

Weed Management Guideline for Tamarisk and Russian Olive, Minerals

Program

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Introduction

Salt Cedar (*Tamarix* spp) is a deciduous shrub or small tree growing 12-15 feet in height and forming dense thickets. Salt Cedar establishes in areas where seedlings can be exposed to extended periods of saturated soil for establishment. Salt Cedar can grow on highly saline and alkaline soils. It spreads vegetatively, by adventitious roots or submerged stems, and sexually through flowers that can each produce thousands of tiny seeds. Seedlings require extended periods of soil saturation for establishment. Salt Cedar establishes in disturbed and undisturbed streams, waterways, bottomlands, banks, and drainage washes of natural or artificial water bodies, moist rangelands and pastures.

Russian olive is a member of the Oleaster family. Russian olive is an introduced, deciduous, shrub or small tree usually 12 to 45 feet tall. It can grow up to 6 feet per year. At three years of age, plants begin to flower and fruit. It forms a dense, rounded crown. Near the ground its branches spread from 10 to 20 feet. It has a deep taproot and well-developed lateral root system. Because Russian olive is capable of fixing nitrogen in its roots, it can grow on bare, mineral substrates and dominate riparian vegetation where overstory cottonwoods have died. Russian olive establishes in disturbed areas, successional fields, pastures, roadsides, and has escaped to invade prairies, open woodlands, and forest edges.

Problems

Salt Cedar and Russian olive disrupt the structure and stability of native plant communities and degrades native habitat by out competing and replacing native plant species, monopolizing limited sources of moisture, and increasing the frequency, intensity and effect of fires and floods. Once established, they are difficult to control and nearly impossible to eradicate. Management of these species requires a long-term commitment and usually involves a combination of control methods such as mechanical and chemical for success. With these growth characteristics in mind, the following guideline was developed to assist operators in controlling Salt Cedar and Russian olive on permitted mine lands.

Operators are encouraged to consult with their local weed management authority (district) when developing any weed management plan.

Control Methods During Mining

Keep disturbance footprint as small as possible

- Disturb only the acreage to be mined in the upcoming field season
- Minimize number of roads and equipment storage areas
- Reclaim affected areas as soon as possible
- Implement control methods prior to disturbing new areas

Minimize or eliminate wetted soils and puddling, create positive drainage at all times, and where practicable:

- Slope all affected areas to prevent puddling and facilitate rapid drying of surface soils
- Convey water via pipes or other means to prevent wetted soils; limit ditch conveyance
- Conduct operations that expose moist soils at a time when tamarisk are not producing seed or have not in the past 45 days (September - mid April, see later comments about seed longevity and wet soils)

Deleted: (Comment: If possible, it is sometimes useful to pre-treat areas prior to disturbance. This at least reduces the amount of plant material – live seeds and roots - transferred from the pre-disturbance condition to the post-disturbance condition.)¶

Control/Management

- Mechanical
 - Root plowing
 - Bulldozing (over many years)
 - Fire (over many years)
 - Inundation (long term)
- Chemical
 - Foliar spaying

- Basal bark spraying
- Combinations
 - Cut stump w/ herbicide application

If stockpiling topsoil, use cover crop to aid in preventing undesirable plant establishment

(Comment: Although cover cropping topsoil stockpiles is not only a good practice, but is a required practice, I seriously doubt that cover cropping would have much impact on Tamarix/Russian Olive invasion into topsoil stockpiles. Most topsoil stockpiles are pretty droughty and are not favorable habitats for the establishment of Tamarix or Russian Olive. Although Russian Olive seeds will remain viable for some time in the topsoil that is stockpiled, short of sterilizing the topsoil – not recommended – there isn't much that can be done about the seed bank.)

Control Methods During Reclamation:

Contemporaneous reclamation and quick seeding following topsoil placement

Proper soil management

- Don't spread soils that are already infested if adequate clean soil is available
(Pre-treatment will help to eliminate contaminated soils.)
- Maintain positive drainage

Season of reclamation grading and soil replacement, leaching and seed selection:

- Avoid April and May and late July (potentially) (Tamarisk flowering and seeding season- Although Tamarisk is a prolific seed producer, seed longevity is relatively short compared to other noxious weeds (3-6 weeks), therefore, if conditions that are conducive and necessary for seedling establishment (wet or saturated soils) are managed during the flowering and seed producing season, establishment of new plants can be greatly reduced)
- Apply topsoil in the fall and seed immediately after application
- Use companion crop with seed mix for areas where topsoil must be applied in winter or spring to help ensure desirable plant establishment
- Leach salts out of soils with heavy irrigation prior to seeding/planting, if possible w/o significant erosion/sedimentation

(This is suggested for use in areas where the post-mining land use is agricultural, primarily irrigated crop production)

- Revegetate using salt and alkaline tolerant species
- Use weed competitive shrubs and trees around wetted soil areas

- Mulch all freshly seeded areas with 2T/acre weed-free straw or native grass hay and crimp
(The establishment of desirable and competitive vegetation is essential in controlling all noxious or undesirable vegetation. The use of straw mulch has clearly proven to be an effective method in establishing desirable grasses, forbs and the like. It would typically take more than just mulch to maintain moist soils necessary for the germination and establishment of these species. Typically it would consist of poor drainage, ponding, high water tables, etc. Overall, the benefits of using mulch far outweigh the possible downside.)
- Spot spray establishing weeds if found during reclamation operations or shortly thereafter

Control Methods Following Reclamation

- Closely monitor all reclaimed areas for plant establishment success and weed infestations.
- Reseed any areas of non-establishment in the next available season.
- Mechanically and chemically control any weed infestations found.

AS WITH ALL INVASIVE PLANT MANAGEMENT, FOLLOW-UP MONITORING AND CONTROL IS ESSENTIAL TO MAINTAIN DESIRED MANAGEMENT LEVELS.

(It is important to remember that this is only a Guideline and as such, even though DMG can require and enforce weed control methods for these species, the individual elements outlined in this document are not enforceable.)