Youth Forum

Salt Cedar Management in New Mexico

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Salt cedar (*Tamarix* spp.) is a shrub or small tree-like plant that can grow anywhere from 5–20 feet tall. The plant has scale-like leaves with red or pink flowers that normally flower spring through summer. The plant gets its name from salt-secreting glands that are located within the plant.

Banks of the Rio Grande, New Mexico. Photo courtesy of Sierra County Soil and Water, New Mexico.

Salt cedar was introduced in the 1820s from the Middle East and Asia as an ornamental plant. By 1897 it had escaped into Utah's watersheds. Between 1900 and 1930 it was widely planted to stop bank erosion and stabilize stream banks. Salt cedar was introduced into New Mexico in 1908. And after only 3 years, people were trying to get rid of it. In the 1940s it was spreading through most of the western United States' water systems.

Salt cedar generally occupies riparian ecosystems. It is now considered an invasive plant. It has taken over 1 million acres of private and federal land. Excluding Hawaii, all states are affected by salt cedar. New Mexico has the greatest infestation of the shrub in the western United States. All major rivers in New Mexico have large amounts of salt cedar growing along their banks, with the lower Rio Grande basin having the worst infestation.

There are 8 different species of salt cedar, but only 2 affect the rivers of the western United States. These species are *T. chinensis* and *T. parviflora*. All but one of these species are considered weedy plants. It is estimated that an average 8-foot tree can use anywhere from 60–100 gallons of water a day.

Currently New Mexico has 5 different methods being used to control salt cedar: manual removal, fire, mechanical removal, biocontrol, and aerial control.

Manual removal of salt cedar.

Manual removal is very good because the kill rate is 85%–90%. The downside to this type of control is that it is very labor intensive and expensive. Once the target species is removed and the slash is removed, the stumps are treated with a mixture of Garlon and vegetable oil. Garlon inhibits protein synthesis and cell growth within the plant is terminated.

Fire is not a very effective treatment. This is because salt cedar is a fire-adapted plant. This means that salt cedar is able to outcompete native vegetation after burning. However, fire is effective for clearing standing stumps and brush.

Mechanical removal is very expensive, and the kill rate is anywhere from 70%–85%. Normally bulldozers or extractors are used. The good thing about extractors is that they are able to pull the roots straight up, which allows native vegetation to remain relatively undisturbed.

Biocontrol uses either goats or Chinese leaf beetles. This management is fairly new and experiments are ongoing. The beetles eat the foliage on the plant, but the tree resprouts new foliage. The goats eat accessible foliage. Scientists have found that this type of control works best as a pre- or post-treatment along with implementation of other control techniques.

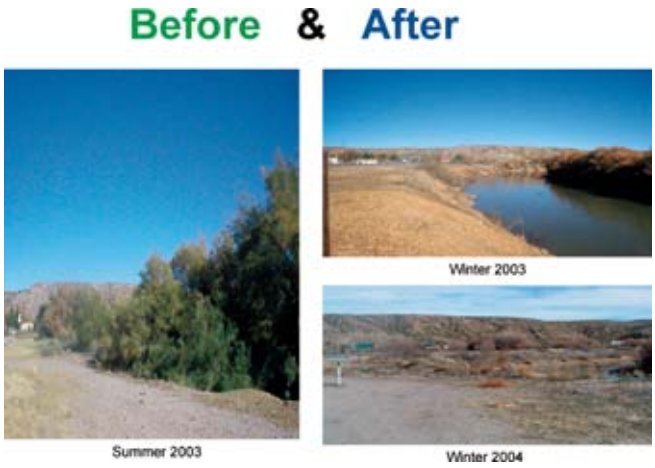
Aerial control is one of the most popular types of control in New Mexico and the western United States. This is because the mortality rate achieved is 87%–98%. Arsenal is the herbicide used; it was researched and found to be the most environmentally safe, effective, and economically advantageous herbicide. Isopropylamine salt of imazapyr is the active ingredient in Arsenal. Imazapyr targets 3 amino acids that are essential to plant growth. The herbicide is applied to the foliage of plants by helicopter. Arsenal can also be sprayed from a truck or backpack sprayer.

Salt cedar can grow very rapidly. It has been shown that when a tree is cut down in early spring, by August of the same year it can grow as much as 9–12 feet. That is about 1.5 feet per month. This plant also produces up to 50,000 seeds per year, and is also able to grow vegetatively.

Management of salt cedar is a large undertaking and the cost is reflective of this. In 2003, Sierra and Socorro counties in New Mexico alone spent 1.2 million dollars on aerial treatment. This is approximately $270 per acre. This funding treated about 4,500 acres. For manual treatment of salt cedar the average cost is approximately $1,500 per acre.

Salt cedar does not support much wildlife but there are some wildlife species that are able to live in dense stands of salt cedar. Two species of birds are being protected. The 1st is the **Southwestern Willow Flycatcher.** This species of flycatcher is on the endangered species list. The other bird is

Mechanical removal of salt cedar.



the **Yellow-billed Cuckoo**. This species of cuckoo is on the threatened list. There are not very many nesting groups in the salt cedar, so the same precautions are being taken as with the flycatcher. Except for these species, most wildlife doesn't find salt cedar to be a good habitat because the plant makes it harder for the animals to get to water compared with native trees.

Photos show before and after views of a treatment area. You can see that in the summer of 2003 there were large amounts of salt cedar growing along the banks of the Rio Grande River. The winter of 2003 photo shows the same area after a cut-stump crew had gone through and removed the salt cedar. In the winter of 2004 photo, you can see there is new grass that had started to grow the previous growing session, as well as new vegetation, which is good for this riparian ecosystem. ◆