

INVASIVE PLANTS IN FORESTRY - MANAGEMENT GUIDE

Common Buckthorn (*Rhamnus cathartica*) and Glossy Buckthorn (*Rhamnus frangula*)

Buckthorns are tall shrubs or small trees that grow up to 20 feet tall. The smooth, gray to brown bark is distinctively spotted with white lenticels. Glossy buckthorn has shiny leaves with smooth margins, and solitary red to purple berry-like fruits. Common buckthorn has black fruits and dull green smooth leaves with serrated margins.



Common buckthorn
Photo by TNC



Glossy buckthorn
Photo by TNC

Buckthorns are able to spread aggressively because they thrive in habitats ranging from full sun to shaded understory, and are abundant seed producers. They form dense thickets as they mature into tall shrubs, cutting off light to herbaceous plants and tree seedlings. There is also some evidence that they are allelopathic, using toxins to outcompete other vegetation.

Origin and Spread

Common buckthorn and glossy buckthorn are closely related species originating in Eurasia and introduced to North America as ornamentals. They were planted in Wisconsin as early as 1849, becoming widespread after 1900. They are currently naturalized throughout southern Canada and the northeast U.S. They are well established and rapidly spreading in Wisconsin, predominately via birds.

Native Plant Alternatives for Landscaping

Nannyberry (*Viburnum lentago*), maple-leaved viburnum (*Viburnum acerifolium*), bladdernut (*Staphylea trifolia*), buttonbush (*Cephalanthus occidentalis*), dogwoods (*Cornus alternifolia*, *C. amomum*, *C. racemosa*, *C. rugosa*, *C. stolonifera*), American elder (*Sambucus canadensis*), red elderberry (*Sambucus racemosa*), American cranberry bush (*Viburnum opulus* subsp. *trilobum*), winterberry (*Ilex verticillata*), and witch hazel (*Hamamelis virginiana*).

Controls for the plant

Because site conditions vary, detailed information should be reviewed before deciding on control methods to use. See the websites listed below for more information.

As with all invasive species, buckthorns are most effectively controlled by recognizing their appearance early and removing isolated plants before they begin to produce seed. With large infestations, the largest seed-producing plants should be removed first.

Mechanical Control: Prescribed burns in early spring and fall may kill seedlings (especially in the first year of growth), larger stems, and top-kill mature buckthorn, although this method has met with mixed results. Burning is preferable for fire-regulated communities, but should not be used if it adversely affects the native plants. Annual or biannual prescribed burns to control buckthorn may have to be continued for several years depending on the extent of establishment and condition of the seedbank, which generally lasts two to three years. It is difficult to burn in dense buckthorn stands as the understory is typically well-shaded, allowing little fuel build-up. In smaller stands, individual stems can be killed with a flame torch.

In high quality natural areas where the use of chemicals is a concern, small patches of plants up to 0.4 inch diameter can be pulled when the soil is moist. Larger plants 0.5 inch to 1.5 inch diameters can be dug or pulled using a weed wrench. Disturbed soil will result from these techniques, and should be tamped down to minimize seed germination.

Girdling (removes phloem connection of roots to shoots while retaining the xylem connection of shoots to roots) or cutting stems between December and March may not be very effective unless followed by an application of herbicide.

Chemical Control: Chemical control methods are best used in the fall when most native plants are dormant and buckthorn is still actively growing. This lessens the risk of affecting non-target plants. Buckthorn's green leaves will provide easy recognition and allow for a thorough treatment at this time. Control methods are also effective in the growing season, but there is more risk of affecting non-target plants, and the effectiveness of the treatment is generally lower. Winter application of chemicals has proven to be successful as well, and further lessens the risk of damaging non-target species.

During the growing season, cutting stems off near ground level and treating them with glyphosate successfully curbs sprouting. Immediately after cutting, a 20%-25% active ingredient (a.i.) glyphosate solution should be applied to the stumps. Resprouts should be cut and treated again, or sprayed with a hand sprayer of 1.5% a.i. glyphosate solution to the foliage (if in wetlands, be sure the product is labeled for wetland use). Foliar application of glyphosate herbicide using a backpack sprayer is effective, but less selective. According to invasive plant experts at the WDNR, tricholypr is more selective for general spraying.

When using herbicides, always read and follow the label instructions for mixing and application, and wear all recommended personal protective gear and clothing.

Before using herbicides, gather information on the best methods of control for the site, and consider weather conditions at time of application.

After treatment, monitoring will be necessary for several years to control sprouting and to remove new seed origin plants.

Regenerating Forests with Buckthorn

Common buckthorn is a major problem in oak forests of southern Wisconsin where it often limits regeneration. Buckthorn must be set back for oak seedlings to establish and grow. Mechanically remove the buckthorn, follow up with chemical treatments and/or prescribed burning, plant oaks, and control competition from buckthorn regrowth as well as from other plants, both native and non-native.

Websites for Additional Information

WDNR Common and Glossy Buckthorn fact sheets

http://dnr.wi.gov/invasives/fact/buckthorn_com.htm

http://dnr.wi.gov/invasives/fact/buckthorn_gloss.htm

Wisconsin State Herbarium: Wisconsin Botanical Information System

<http://www.botany.wisc.edu/wisflora/scripts/SearchResults.asp?Common=buckthorn>

The Nature Conservancy: The Invasive Species Initiative

<http://tncweeds.ucdavis.edu/esadocs/franalnu.html>

Note: There are many websites that offer invasive species control information. Please choose reputable sites, and contact Wisconsin DNR or UW-Extension staff if you have questions.

