

FEATURED WEED: SALT CEDAR



Saltcedar can inhibit the growth of native species by releasing salts and increasing soil salinity.

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Saltcedar (*Tamarix* spp.), also called tamarisk, is a long-lived perennial, deciduous tree or shrub that lives near waterways. Saltcedar gets its name from its scale-like leaves that resemble cedar leaves and the plant's ability to exude salts through its leaves. In dense infestations, saltcedar can inhibit the growth of native species by releasing salts and increasing soil salinity. Other impacts include disruption of natural stream channel processes, increased water use, reduced water availability, and suppressed beneficial soil fungi. As a Priority 2B noxious weed in Montana, saltcedar and 16 other weeds in this category are abundant in Montana and, as such, management approaches for them are locally prioritized.

Origin and Distribution

Native to Eurasia and Africa, this deceptively attractive plant was introduced into North America as an ornamental plant for erosion control and in windbreaks in the early 1800s. It is most prevalent along waterways including floodplains, streambanks, and around lake shores. In Montana, saltcedar was first identified near the Yellowstone and Big Horn Rivers in the 1960s. Currently, saltcedar is scattered in Montana, but is primarily found along the Yellowstone, Big Horn, and Powder Rivers and is abundant at Fort Peck Reservoir.



Identification and Growth Habits

Saltcedar grows as a loosely branched large shrub or small tree that can grow to around 20 feet tall. It has a deep taproot that forms as the primary root, with extensive rhizomatous roots (i.e., roots that grow laterally under the soil surface and often sprout from nodes) growing secondarily. Its diverse root system allows it to survive in a wide array of environmental conditions including extended drought, immersion in water for up to three months, and nearly anything between.

Young branches of saltcedar are smooth and slender with a reddish-brown bark, becoming ridged and furrowed on older branches. Saltcedar leaves are small, flat, and scale-like, and are arranged alternately on the stem. Saltcedar flowers are pink to white, five-petaled, and $\frac{1}{16}$ -inch long, and they grow in long, drooping, narrow clusters that are up to $2\frac{1}{2}$ inches long. Flowering occurs throughout the spring and summer.

Mature plants can produce thousands of flowers each year and contribute up to 600,000 seeds into the seedbank annually. Seeds are extremely small and black, resembling pepper, with a tuft of hair on one end, which allows them to be easily dispersed via wind and water. Compared to many other weeds, saltcedar seed viability is relatively short, at an average of five weeks. Under cool, dry conditions, seeds may remain viable for up to six months, while living less than a week in hot conditions. Seeds lack a dormancy period and can germinate within 24 hours of dispersal when suitable conditions exist.

Management

Prevention of invasive weed establishment is the most economical approach to management and it minimizes ecological damage. The ability to identify saltcedar can be an important part of jump starting removal of small patches. In areas where small, isolated patches of saltcedar are found, eradication should be a priority to prevent further spread.

Where saltcedar infestations are large, control should be implemented to prevent further infestation and damage. Additionally, when removal occurs, the area should be inspected for up to two years to detect sprouts that establish. In general, minimal desirable vegetation exists under a saltcedar stand, especially dense stands, and the potential exists for other weeds to infest when treatment occurs. Where dense infestations of saltcedar are removed, revegetation and a weed management plan should be considered.

The saltcedar leaf beetle (*Diorhabda elongata*) was approved for release in the United States for saltcedar control in 2009. This insect, which defoliates the plants in both larval and adult stages, has proven effective at controlling large saltcedar infestations in the southwestern U.S. Movement of the insect was suspended in the late 2000s due to concerns that it was reducing habitat for the southwestern willow flycatcher, which uses saltcedar for nesting habitat. However, the State of Montana recently decided to allow movement of the saltcedar leaf beetle within state lines. Reproducing populations were found in 2015 and releases were made in 2016.

Mechanical removal of saltcedar can be effective, particularly when plants are immature. Young plants can easily be pulled manually where a new infestation starts or after large plants are removed. Mowing can be effective when it is coupled with herbicide treatment. Because saltcedar can sprout, a single mowing will not be effective without killing newly sprouted shoots. However, once a site is mowed, it is usually easier to spray the foliage of mowed and sprouting plants.

Heavy equipment can be used to remove entire plants. This type of control is very expensive, can cause considerable soil disturbance, and has had varied results because of saltcedar's ability to sprout from remaining root material. One approach is to use a root plow pulled by a bulldozer. The plow should be set as deep as possible to cut the root crown of plants and is most effective when it is hot and dry. Follow-

up treatments of hand removal of fragments, sprouts, and small trees or herbicide must be used for effective control. All material should be piled and burned to prevent sprouting and revegetation of the site should be strongly considered.

Herbicide application can be used to spray the foliage (i.e., foliar treatment), the basal bark (i.e., basal bark treatment), or cut stumps (i.e., cut stump treatment) of saltcedar for control. The active ingredient imazapyr can be used for foliar applications and is sometimes used in areas where the basal bark and cut stump methods aren't feasible. Imazapyr should be sprayed in late summer to early fall, prior to the plant going dormant and when the plants are actively translocating material into their root systems.

Both active ingredients imazapyr and triclopyr can be used to treat stumps when trees are cut. Trees should be cut to within two inches of the ground surface and remaining stumps should be treated with either product within minutes of cutting, ensuring complete coverage of the entire crown area of the plant.

Lastly, when using the basal bark treatment, completely spray the bottom 15-18 inches of the stem, wetting completely, with the active ingredient triclopyr. This method is most effective on stems less than 6-inches in diameter when treated in summer or fall. Because saltcedar grows near waterways, extreme caution should be used to avoid application or drift into standing water. It is always extremely important to follow label directions for product-specific rates and application techniques.

For more information about saltcedar control or for help identifying this invasive plant, contact your local MSU county or reservation Extension office or the county weed district. An MSU Extension MontGuide about saltcedar can be found at the following link: <http://msuextension.org/publications/AgandNaturalResources/MT199710AG.pdf>. ■