Glossy Buckthorn (*Rhamnus frangula*)

Other names: Alder buckthorn, Columnar buckthorn, European alder, Fen buckthorn


Glossy Buckthorn

DESCRIPTIONS: Both common and glossy buckthorns are tall shrubs or small trees reaching 20-25 feet in height and 10 inches in diameter. Most often they grow in a large shrub growth form, having a few to several stems from the base. The shrubs have spreading, loosely-branched crowns. Their bark is gray to brown with prominent, often elongate, lighter-colored lenticels. The buckthorns share a very distinctive winter appearance having naked, hairy terminal buds and gracefully curving, or arched, twigs with closely-spaced, prominent leaf scars that give the twigs a warty or bumpy silhouette. Cutting a branch of either species exposes a yellow sapwood and a pinkish to orange heartwood. Both species of buckthorn are distinctive enough from other native species to be identified at all times of the year once their characteristics have been learned.

The dioecious common buckthorn may be somewhat easier to spot when the female plants are in fruit. The columnar variety of glossy buckthorn has a very narrow upright form and is commonly used for wind or visual screening. Common buckthorn has dull green, ovate-elliptic leaves which are smooth on both surfaces and have minute teeth on the margins. They vary from rounded to pointed on the tip. Twigs of common buckthorn often end in thorns. Glossy buckthorn has thin, glossy, ovate or elliptic leaves. The upper leaf surface is shiny; the lower surface can be hairy or smooth and their margins are entire (not toothed). There are several ornamental cultivars of *Rhamnus frangula* including "columnaris" and "asplenifolia." It is believe that the seeds from these plants can disperse and produce weedy plants.

SIMILAR SPECIES: Alder buckthorn (*Rhamnus alnifolia*) is a small native shrub of less than 3 feet in height with twigs that are hairless and dark scales on the buds in winter. Lance-leafed buckthorn (*Rhamnus lanceolata*), found in bogs and swamps, is a small native shrub of less than 6 feet in height. Its leaves are 2-6 inches which gradually taper to a point at the tip that are alternate and has bud scales in the winter. Its leaves are 2-6 inches in length, alternately arranged, and gradually taper to a point at the tip. Branches bears bud scales in the winter.

DISTRIBUTION AND HABITAT: Common buckthorn and glossy buckthorn are two closely related species originating in Eurasia and were introduced to North America as ornamentals. They were planted in hedgerows in Wisconsin as early as 1849. They have become naturalized from Nova Scotia to Saskatchewan, south to Missouri, and east to New England. They are well established and rapidly spreading in Wisconsin. Although their aggressively invasive growth patterns have created problems in many areas, exotic buckthorns are still legally sold and planted as ornamentals.

Glossy buckthorn is an aggressive invader of wet soils. It has become a problem in wetlands as varied as acidic bogs, calcareous fens, and sedge meadows. It is capable of growing both in full sun and in heavily shaded habitats. The species is not confined to wetlands, however, and grows well in a wide variety of upland habitats, including old fields and roadsides. Neither species is adversely affected by nutrient-poor soils.

Distribution in Wisconsin (exit DNR)
Distribution in USA (exit DNR)

LIFE HISTORY AND EFFECTS OF INVASION: Both buckthorns are characterized by long distance dispersal ability, prolific reproduction by seed, wide habitat tolerance, and high levels of phenotypic plasticity (adjusting physical appearance to maximize environmental conditions). Under full sun conditions, they can begin to produce seed a few years after establishment. Fruit production may be delayed for 10 to 20 years in shaded habitats. Common buckthorn flowers from May through June and fruit ripens August through September; glossy buckthorn blooms from late May until the first frost and produces fruit from early July through September. The abundant fruits are eaten birds, thus encouraging the long-distance dispersal of horticultural plantings. Seedlings establish best in high light conditions, but can also germinate and grow in the shade. The exotic buckthorns have very rapid growth rates and resprout vigorously after they have been cut. Typical of several non-native understory shrub species, buckthorns leaf out very early and retain their leaves late in the growing season, thereby shading out native wildflowers.

The first few individuals established in a natural area are usually from seeds transported by birds. Once these individuals begin to produce seed, the buckthorns can rapidly form dense thickets. The vigor of buckthorns is positively correlated to light availability.

Once established, both buckthorn species have the potential to spread very aggressively in large numbers because they thrive in habitats ranging from full sun to shaded understory. Both species cast a dense shade as they mature into tall shrubs. This shading has a particularly destructive effect on herbaceous and low shrub communities, and may prevent the establishments of tree seedling.

CONTROLLING THE EXOTIC BUCKTHORNS: As with all invasive species, buckthorns in natural areas 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-killed mature buckthorns, although this method has met with mixed results. Burning is preferable for fire-shaped communities, but should not be used if it adversely affects the community. Burning annually or biannually to control buckthorns may have to be continued for several years depending on the extent of establishment and the seedbank, which general lasts two to

three years. It is generally difficult to burn in dense buckthorn stands as the understory is typically well-shaded, allowing little fuel build-up.

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 seeding.

Girding (removed 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 glyphosate herbicide.

Chemical Control: Chemical control methods are best done during the fall when most native plants are dormant yet buckthorns are still actively growing. This lessens the risk of affecting nontarget plants. The buckthorns' 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 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 (approved for use over water) solution to the foliage. Foliar applications over non-water sites can also use 2% triclopyr solution or 2 oz. Escort® and surfactant mix. Foliar application of herbicides using a backpack sprayer is effective, but less selective.

For severely disturbed sites, a 25-50% a.i. triclopyr solution diluted in water can be sprayed with a low pressure hand sprayer, a spray bottle, or sponge applicator to freshly cut stumps. A 12.5% a.i. tricolopyr (formulated for oil dilution) solution is also effective as a cut stump treatment. Basal bark application of 6% a.i. triclopyr (formulated for oil dilution) solution or 2-4-D (12.5% a.i.) in bark oil also effectively controls buckthorns.

Treatment for common buckthorn in the spring and fall with a mixture of 25% a.i. triclopyr (formulated for oil dilution), a spreading agent (10%), and bark oil (65%) has been successful in Missouri . The triclopyr concentration may be increased to 30% in the dormant season. For stems larger than 2 inches, spray all the way around the stem. For smaller stems, spraying one side is sufficient. This treatment may not be effective on larger trees.

Fosamine, a non-selective bud inhibitor for woody species, can be applied as a basal bark treatment in the fall at 3% a.i. concentration in winter.

In wetlands with artificially lowered water tables, restoring the water to its historical levels will often kill glossy buckthorns. Escort® and standard formulations of glyphosate and triclopyr cannot be used in standing water: glyphosate and triclopyr formulated for use over water must be used.

More Information on the Web (links exit DNR)
Buckthorns - Invasives on the Web

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101 S. Webster Street . PO Box 7921 . Madison, Wisconsin 53707-7921 . 608.266.2621