Horticulture

UtahStateUniversity
COOPERATIVE EXTENSION

extension.usu.edu

October 2010

Different Treatment Options for Russian Olive

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Introduction

Russian olive is a thorny, small, sometimes shrubby tree that thrives in Utah's arid climate. This extremely hardy and adaptable plant originated in southern Europe and Western Asia. It tolerates drought, alkaline and saline soils, fixes nitrogen from the air and reproduces both by seed and root suckers. The small olive-like fruits are relished by many species of wildlife (particularly birds). However, Russian olive often crowds out native vegetation in riparian areas and forms an impenetrable barrier along fence lines and in pastures. Its invasive nature and thorny growth habit have led several Western states to list Russian olive as a noxious weed.

This fact sheet introduces several methods that can be used to control Russian olive, and identifies situations best suited to each method. As with any perennial plant, the key to Russian olive control is killing the root system.

Control Options

There is no quick and easy way to control Russian olive. The options include:

- Mowing
- Cutting
- Cut Stump Herbicide Treatment
- Girdling
- Frill Cut Herbicide Treatment
- Flooding or Ponding
- Burning
- Dozing
- Tillage
- Bio-control
- Chaining
- Foliar Herbicide Treatment
- Basal Bark Herbicide Treatment
- Combinations

Each control method has advantages and disadvantages. In some instances complete eradication may not be possible. While exploring control methods, individuals must decide what constitutes successful control in their situation.

Mowing

Russian olive saplings less than ½ inch in diameter are easily mowed with a rotary mower. A tractor-powered mower can handle stems up to 1 inch in diameter. The resulting stumps are jagged and stiff, so mowing is not a good choice in areas where there is foot traffic. Repeated, frequent mowing over several years will greatly reduce or eliminate Russian olive populations. Mowing works best in areas where trees are small, and where large equipment can be used.

Cutting

Live Russian olive trees are easy to cut with a chainsaw, but fighting through thorny branches to reach the trunk can be a challenge. Small stems can be cut with loppers or a pruning saw. Suckers will sprout from cut stumps. Sprouts must be removed repeatedly to starve the roots. Cutting is labor intensive, so this method is best suited to areas with fewer trees, or where mechanized equipment cannot be used.

Cut Stump Herbicide Treatment

Cut stump herbicide treatment combines cutting with herbicide application. Trees are cut down, and the stump is immediately painted or sprayed with an herbicide labeled for stump treatment. This method can provide excellent control of larger trees. The stump and

roots can be removed later, or left in place to help stabilize soil until more desirable plants become established.

Girdling

Girdling involves removal of a strip of bark around the entire circumference of the trunk. This stops the flow of food from the leaves to the roots, starving the plants. As with cutting, girdling stimulates sucker growth which must be dealt with later. Girdling each individual trunk on a multi-stemmed Russian olive tree is a time consuming task. As with cutting, thorns make it difficult to reach the trunk. Girdling might be considered if there are only a few trees to treat.

Frill Cut Herbicide Treatment

Frill cut herbicide treatment combines partial girdling with herbicide treatment. A series of downward chops are made with a hatchet or axe, leaving projecting "frills" of bark. The frills are staggered so the tree is not completely girdled, and thus will continue to send food (and herbicide) to the roots. Herbicide is applied into each frill. This method requires a very small amount of herbicide, minimizing the risk to non-target species. As with girdling, thorns and multiple stems can make frill cutting difficult.

Flooding or Ponding

Flooding or ponding may be feasible in situations where an area can be flooded for an extended period of time. Roots are deprived of oxygen and eventually die. Flooding requires a large volume of water and the ability to confine it to a specific area. It kills both desirable and undesirable plants. These drawbacks severely limit its use.

Burning

Young Russian olive trees may be killed by burning. Suckers will sprout from the stumps of older trees after a fire. Burning might be used to prepare an area for other, more effective treatments in situations where there is enough vegetation to carry a fire. Local fire regulations must be followed.

Dozing

Dozing uses heavy equipment, such as a bulldozer or backhoe, to rip the tree from the ground. This method is used extensively in pastures and farmland. Dozing must be followed with other treatments such as tillage, mowing, or herbicides to kill root suckers.

Tillage

Fields that are tilled annually do not have a Russian olive problem. Rotating into crops that require or allow annual tillage can eliminate infestations, especially if the trees are small.

Bio-control

Verticillium wilt and Phomopsis canker attack and sometimes kill Russian olive trees. However, there are no effective biological controls for Russian olive at this time. The use of grazing animals (goats) to control re-growth after cutting deserves further study.

Chaining

In chaining, two bulldozers work in tandem to drag a length of heavy chain which uproots trees. Chaining is very effective on Juniper and other species that do not sucker from the roots. Since Russian olive readily suckers, chaining must be followed by other treatments to kill re-growth. Chaining is best used on areas large enough to accommodate heavy equipment.

Foliar Herbicide Treatment

Russian olives can be killed by applying herbicide to leaves and stems. Herbicide must be applied to every branch, since untreated branches will not be killed. More than one treatment may be needed. Late summer and early fall applications are often the most effective.

Spraying an entire tree requires a good deal of herbicide and equipment capable of reaching the top of a tree. Non-target plants may be killed or damaged by overspray and drift. Foliar treatments are best used on smaller trees or on suckers that result from other treatment methods.

Basal Bark Herbicide Treatment

In basal bark treatment, an herbicide/oil mixture is applied to the lowest 12 to 18 inches of the trunk. The herbicide is absorbed through the bark, killing the tree.

Basal bark treatment works best on trees less than 6 inches in diameter. Older, larger trees have thicker bark that impedes herbicide movement. Oils such as Methylated Seed Oil (MSO) are often used to improve absorption.

Basal bark treatment is a good choice along fence lines or in other situations where mechanical removal is not an option. Only a small amount of herbicide is used, which minimizes risk to non-target plants. The applicator does not have to remove branches to treat the trunk

Combinations

The most effective control methods for Russian olive involve a combination of two or more of the above methods

Even after the roots of existing trees have been killed and removed, a seed bank remains in the soil.

Under controlled conditions, Russian olive seeds remain viable up to 3 years. Constant vigilance is required. It is easier to kill a new seedling than an established tree.

Conclusions

It is important that landowners understand the available options, and that they select a treatment plan that fits their situation. For example, tree removal in riparian areas should be done in a way that does not exacerbate stream-bank erosion. A combination of control methods usually brings better results than relying on just one option. It is also critical to understand that Russian olives will not be eliminated by a single treatment. Annual follow-up treatments will be needed for several years.

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This publication is issued in furtherance of Cooperative Extension work, acts of May 8 and June 30, 1914, in cooperation with the U.S. Department of Agriculture, Noelle E. Cockett, Vice President for Extension and Agriculture, Utah State University. (Horticulture/Trees/2010-02pr)