is to establish beetle populations in the unsprayed portions of the river. Once established, the beetles will disperse and provide long-term suppression of saltcedar in the river corridor.

Working with the CRMWD,

Allen Knutson, Texas AgriLife Extension Service, identified five un-sprayed sites for beetle release between Lake Thomas and the confluence of the Colorado River and Beals Creek. Field cages were used to establish beetles in the spring. Once beetles became abundant at Big Spring, an intensive campaign collected and released beetles directly into the field. During June and July, a total of 130,000 saltcedar beetles were collected from Big Spring and released at these five sites.

*Below: Four cages containing saltcedar beetles line the Colorado River near Colorado City where saltcedar was not treated with herbicide.*





**BEETLE-MANIA is a newsletter on biological control of saltcedar in Texas. To be included on the mailing list, please contact Allen Knutson.**

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