

Buckthorn Treatment Options

Important Points to Remember:

- ❖ Buckthorn resprouts vigorously after being cut.
- ❖ Buckthorn seedlings take 4 years to reach maturity and produce seeds. It may take less time for resprouts to be capable of producing seed.
- ❖ Buckthorn is *dioecious*, that is it has separate male and female plants. Efforts should strive to remove all female, seed producing plants. These plants are recognizable in the field by their berries that remain on the plant in fall, throughout the winter, and often into early spring.
- ❖ **Monitor:** Visually monitor your land to ensure control efforts have been effective at eliminating all plants or at least all mature, female, seed producing plants (depending on your objectives). Fall monitoring is especially effective because buckthorn leaves stay green into November making it easy to see in the field.
- ❖ Areas infested with buckthorn will likely have an existing seed bank; however, research shows that the seed bank is relatively quickly depleted. Birds eat and readily spread the seeds; therefore, buckthorn control will likely be a continual effort.

Can I mow/ cut buckthorn

- ❖ Mowing or cutting buckthorn will result in vigorous resprouts (Photo 1 and 2). The Aldo Leopold Foundation's Stewardship Crew has been in contact with people who have had success with cutting and mowing buckthorn and the resulting resprouts **three times a year for three years**. The duration of cutting will likely depend on site specific conditions and may require consistent cutting for longer than three years.



Photo 1: In this photo, note the dead stump that was initially cut and then note the vigorous resprouts that resulted. These resprouts could be avoided if the original cut stump was treated with chemical after cutting (chemical application is explored in this handout).



Photo 2: A vigorous buckthorn resprout as a result of cutting one stump (without following up with a chemical application).

- ❖ **Ecological Considerations:** Mowing is a “broadcast tool” and therefore is not recommended as a tool for dealing with a specific problem (e.g. buckthorn). Mowing will likely have a negative effect on native species that do not tolerate mowing—especially mowing on a yearly basis. Selective cutting of buckthorn, rather than broadcast mowing is a better tool for control.
- ❖ **Monitoring:** Visually monitor the site regularly to ensure treatment has been effective at eliminating buckthorn, especially mature, female buckthorn that is capable of producing seed.
- ❖ **Stewardship Objectives:** Depending on your land stewardship objectives (e.g. clear the landscape of invasive species such as buckthorn without using chemical) and the spatial extent of the buckthorn, **consistent** selective cutting may be a suitable approach.

Can I hand-pull/ dig buckthorn?

- ❖ Buckthorn seedlings can be hand-pulled (0.5 inches in diameter). Larger plants (0.5-1.5 inches in diameter) can be pulled using a mechanical device such as a “Weed Wrench™.” It is important to strive to remove the entire root of the plant to prevent resprouting. Pulling is easier when the soil is moist. *Page 1*
- ❖ **Ecological Considerations:** Tamp the disturbed soil after pulling to discourage reinfestation. Soil disturbance provides favorable conditions for invasive species to colonize.
- ❖ **Monitoring:** Be on the lookout for resprouts that emerge as a result of not removing the entire root.

Can I use prescribed fire to control buckthorn?

- ❖ Prescribed fire in early spring or fall may be effective in controlling seedling stage plants. However, fire will only kill the tops of medium to large buckthorn which will then vigorously resprout.
- ❖ **Ecological Considerations:** Prescribed fire is a “broadcast tool” and therefore, is not recommended as a tool for dealing with a specific problem (e.g. buckthorn).
 - Burning should not be forced in a system where fire would not naturally occur. Prescribed fire should aim to mimic natural processes and should not be artificially forced outside of the natural timeframe.
 - A vigorous prescribed fire may kill some buckthorn seedlings but fire should not be used as a tool on a yearly basis with the goal of controlling invasive species.
- ❖ **Monitoring:** Visually monitor the site regularly to ensure treatment has been effective at eliminating mature, female buckthorn that is capable of producing seed.

Can I chemically treat buckthorn?

Stump Treatment

- ❖ The Aldo Leopold Foundation chooses to cut and chemically treat buckthorn because we have found that this is a concise means of dealing with woody invasive species. Stump treatment of cut buckthorn eliminates resprouting.
- ❖ The Aldo Leopold Foundation uses a chemical called Garlon 4 (active ingredient triclopyr) to control buckthorn. Garlon 4 is an oil based chemical that is mixed with a non-toxic crop oil (such as “Bark-Oil Blue”).
- ❖ A 12% solution of Garlon 4 is effective on cut stumps of woody species; a 12% solution is created by mixing one part Garlon 4 with four parts Bark-Oil-Blue. The Bark-Oil-Blue is dyed blue to make it easier to detect dyed stumps in the field—this helps applicators know which stumps have been treated.
- ❖ Garlon 4 can be applied with backpack chemical sprayers such as a 4 gallon “Solo backpack sprayers.” To minimize collateral damage or non-target impacts from the use of Garlon 4 to control Buckthorn, the chemical should be applied with low nozzle pressure—the chemical should drip out of the sprayer in large drops rather than spray out in very small droplets. The chemical should be applied directly to the cut stump with the nozzle sprayer touching the stump so it dribbles out directly on the stump and coats the entire cut surface.
- ❖ **Smaller scale efforts:** If you are dealing with a rather small scale infestation, be creative and use tools that you already have or tools that are inexpensive. Make a quart jar of chemical mix and “paint” the cut stumps with a foam paint brush.
- ❖ Since Garlon 4 is an oil based chemical, it allows buckthorn eradication efforts to occur in the winter when temperatures are below freezing. Garlon 4 can volatilize in temperatures above 85 degrees—if Garlon 4 volatilizes it poses a health threat because it can be inhaled by the applicator.
- ❖ It is important to have one person cutting and one or more people following behind with chemical treatment to ensure *all* stumps are chemically treated. Be careful to not let cut buckthorn debris hide untreated cut stumps that could then be missed with chemical treatment.
- ❖ Information on the chemical characteristics of Garlon 4 can be found in the following source:
<http://www.datcp.state.wi.us/arm/environment/plants/endangered-species/pdf/hrbchoic.pdf>

Foliar Treatment

- ❖ Relatively small buckthorn plants can be foliar treated with chemical using a 1.5% solution of the active ingredient called glyphosate (e.g. Roundup). Apply the chemical so it coats the green leaves of the plant.
- ❖ Be aware that collateral damage is possible since you will be broadcast spraying chemical over the entire area of the plant. It is possible that native species will be accidentally sprayed.