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Michigan State University

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# Buckthorn in the Landscape: Identification and Control

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Buckthorn is fairly common in Michigan, growing along tree lines, in wood lots, along roadsides, and in natural areas. If you are a hiker or a hunter, you may have encountered common buckthorn, *Rhamnus cathartica*, growing as an impenetrable thorny thicket in a tree line. If you are a gardener, you may have seen glossy buckthorn, *Rhamnus frangula*, as a hedge around buildings or for sale in a nursery as an ornamental shrub. Another species, *Rhamnus alnifolia*, is found along streams and in wet areas, and is not common in Michigan.



Common buckthorn (marked with pink flagging) in a treeline around a soybean field. Calhoun County, MI.

Both common and glossy buckthorn were introduced into the U.S. from Eurasia. Buckthorn grows well, forming windbreaks and hedges under adverse conditions. It also produces berries, which are food for wildlife. However, because buckthorn thrives under difficult growing conditions, and its berries are spread by birds, these introduced buckthorns have become noxious weeds that choke out and replace native vegetation. This is especially a problem in sensitive natural areas such as wetlands and parks.



Buckthorn (*Rhamnus frangula*) in Marc's Marsh before (left) and after (right) removal and restoration by the Southwest Michigan Land Conservancy. Photo credit: Nate Fuller, Southwest Michigan Land Conservancy

There are other problems with buckthorn specifically related to agriculture. First, several buckthorn species are alternate hosts for rust diseases of grasses, including crown rust of oats. Second, the soybean aphid, an Asian pest of soybean recently introduced into the U.S., uses buckthorn as an overwintering host. In the fall, aphids lay eggs along the buds. These eggs overwinter and hatch in early spring. Aphids feed on newly emerging buckthorn leaves in May, then winged aphids move to soybeans in June.

Soybean aphid colony on buckthorn in mid May.  
Photo credit: D. Brown-Rytlewski, MSU IPM Program



# Identifying Common Buckthorn



## Leaves

- ◆ dark green, glossy, shiny
- ◆ 3-4 pairs of upturned veins
- ◆ opposite to subopposite in arrangement
- ◆ green leaves often remain on tree well into the fall



## Flowers

- ◆ present in the spring
- ◆ small, yellow-green
- ◆ clustered at base of leaves

## Buckthorn (*Rhamnus cathartica*)



- ◆ understory tree
- ◆ 15-20 feet or less
- ◆ likes edges of woodlots, treelines

## Fruits

- ◆ on females trees only
- ◆ green early in season
- ◆ turning black later in fall
- ◆ contain 2-4 seeds (like a grape)
- ◆ may hang on tree until March



## Thorns

- ◆ short, stout
- ◆ replace terminal bud at tips of stems

## Bark

- ◆ outer bark = gray
- ◆ inner bark = bright yellow



Don't confuse buckthorn with trees in the genus *Prunus* (wild cherry, choke cherry)



## Choke cherry

- ◆ flowers = pink or white
- ◆ thorns = none
- ◆ fruit = black, with a **single, solid pit**

# Buckthorn Control

Since buckthorns are extremely invasive plants, early recognition and removal of isolated plants in fencerows, forest borders, or field edges is important in preventing establishment. Fruit-eating birds often spread the seeds around, so removing plants before fruit production is critical.

The general practice of people who manage natural areas is to remove non-native buckthorn when possible, and replace it with native species. From an agricultural standpoint, removing buckthorn from tree lines around fields will not eliminate a soybean aphid problem. There is likely enough buckthorn in the area to allow for overwintering of aphids, and winged aphids can disperse during the field season. A concerted

effort to remove buckthorn may result in fewer aphids colonizing soybean fields early in the season, although there is no data to support this. But, buckthorn removal is simply a good practice to prevent further spread in the landscape. The bottom line is that if you are going to clean up a tree line, wood lot, or ditch bank, there are more reasons to cut out the buckthorn than to keep it.

Control of buckthorn can be very labor intensive. Depending upon the location and establishment of buckthorn, the management or eradication of this plant may take several years. Buckthorn management strategies include chemical and mechanical means of control.

## Chemical Control

The use of chemicals in combination with buckthorn stump cutting can be effective where burning and soil disturbance is not wanted (Table 1). Stump cutting and chemical treating is best done in the fall. Buckthorn tends to retain its leaves longer in the fall than many other woody-brush plants. This makes it easier to locate all buckthorn plants. Also, off target movement to other plants is minimized in fall because most plants are dormant. For best results, most chemicals should be applied immediately after stump cutting using a handheld sprayer or sponge-type applicator. Repeated applications are often required. Buckthorn re-sprouts should be cut and treated again.

Other approaches to buckthorn control include a dormant season basal-bark application of Garlon 4 (6% a.i. triclopyr) or 2,4-D (12.5% a.i.) in diesel fuel. Treating entire buckthorn plants in spring or fall with a mixture of Garlon 4 (25% a.i. triclopyr), a spreading agent (10%), and diesel fuel (65%) has been successful in some areas. Basal-bark application can be effective on stems and resprouts less than 6 inches in diameter. Using a handheld sprayer, apply these solutions to the basal parts of brush and tree trunks to a height of 12 to 15 inches from the ground.

Remember, always read and follow labeled directions as some herbicides are not labeled for certain areas.

**Table 1.** Chemicals used in combination with buckthorn stump cutting.

Herbicide		
Trade Name	Chemical Name	Concentration in water
Many "brush killers"	2,4-D, 2,4-DP, MCP, and/or dicamba complexes	50% solution
Roundup, Rodeo, Accord, Touchdown, Glyphomax, others	glyphosate	25-50% solution
Garlon 3A	triclopyr	25-50% solution
Pathway	picloram + 2,4-D	undiluted

## Mechanical Control

Controlled burnings in spring or fall can be very effective in managing buckthorn in fencerows, where feasible. Fire is most effective on smaller buckthorn populations, but a number of years of burning may be required for complete root kill in larger, denser stands. However, the use of fire may not be a suitable option in forest borders, wetlands, or other natural areas.

Buckthorn plants may also be removed by digging, pulling, or chopping the crown and stump out of the ground using an ax, chainsaw, or other power equipment. Buckthorn will not re-sprout from root tissue. Cutting and removing the bark around the trunk may girdle larger buckthorn plants. While this method is effective, it may take time to see noticeable results.

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## Diagnostic Services

Still not sure if you have buckthorn? Diagnostic Services, part of the Center for Integrated Plant Systems at Michigan State University, can help identify your plants.

### Woody Plant Identification

Submit a large section of the terminal end of the stem or branch. Where possible, include any flower or fruiting structures, roots, and leaves. Leaves may be pressed flat between paper or cardboard to prevent crinkling. Woody plants may be wrapped in plastic to retain moisture.

### Submitting a Sample

Accurate diagnosis depends on the rapid receipt of fresh and representative samples along with pertinent information relating to the problem and client objectives.

A completed submittal form should accompany all samples. Submittal forms are available at MSU Diagnostic Services, your local Extension office, and at the Diagnostic Services website, [www.cips.msu.edu/diagnostics](http://www.cips.msu.edu/diagnostics). For more information on diagnostic fees, sample submission, or other diagnostic services contact your local county Extension office or Diagnostic Services at 517-355-4536.

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