



PRESS RELEASE

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THE TAMARISK BEETLE IS BACK AND IN GREATER NUMBERS

St. George, UT.- Until recently the war on tamarisk in Washington County was slow going as City and contracted crews mowed their way through densely populated tamarisk stands along the riverways with large equipment only to see the deciduous shrub sprout up again three weeks later. This past summer changed all that as new recruits were introduced into Southern Utah in a tactical attempt to combat the tamarisk naturally. Since the introduction of the salt cedar beetle in 2006 along the Virgin River, the City of St. George has fielded a number of calls from residents with questions about the beetle and its characteristics.

The effects of the salt cedar beetles on the tamarisk in St. George has been effective, however, their job is not done, as the tamarisk are only defoliated (stripped of leaves), not dead, at least not yet. The beetles work by repeatedly stripping the trees of leaves over a period of time, typically 2-3 years, during the hottest summer months. These repeated defoliations stress the tamarisk to the point that they eventually die. Currently, residents in Washington County are seeing the second stage (defoliation) of the beetles' effect on the tamarisk. There may need to be additional defoliation stages before the tamarisk are completely dead.

The prompt removal of tamarisk after the first defoliation may be premature and possibly counter-productive since the tamarisk is likely still alive even though the leaves are gone. It appears that the more mature tamarisk are being consumed by the beetle faster than younger ones. These dying stocks are still beneficial to wildlife and once the canopy of leaves is removed, the native plant and tree species will begin to fill in those areas. The City of St. George along with other local and state agencies do have an aggressive multi-year plan to eradicate dead tamarisk and replant those areas with native species in order to speed up the reforestation process.

From a fire perspective, the dead tamarisk represent a fuel source, however, it is much less of a threat without the full leaf mass on the trees. Also, as other species begin to re-grow around the dead stands, that greenery will help to reduce fire intensity.

The beetles have been described as being almost “ladybug like” in their behavior. It may be discomfoting for some people to have the tiny insects crawling around, but they should not harm people or other plants, although those using paved trails may want to wear some eye protection.

Invasion on the Colorado

Frequently asked Questions about the War on Tamarisk

Throughout the Colorado River Corridor, and in places like The Nature Conservancy's Scott M Matheson Wetlands Preserve, *invasive species such as tamarisk are among the greatest threats to fragile ecosystems and critical habitat. The Southeastern Utah Tamarisk Partnership (SEUTP), of which the Conservancy is a partner, works to fight tamarisk and restore native riparian areas. Below, SEUTP's Education and Outreach Committee provides answers to common questions about tamarisk in areas in and around Moab, Utah:*

Riparian lands in the Western U.S. have been severely impacted by many activities and actions, but none to such a degree as the invasion of tamarisk, a non-native plant. Tamarisk is now present in the Colorado River ecosystem to such an extent that it has effectively altered the river corridor's natural functions and processes. The issue is widespread and complex, and there are no easy answers or solutions. These FAQ's seek to answer the most commonly asked questions.

Tamarisk (also known as salt cedar) is a deciduous shrub or small tree from Eurasia. Tamarisk can grow as high as 25 feet tall. The bark on saplings and young branches is purplish or reddish-brown. Leaves are scale-like, alternate, with salt-secreting glands. Flowers are small and the petals are reddish, pinkish, or white. Each plant can produce as many as 500,000 seeds annually. The seeds are dispersed by wind, water, and animals. Seeds are small with a tuft of hair attached to one end enabling them to float long distances by wind and water. Seeds are short-lived and can germinate within 24 hours after dispersal, sometimes while still floating on the water.

How did it get here?

Eight species of *Tamarix* were first brought to North America in 1800's from Southern Europe or the eastern Mediterranean region (DiTomaso 1998). They were first planted as ornamentals and later as windbreaks, and to stabilize river banks. *Tamarix* species escaped cultivation and are now widespread throughout the United States, with heavy concentrations in the Southwest.

Why is it considered a problem?

Tamarisk grows in dense, nearly impenetrable thickets. It also is well-adapted to alkaline (salty) soils. With the construction of dams and the alkaline soils of the southwest, rivers are no longer able to flush salt from the ecosystems and soils are even more alkaline, which deters general plant growth. Tamarisk

creates even saltier soils by bringing up alkaline water which is deposited on the leaf surface. The salt returns to the upper soils via leaf drop.

Tamarisk has additional negative effects on the surrounding environment by:

- narrowing and channelizing streams and rivers
- displacing native vegetation such as cottonwoods and willows
- providing poor habitat for livestock and wildlife
- increasing wildfire hazard
- limiting human and animal use of the waterways

What is the urgency in dealing with tamarisk (why now)?

Unfortunately, tamarisk has displaced native vegetation on approximately 1.6 million acres of land in the Western United States and continues to spread. It is also a phreatophyte (or a plant that mines the water table). Studies have shown that a mature tamarisk can consume nearly 200 gallons of water a day. Although native trees in wet riparian areas can use more or less the same amount of water, they do not grow in the density that tamarisk does. Consequently, the west is probably losing from 2- 4.5 million acre-feet of water per year. This is enough water to supply upwards of 20 million people with water for one year or to irrigate over 1,000,000 acres of land.

Also, tamarisk is susceptible to crown fires several times a year (usually spring and fall). It sprouts aggressively after a fire, thus creating a new fire-prone fuel bed shortly after burning. Because tamarisk is so wide-spread along the river corridor, it poses a major fire hazard in public campgrounds and recreation areas.

What methods have been used to control tamarisk?

Chemical methods involve cutting the stump two inches above the soil surface and treating with herbicide within minutes. Another herbicide can be applied near the base of the trunk when the bark is not wet or frozen. Tamarisk foliage can also be sprayed with herbicide in the fall. Often re-growth appears following these methods and re-treatment is necessary to kill the shrub.

Mechanical control include mowing, cutting and root plowing. However, these methods rarely kill the plant and often stimulate shrubby re-growth. Tamarisk is also adapted to fire and recovers more quickly than native riparian species after a burn because it sprouts vigorously from the root crown.

Biological control uses living organisms to suppress tamarisk. The extensive invasion of salt cedar has justified the search for a suitable biological control agent. The tamarisk or salt cedar leaf beetle, *Diorhabda elongata*, has been tested for 20 years and has been released at test locations in the western U.S.

What is the role of the beetles (biocontrol)?

Beetles are a new tool used to control and/or eradicate tamarisk. The beetles evolved in areas where tamarisk originated. After much study, the beetle was brought to the American Southwest to assist in control efforts. Beetles and their larva feed upon the foliage of the tamarisk plant, thus reducing

chlorophyll production and photosynthesis, which reduces the food (starches and sugars) made by the plant. This process should weaken and potentially kill the plant over time.

When and how were the beetles released?

Tamarisk biological control began in the 1970's with study of potential control insects by USDA-ARS (United States Department of Agriculture - Agricultural Research Service). Quarantine condition testing of the insects began in 1992. Approval to begin field testing was given in 1999 and the beetles then studied in outdoor cages at research areas at 10 sites in 6 states (CA, NV, UT, CO, WY & TX). In 2001, the beetles were released from their cages at the 10 sites. Beetle populations increased at 5 of the 7 sites north of the 38th parallel (Lovelock, NV; Delta, UT; Schurz, NV; Pueblo, CO and Lovell, WY).

In 2004, A.P.H.I.S (Animal and Plant Health Inspection Service, USDA) personnel opened the Delta, UT site to collection of the tamarisk beetles and larva for Utah agencies and organizations. Beetles were then released on selected private and state lands (no federal lands. Collected beetles and larva from the Delta site were released in Grand County at two approved sites.

How long will it take for the beetles to kill off the tamarisk?

To "kill off" a plant without chemicals or removal of the total plant and roots from the ground is difficult. However, repeated defoliation of the plant leads to a reduction in photosynthesis and thus food for the plant. Each repeated defoliation should result in a decrease or dying off of some of the root mass. If this happens repeatedly and the plant isn't allowed to grow new foliage and retain it for an extended length of time it is possible to kill the plant. Estimates on die off of the tamarisk due to defoliation suggest three to five years, but this could be longer or shorter depending on the size of the plant and its root mass, how often it's defoliated and how limited the time is that the plant retains foliage.

Will these beetles eat other types of vegetation?

Extensive testing was undertaken prior to release and some non-target feeding was seen on plants in the genus Frankenia (seaheath). There are four native species in this genus that are found in southwest and grow in saline/alkali soils. Studies indicate that the larvae could feed and develop on Frankenia, but attraction of the adults and egg laying was much less Frankenia than on tamarisk and even further reduced in the second generation, therefore beetles and larvae are not viewed as a threat.

Are there any predators that could control the beetle population?

Some birds and ants have been known to feed on the beetles and there are reports of a wasp that parasitizes the beetle. However, when an insect only feeds on only one plant and that plant population is subsequently reduced or eliminated, the population of that insect drops off dramatically. Should the beetles significantly reduce the tamarisk population, then the beetle population in turn will be reduced through die off.

Studies in Nevada by the University of California document a measurable increase in diversity and abundance of birds which feed on the beetles during the process of defoliation.

Are there other areas where the beetle is being used to control tamarisk?

There are the six states where initial studies and releases took place (CA, NV, UT, CO, WY & TX). There are a number of sites in Utah where the beetle has been released since 2004 and in August 2005 there were 24 sites in Colorado, Idaho, Kansas, Montana, Oregon, South Dakota and Wyoming where releases took place. There may have been more releases at these and other sites since.

What happens after the beetles have defoliated the tamarisk?

Once the tamarisk has been defoliated it can no longer photosynthesize and eventually this will kill the tree. Variables include the vigor of the tree and the duration of predation. Recent observations from the Delta, Utah release site indicate that a tree can be killed within 3-5 years of beetle infestation.

What will happen when the trees die?

Natural re-vegetation has been seen in some areas where tamarisk has been removed and certainly is expected in other areas should the tamarisk be killed. Re-vegetation may be required in some areas and is being planned for by the various agencies involved with this process. However, if the tamarisk and the duff material are not removed, it may prove very difficult for natives to establish themselves due to the salinity of the soils created by tamarisk.

What will replace the tamarisk?

It depends on the site-specific conditions. Native vegetation may replace the non-native tamarisk in some areas, and weedy species may replace the tamarisk in others. There is also an expectation that there will be some sprouting of tamarisk from seed sources for as long as any tamarisk exists along the Colorado. Monitoring will be required to document what species do naturally replace the tamarisk, as well as to determine areas that may need additional treatment or re-vegetation efforts.

How will tamarisk removal affect wildlife habitat?

Studies have shown that the diversity of wildlife is much higher in native habitat than in non-native habitat. Wildlife biologists believe that the removal of non-natives and restoration of native habitat will enhance the overall quality of the wildlife habitat.

How long will it take to get rid of tamarisk?

Land managers have been working on tamarisk removal projects along river ways in the west for decades and progress to date has been slow. However with the advent of potential region-wide beetle kill of tamarisk, the process will probably proceed at a much faster rate. The current goal is to be able to achieve 70-80% removal of the existing population and replacement with native vegetation. This process will require many years before we see any significant change.

Will we ever get rid of the tamarisk completely?

Probably not. Tamarisk has become naturalized here in the western U.S. and total eradication efforts are now considered unfeasible (too costly and time-consuming).

What will happen with tamarisk-infested areas in 10 to 15 years?

Good question. The latest estimates from land managers and researchers is that the beetle will probably contribute to the browning out and eventual mortality of 70-85% of tamarisk in infested areas over the next several years. Several factors may affect this scenario. Will the beetle thrive and survive long enough to impact the tamarisk to this degree? Will other factors come into play that will either accelerate this time frame or impede the progress of the beetle? Monitoring efforts are necessary to provide feedback and direct follow-up efforts.

Where will the money come from to fund the restoration process?

Past and present restoration projects have been funded through private donations, grants, and in many cases agency budgets. However, in October 2006, President Bush signed a tamarisk control law that authorizes spending \$15 million annually to help eradicate tamarisk and support restoration efforts. Federal & state agencies, non-government organizations and private entities collaborated to secure this federal funding (when approved by Congress) in order to undertake this monumental task of restoring the Colorado River Corridor.

Who is responsible for removing the tamarisk and restoring the native habitat along the riverways?

The riverways cross both public and private lands. Tamarisk is now listed as a noxious weed in both Grand and San Juan counties and land owners have a responsibility to help with its removal. Government agencies require, through their own mandates, to control noxious weeds on federal lands. It is hoped that through a coordinated effort, a more systematic approach will be taken to restoring native habitat in targeted areas along the riverways.

Is there a plan in place for restoration efforts along the riverways?

Restoration efforts along the riverways have been and continue to be conducted by federal, state and local agencies, private entities and non-profit organizations. In 2006, a multi-agency group, the Southeast Utah Tamarisk Partnership, formed and completed a strategic plan for restoration along the Colorado River Corridor.

How can I help?

Join the collaborative effort. Become informed. Contribute to the cause monetarily or volunteer to help with grant writing, tamarisk control and re-vegetation projects. Encourage others to get involved!

This and more information regarding tamarisk can be found on the Nature Conservancy website at www.nature.org by typing "tamarisk" in the search engine on the site.

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