

Buckthorn Identification & Control

European buckthorn is a troublesome exotic invasive that spreads readily through woods and savannas. It is a major threat to Wisconsin's ecosystems.



Invasion of a pine forest by buckthorn. Such a dense cover reduces light to the forest floor, thus effectively eliminating native vegetation.

Characteristics

Common buckthorn (*Rhamnus cathartica*) and its relative glossy buckthorn (*Rhamnus frangula*) are serious invaders of Wisconsin's wooded areas. They also commonly invade hedge rows of open fields, from which they may gradually spread throughout a whole field. Both common and glossy buckthorn are small trees or shrubs that can reach a height of 20-25 feet. Buckthorn most often grows as a shrub, where it may send out several shoots.

The outer bark is dark gray or brown, and when cut the inner bark is brown, red, or orange.



Characteristic orange inner bark of Buckthorn. Scratching the surface is a good way of ensuring that one has a buckthorn plant.

Buckthorn has separate male and female plants; the latter are often easy to recognize because they produce copious amounts of deep purple berries. It is especially important to remove the berry-producing plants, because

they will otherwise be a constant source of infection for the area.

Status

Buckthorn is of Eurasian origin and was introduced in North America as an ornamental. It was planted for hedge rows in Wisconsin as early as 1849. Despite its insidious nature, it is still legally sold in the state as an ornamental. It has become naturalized and has spread over most of the southern and eastern parts of the state. Buckthorn is an especially troublesome invader of natural oak savanna and oak woodland areas of southwestern Wisconsin.

Many bird species relish buckthorn berries. However, the berries contain a chemical which acts as a laxative (hence the species name *cathartica*). The defecation by the birds insures the spread of the seeds through the habitat. Since female trees may produce abundant fruit, within a few years there can be thousands of buckthorn seedlings in the area of a mature tree. Buckthorn seeds are able to remain alive in the soil for years, and new seedlings will continue to appear for years after the plants have been removed from an area.

Buckthorn threats

- Destroys wildlife habitat
- Replaces native vegetation
- Forms an impenetrable understory layer
- Causes long-term decline of a forest by preventing the growth of native tree seedlings



*Leaves and fruit of common buckthorn, *Rhamnus cathartica*.*

Control

Early identification, before seed production has started, is vital. Small buckthorn seedlings can be readily removed by hand, or with the use of a “weed wrench.” Although effective, mechanical removal disturbs the soil and encourages reinfestation or colonization of other weeds so that loose soil should be tamped down to make a firm surface.

Fire

Controlled burns will usually top-kill seedlings or small buckthorn trees, but does not eradicate them. In order to control buckthorn by controlled burning, it is essential that fire be continued annually until native (fire-resistant) vegetation has become established. Use of fire is best reserved for fire-dependent ecosystems such as prairies or oak savannas.

Herbicides

There are several herbicides that are very effective in control of buckthorn. One of the most effective is triclopyr (Garlon; Dow Agrochemical). When using an herbicide, it is essential that the label on the package be read completely before use.

Basal bark treatment

An effective way to control buckthorn is by the use of basal bark treatment with Garlon in oil. Treatment is best done in the late fall or winter when native vegetation has died back and will not be affected. Because buckthorn plants retain their leaves long after native vegetation has lost its leaves, they are readily recognized in the late fall. A concentration of 12-15% triclopyr (active ingredient) in diesel fuel or kerosene is recommended by the manufacturer. Use the herbicide in a backpack sprayer with a nozzle that produces a solid cone or flat fan spray. Spray the lower part of the trunk in such a manner that it becomes thoroughly wet, including the root collar, but not to the point of runoff. Each stem of the plant must be treated. Properly done, this basal bark treatment is extremely effective and the plant will not leaf out the following growing season. Once dead, the plant can be cut and removed, or allowed to stand to rot.

Cutting followed by herbicide treatment of the cut stumps

Another very effective way of eradicating buckthorn is to cut the plant just above the ground level and treat the cut stump with triclopyr. The same concentration of triclopyr should be used as for basal bark treatment, but only the cut stump should be treated. It is useful to include a blue or red dye in the herbicide mixture so that the cut stump treatment can be monitored. A backpack sprayer or spray bottle can be used. Be sure that the stump is thoroughly wetted with herbicide. This procedure is economical of herbicide and confines the chemical to the stump itself, but is more labor intensive than basal bark treatment. However, it has the advantage that the buckthorn plants themselves are being removed from the habitat. Although the cut stump procedure can be used at any time of the year, the fall or winter is preferable because nontarget plants are not affected. Also, this procedure is effective with plants of any size, even large ones. Place all the cut material in a pile for subsequent burning.

Basal bark or cut stump?

Bark treatment is best in large infected areas, whereas cutting and treating the cut stumps is best in relatively small areas, or in areas of high interest.

It should be emphasized that cutting buckthorn without treating the cut stumps is ill advised, because cut plants will resprout heavily from the roots, leading to a worse situation than if the plant had not been cut at all.

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