

# TREE AND SHRUB REMOVAL

## TECHNICAL GUIDANCE DOCUMENT



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### INTRODUCTION

Woody species removal is commonly planned as part of prairie and wetland restoration projects in the prairie regions of the state to maintain habitat for grassland wildlife species. The presence of woody vegetation can create undesirable habitat for grassland birds such as ducks, prairie chickens and a variety of songbirds by providing perches for raptors and crows. Woody species that commonly colonize restoration projects include; cottonwood, boxelder, buckthorn, Tartarian honeysuckle, Siberian elm, black locust, aspen, sumac, and willows.



Cottonwood establishment in a wetland restoration

The need for woody tree removal will depend on the project location within the state, and geographic setting (near wooded river valleys etc.), invasiveness of woody species, target wildlife species and other long-term goals for the project. Multiple strategies are commonly used to accomplish control of woody vegetation.

Equipment needed typically includes brush saws, chain saws, tractors, tractor driven mowers, herbicide applicators, herbicide, prescribed burn equipment

### APPLICATION

#### Pulling

Pulling of woody vegetation is sometime effective if the soil is moist and vegetation is young. In some cases tools such as weed wrenches can be used for plants up to 2-inches in diameter. Chains or hooks attached to tractors or bobcats are also an option, though significant soil disturbance may allow weeds to establish, and it may be difficult to remove all roots of some species such as black locust, honeysuckle, sumac and willows.

## Mowing

Repeated mowing can diminish reserves of woody vegetation, though many species will continue to re-sprout after mowing, requiring the use of herbicide for effective control. Repeated mowing has been an effective technique for seedling buckthorn, Siberian elm, and cottonwood. It is most effective when plants are still seedlings, and have not developed more extensive root reserves.

## Cut and Treat

Most woody invasive species re-sprout after cutting is conducted. A common method to remove species such as common and glossy buckthorn involves cutting the stem with a chainsaw or brush saw and then treating the stump with herbicide. Water-soluble herbicides like glyphosate (Roundup, Rodeo, etc.) or triclopyr amine (Garlon 3A, Brush-B-Gone, etc.) can be applied to cut stumps when the temperature is above freezing (32 deg. F). Oil-based products of triclopyr ester (Garlon 4, Pathfinder II) can be applied when the temperature is below freezing (below 32 deg. F) (MN DNR 2011). Herbicide can be applied by backpack sprayers, wick applicators, brushes or rollers. Cut brush may require removal to allow for future management activities such as mowing.

## Basal Treatment

An alternative to cutting and treating stumps involves low volume spray applications with Triclopyr ester mixed with an oil diluent applied directly to the bark from the root collar up about 12-18 inches. With this treatment, herbicide is applied with backpack sprayers or rollers and the goal is to saturate the bark while minimizing overspray. Backpack sprayers generally have a greater impact on surrounding non-target species, but spray nozzles can often be adjusted to minimize overspray. This technique works on plants up to approximately 5-inches in diameter; larger stems typically need to be cut and treated. Species with many stems and dense branching such as Tartarian honeysuckle may be challenging for basal treatment.

## Foliar Application

Herbicides can also be applied directly to foliage to control shrubs and young trees. This technique is often conducted on dense stands of seedlings, or areas where species such as buckthorn or willow have been mowed and allowed to re-grow at a lower height. Water-soluble herbicides like glyphosate (Roundup, Rodeo, etc.) or triclopyr amine (Garlon 3A, Brush-B-Gone, etc.) are commonly used for foliar application. All leaves require coverage for adequate control. A drawback of this technique is increased impact to surrounding vegetation.

## Prescribed Burning

Prescribed burning can be an effective technique for controlling invasive woody plants. When attempting to remove woody vegetation fall burns are often conducted instead of spring burns to further stress woody plants over winter months. Effectiveness of burning to remove woody vegetation often depends on fuel levels and weather conditions during the burn. Hot fires will accomplish the greatest control. Areas with increased shade are often difficult to burn. Seedlings are most susceptible to burning, larger trees may be stressed by burning but typically require follow-up treatment with herbicide or other methods for control.

## OTHER CONSIDERATIONS

Woody Tree removal is often conducted as part of other site maintenance activities such as mowing, spot herbicide treatment and prescribed burning. In many cases combined strategies are needed for effective woody species control.

## **COSTS**

The cost for woody tree control vary depending on acreage, density and size of trees and shrubs to be removed, the need for herbicide treatment, terrain, moisture levels, and the need for an insured vendor. Prescribed burning is often the most cost effective method of control (if site conditions are favorable), while dense stands of buckthorn or honeysuckle on steep slopes can be the most expensive (particularly if stacking of brush piles is required).

## **ADDITIONAL REFERENCES**

Minnesota DNR Buckthorn Website,

<http://www.dnr.state.mn.us/invasives/terrestrialplants/woody/buckthorn/index.html>