



**DIRT  
MERCHANT  
CONSTRUCTION**

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May 24 2012

Division of Reclamation, Mining and Safety  
101 South 3<sup>rd</sup> Street Rm 301  
G.J., CO. 81501  
Attn: Travis Marshall

**RECEIVED**

MAY 29 2012

GRAND JUNCTION FIELD OFFICE  
DIVISION OF  
RECLAMATION MINING & SAFETY

Technical: 110 c Revision Weed Control

In a few small areas of our pit during inspection were Tamarisk growing.

Our control plan and target weed will the Tamarisk.

In seeking best management practices for elimination of such noxious weeds several were recommend. The method that we proceeded to use and will continue to do will be the mechanical extraction method without herbicides with a dozer or rubber tired backhoe and hand labor on a monthly inspection basis as needed

Dirt Merchant, Inc, will monitor pit area and continue to remove any and all noxious and problematic Tamarisk as needed on a monthly visual site inspection by owners throughout the remaining pit life.

Enclosed are recommendations CSU and Colorado State Parks

Thank-you

Brian Wells

NEW - [Tamarisk Best Management Practices in Colorado Watersheds](#) by Scott Nissen, Colorado State University; Anna Sher, University of Denver and Denver Botanic Gardens; and Andrew Norton, Colorado State University. Email Cameron Douglass at Colorado State University for ordering information [cdouglas@lamar.colostate.edu](mailto:cdouglas@lamar.colostate.edu).

In general, available technologies to control tamarisk and Russian olive include five variations of hand, mechanical, and biological control:

1. hand control with herbicide application
2. mechanical extraction without herbicide (not appropriate for Russian olive)
3. mechanical mulching with herbicide
4. mechanical grab & cut-stump with herbicide
5. biological control using the tamarisk leaf beetle, *Diorhabda spp.* and, where appropriate, goats can be successful

All control technologies, by their nature, require follow-up treatments for resprouts and weed control as an implicit part of the approach.



COLORADO STATE PARKS  
BEST MANAGEMENT PRACTICES  
WEED PROFILE



Date Created: April 25, 2003

Revised: April 1, 2005

Author: Various

Parks Affected: Many

## Saltcedar (Tamarisk)

*Tamarix ramosissima* Ledeb.

and *Tamarix parviflora* DC.



Family: *Tamaricaceae* (Tamarisk)

Other Names: tamarisk, salt cedar

USDA Code: TARA, TAPA4

Legal Status: Colorado Noxious List A (general weeds)

### Identification

**Growth form:** Deciduous, loosely branched shrubs or small trees.

**Flower:** Flowers are whitish or pinkish and borne on slender racemes 2-5 cm long on the current year's branches and are grouped together in terminal panicles. Petals are usually retained on the fruit.

**Seeds/Fruit:** The seeds are borne in a lance-ovoid capsule.

**Leaves:** Leaves are minute, appressed scaly leaves, alternately arranged.

**Stems:** Branchlets are slender; plants may reach heights of 15 feet or more.

**Roots:** The primary root can grow to a depth of up to 30 meters or more (Baum 1978). Plants can develop spreading horizontal roots after reaching the water table. These can spread up to 50 meters and are capable of producing adventitious buds (DiTomaso 1996).

**Seedling:** No information available.

### Keys to Identification:

- Saltcedar is a tall shrub or small tree that has large sprays of small whitish or pinkish flowers that are born in finger-like clusters.
- Leaves are very small and scaly.

### Similar Species

Exotics: None known.

Natives: None known.

### Impacts

**Agricultural:** No information available.

**Ecological:** Saltcedar is an aggressive, woody invasive plant species that has become established over as much as a million acres of the western United States (Carpenter 1998). Saltcedar crowds out native stands of riparian and wetland vegetation. It increases the salinity of surface soil, rendering the soil inhospitable to native plant species. Saltcedar provides generally lower wildlife habitat value than native vegetation. It uses more water than comparable native plant communities and dries up springs, wetlands, riparian areas and small streams by lowering surface water tables. However, in places where beaver dams or other structures have raised the water table, saltcedar can be outcompeted by *Salix exigua* (R. Roberts, pers. comm.) Saltcedar widens floodplains by clogging stream channels and increases sediment deposition due to the abundance of saltcedar stems in dense stands.

### Habitat and Distribution



Branch



Close up of leaves

**General requirements:** Saltcedar grows well on moist sandy, sandy loam, loamy, and clay soil textures (FEIS 1996). Saltcedar is tolerant of highly saline habitats, and it concentrates salts in its leaves. Over time, as leaf litter accumulates under saltcedar plants, the surface soil can become highly saline, thus impeding future colonization by many native plant species. Saltcedar is not tolerant of shading. Shaded plants have altered leaf morphology and reduced reproduction.

Saltcedar commonly occurs along floodplains, riverbanks, stream courses, saltflats, marshes, and irrigation ditches in arid regions of the Southwest and the Southern Great Plains (FEIS 1996).

**Distribution in Colorado:** In Colorado, saltcedar is most commonly found between 3,400 to 7,000 feet (FEIS 1996), but can be found up to 8,000 feet (A. Green, pers. comm.). It is widespread in riparian areas throughout the western United States.

**Historical:** Introduced to North America for use as ornamental, windbreak, and erosion control.

### **Biology/Ecology**

**Life cycle:** Saltcedar generally flowers in its third year of growth or later, but may flower during the first year (FEIS 1996). Saltcedar buds generally break dormancy in February or March. The flowers are most abundant between April and August, but may be found any time of the year in desert areas. Saltcedar flowers continuously under favorable environmental conditions but the flowers require insect pollination to set seed. Seedlings grow slowly and require saturated soils throughout the first 2-4 weeks of growth (FEIS 1996). Ideal conditions for first-year survival are saturated soil during the first few weeks of life, a high water table, and open sunny ground with little competition from other plants.

**Mode of reproduction:** Reproduces by seeds as well as vegetatively. Saltcedar sprouts from the root crown and rhizomes, and adventitious roots sprout from submerged or buried stems (FEIS 1996). This allows saltcedar to produce new plants vegetatively following floods from stems torn from the parent plants and buried by sediment.

**Seed production:** A mature saltcedar plant can produce 600,000 minute seeds annually (FEIS 1996).

**Seed bank:** Seeds are viable for up to 45 days under ideal conditions during summer, and can complete germination within 24 hours following contact with water (Carpenter 1998). Saltcedar seeds had no dormancy or after-ripening requirements.

**Dispersal:** The seeds are readily dispersed by wind and water.

**Hybridization:** No information available.

### **Control**

**Biocontrol:** The USDA has permitted the release of two species of insects for saltcedar biocontrol but widespread releases have not yet been permitted (A.T. Carpenter, pers. comm.).

**Mechanical:** As an alternative to herbicides, a bulldozer or prescribed fire can be used to open up large stands of saltcedar. Once opened, the resprouts can be sprayed when they are 1 to 2 m tall using imazapyr, or imazapyr plus glyphosate, or triclopyr.

**Fire:** See above.

**Herbicides:** For larger areas (> 2 hectares) that are essentially monotypic stands of saltcedar, the best methods would likely be foliar application of imazapyr herbicide to the intact plants or burning or cutting plants followed by foliar application of imazapyr or triclopyr to the resprouted stems. Foliar application of imazapyr or imazapyr in combination with glyphosate can be effective at killing large, established plants. Over 95% control has been achieved in field trials during the late summer or early fall (Carpenter 1998). The herbicide can be applied from the ground using hand-held or truck-mounted equipment or from the air using fixed-wing aircraft. Foliar application of herbicide works especially well in monotypic stands of saltcedar, although experienced persons using ground equipment can spray around native trees and shrubs such as cottonwood and willow.

Saltcedar eradication in areas that contain significant numbers of interspersed, desirable shrubs and trees is problematic. Depending upon site conditions, it may not be possible to rapidly kill saltcedar plants without also killing desirable shrubs and trees. In such situations, it may be necessary to cut and treat saltcedar stumps with herbicide, as outlined in the next paragraph. While this method is relatively slow and labor-intensive, it will spare desirable woody plants. Alternatively, it may be more cost-effective to kill all woody plants at a site and replant desirable species afterward.

### **Keys to Control:**

- Select the appropriate control method based on the size of the area and other environmental or cultural considerations.
- Re-seed controlled areas with desirable species to protect the soil resource and to prevent or retard saltcedar reinvasion.

# STATE OF COLORADO

## DIVISION OF RECLAMATION, MINING AND SAFETY Department of Natural Resources

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Executive Director

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May 14, 2012

Mr. Brian Wells  
Dirt Merchant Construction  
638 1800 Road  
Delta, CO 81416

**Re: Wells Pit, Permit No. M-2006-027, Preliminary Adequacy Review of 110c Construction Materials Reclamation Permit Technical Revision Application, TR-01.**

Dear Mr. Wells:

The Division of Reclamation, Mining and Safety has begun the review process for the above referenced 110c Technical Revision request. The revision proposes to incorporate a weed control plan into the reclamation permit. A review of the application has revealed a few issues and clarifications that must be addressed before the request can be approved.

1. Please specify target weed species of the weed control program.
2. Please specify what methods and herbicides will be used and when applications of herbicides used will be conducted.
3. Please specify timing for spring and fall management applications, in terms of growth phase of the target weeds (ie: Bud to bloom, rosette, bolting, pre-dormant or prior to first frost).
4. DRMS strongly recommends that all weed management events be thoroughly documented and included in the annual report. Documentation should include mapping of location and extent of weed patches, identification of species, specification of weed management methods used, timing of treatment, and any specifics such as herbicide type, mixture strength, application equipment, temperature, weather etc. The report should also include observed results of the effectiveness of the treatment and propose changes when treatments are proven ineffective.

This is a preliminary review. Other issues may arise from other agency comments and as more information is supplied. The decision date for this application has been set for June 11, 2012 provided all issues have been addressed. If the requested information is not received by June 1, 2012 the applicant should request an extension of the decision date or the application may be denied.

If you need additional information, please contact me at the Division of Reclamation, Mining and Safety, Grand Junction Field Office, 101 S. 3rd St., Suite 301, Grand Junction, Colorado 81501, telephone no. (970) 241-2042.