

Frequently Asked

Questions

What happens to the *Diorhabda* beetles when the tamarisk is gone?

Basically they fly off in search of more tamarisk. If they fail to find more, they perish from starvation or predations. Lab and field studies have demonstrated that the beetles have a high degree of host-plant specificity for tamarisk. Direct field observations have shown that the beetles avoid native plants, even if it means starvation for them.

Where can I get some of the beetles?

The beetles are not available to the general public and are already widespread in most of Colorado. We are cooperating with in-state agencies to assure the success of the beetles in all of Colorado's watersheds.

Will the beetles kill the tamarisk?

Yes, but not right away. The plant must be defoliated many times and root reserves depleted before it will die. Field tests indicate that it will take at least 3 years and multiple defoliations to kill a mature tamarisk.

What's going on? You've released the beetles but I don't see anything happening.

Like other biological controls, tamarisk leaf beetles take several years to establish and have an impact on the tamarisk population. Biocontrol is a long term and sustainable process, not a quick fix.

Where did the plant come from?

Tamarisk is native to Central Asia and the Mediterranean region but was brought to America for both erosion control purposes and as an ornamental shrub.

Where did the beetle come from?

D. carinulata originally was brought from northwestern China to the U.S. for tamarisk control. Beetles have successfully established in Colorado and other parts of the western U.S.

Is there a charge for the controls?

The Insectary charges a fee for most of our biological controls. Please visit our website or call for pricing.

About the

Palisade Insectary

Mission Statement

Our mission is to develop and distribute safe and effective biological controls for non native weed and insect pests.

The Tamarisk Biocontrol Program

In collaboration with scientists at USDA APHIS we have collected and released hundreds of thousands of beetles in Colorado and other western states.

Our ongoing efforts include monitoring and mapping beetle populations and tamarisk infestations as well as releasing beetles where needed.

For more info on the tamarisk biocontrol program at the Insectary please write or call:

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Biological Control of

Tamarisk



Division of Conservation Services
Biological Pest Control Division
Palisade Insectary



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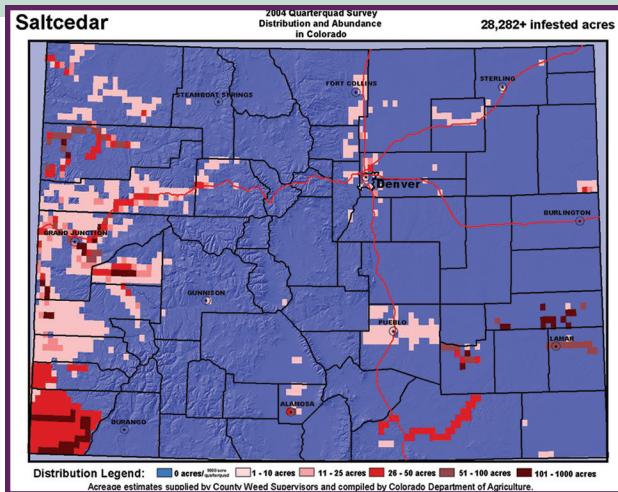
What Is Tamarisk?

Tamarisk (*Tamarix spp.*), also called saltcedar, is a group of closely related shrubs and small trees that grow near streams, rivers, floodplains and desert springs. Its leaves are modified into small scales which give the appearance of cedar foliage and these have salt-secreting glands. For this reason it is sometimes called saltcedar.



Saltcedar along the Colorado River

Native to Central Asia and the Mediterranean region, ten species of tamarisk were introduced to the U.S. in the early 1800s. Since then at least four of these species have escaped and become severe problems as invasive weeds throughout the American west. It is estimated that tamarisk currently occupies 1.5 million acres in the U.S., including 75,000 acres in Colorado and causes over \$300 million dollars of damage and losses each year.



Tamarisk's Effect on the Environment

Tamarisk infestations can have severe negative environmental impacts, including:

- Lowered water tables and decreased river and stream flows. This means less water in the Colorado river and its tributaries. It also means destruction of vital wildlife habitat near desert seeps and springs.
- Damage to native plant communities and wildlife. Over the past 50 years, Tamarisk has largely replaced the cottonwood and willow stands that once lined western stream corridors along with their associated flora and fauna.
- Increased frequency of wildfires.
- Increased soil salinity.

Biological Control of Tamarisk

Tamarisk has few natural enemies: a situation that enables the plant to become more invasive. Biological control programs bring in natural enemies to reestablish a balance between the plant and the insects that feed on it. The tamarisk leaf beetle, *Diorhabda carinulata*, is the first natural enemy to be tested in the tamarisk biocontrol program. USDA greenhouse and field testing shows the beetles are highly host specific and will not feed on other plant species.



Life Stages & Cycle of Beetle

Tamarisk leaf beetles begin as eggs laid in clusters of 1-15 eggs on tamarisk foliage. Eggs hatch into small black larvae which feed heavily and go through three developmental stages (instars) in a period of about three weeks. First and second instar larvae are mostly black while third instars have two yellow longitudinal stripes extending along their sides for the full length of their bodies. The larvae pupate beneath the tamarisk plants and emerge as adults after about 10 days. The adult beetles are sandy yellow in color with four black dorsal stripes. Adults move to the top of the plant where they feed, mate, lay eggs and then move to other plants, guided by plant odors and pheromones. At the end of the season, adults move down into the leaf litter beneath the plants where they overwinter.



Are These Beetles Effective?

Yes! The beetles have been shown to be effective at several study sites and are currently being used in Colorado at four sites following the initial releases in August of 2005. Defoliation weakens plants, reducing seed production, spread, and water consumption leading to the death of the plant. At the original release site in Nevada, tens of thousands of acres have been defoliated.



Tamarisk defoliated by leaf beetles (left) and tamarisk that has yet to be attacked by the beetles (right).