BUCKTHORN:

What You Should Know. What You Can Do.

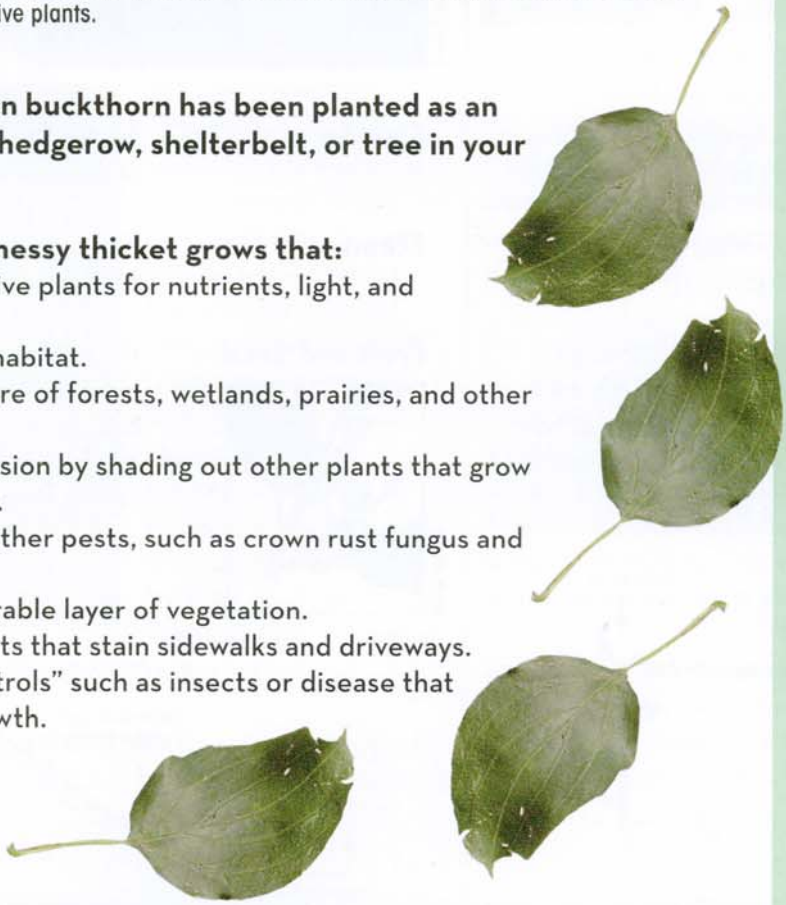
Jay Rendall, MnDNR

Buckthorn leafs out early and retains its leaves late into the fall, creating dense shade that helps it to out-compete many native plants.

What happens when buckthorn has been planted as an ornamental shrub, hedgerow, shelterbelt, or tree in your backyard?

An impenetrable, messy thicket grows that:

- Out-competes native plants for nutrients, light, and moisture.
- Degrades wildlife habitat.
- Threatens the future of forests, wetlands, prairies, and other natural habitats.
- Contributes to erosion by shading out other plants that grow on the forest floor.
- Serves as host to other pests, such as crown rust fungus and soybean aphid.
- Forms an impenetrable layer of vegetation.
- Creates messy fruits that stain sidewalks and driveways.
- Lacks "natural controls" such as insects or disease that would curb its growth.



A LITTLE HISTORY

Common, or European buckthorn, and glossy buckthorn are the two non-native invasive buckthorn species found in Minnesota. Common buckthorn was first brought here from Europe in the mid-1800s as a popular hedging material. It escaped and became a nuisance plant, forming dense thickets in forests, yards, parks, and roadsides. It crowded out native plants and displaced the native shrubs and small trees in the mid-layer of the forest where many species of birds nested. Today, common buckthorn is found in nearly every Minnesota county, even though the sale, transport, and movement of these plants is prohibited.

Glossy buckthorn, also from Europe, has been sold by the nursery trade in two different forms. The cultivar *Frangula alnus 'Columnaris'* is narrow and tall; the cultivar *Frangula alnus 'Asplenifolia'* spreads up to 10 feet and has narrow leaves that give it a fern-like texture.

Glossy buckthorn
Deborah Rose, MnDNR

The Minnesota Department of Agriculture has declared common buckthorn *(Rhamnus cathartica)* and glossy buckthorn *(Frangula alnus)* as restricted noxious weeds. This means that the sale, transport, or movement of these plants is prohibited statewide.

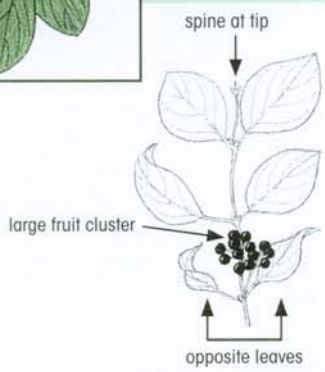
Minnesota DEPARTMENT OF NATURAL RESOURCES

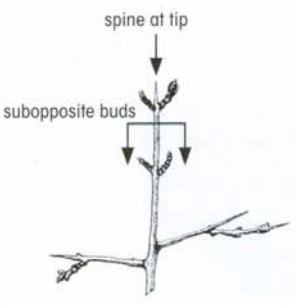
COMMON BUCKTHORN

Scientific Name	*Rhamnus cathartica*
Other Common Name	European Buckthorn
Nursery Cultivars	None
Shape of Plant	10-25 feet tall; oval form, upright
Habitat	Dry areas such as woodlands, savannas, abandoned fields, roadsides. It will grow in both full sun and in shade.
Leaves	Egg-shaped, dark green, dull to glossy; with finely tooth edges; 3-5 pair of curved leaf veins. Leaves stay dark green and on the tree late into fall.
Flowers	Small, yellow-green color; 4 petals; produced in May.
Stems	Buds are opposite; sharp thorn at tip of the twig.
Fruit and Seed	Round, berry-like fruit arranged in large clusters; 1/4-inch diameter; green-black color. Each fruit has 3-4 seeds. Berries are persistent.

Luke Skinner, MnDNR

Mark Muller



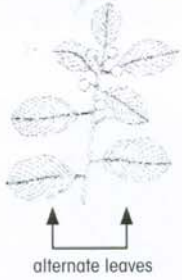


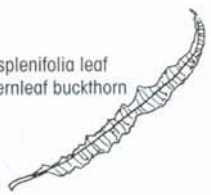
GLOSSY BUCKTHORN

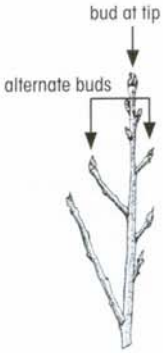
Scientific Name	*Frangula alnus*
Other Common Name	Fen Buckthorn, Alder Buckthorn
Nursery Cultivars	*'Columnaris'* (tall hedge buckthorn) *'Asplenifolia'* (fernleaf buckthorn)
Shape of Plant	10-18 feet tall; oval form; upright
Habitat	Primarily wet areas (bogs, marshes, riverbanks, wetlands, pond edges), but also will grow in dry areas. It will grow in both full sun and in shade.
Leaves	Oval, smooth, dark, glossy, with toothless edges; 8-9 pair of leaf veins. Leaves stay green late into fall.
Flowers	Small, creamy-green color; 5 petals; produced in late May-June.
Stems	Buds are alternate; no thorn at tip of the twig.
Fruit and Seed	Round, berry-like fruit; 1/4-inch diameter; produces less fruit than the common buckthorn; red-brown to black in color. Each fruit has 2-3 seeds. Berries are not persistent.

Luke Skinner, MnDNR

Mark Muller







FINDING BUCKTHORN

Buckthorn is easily found in late fall when native shrubs and trees have lost their leaves. Buckthorn will often have green leaves into the month of December. It is hard to miss.

WHAT YOU CAN DO TO CONTROL BUCKTHORN

Controlling Seedlings or Small Buckthorn Plants

Bruce Larson

If individual plants are less than 3/8-inch in diameter, remove them by hand. Small seedlings can be pulled and will not re-sprout. If greater than 3/8-inch, use a hand tool that pulls the shrub out, such as a *Weed Wrench* or *Root Talon*. The *Weed Wrench* will remove buckthorn stems up to 2-1/2 inches in diameter. Note that the *Weed Wrench* can cause some soil disturbance so extra care is needed on sensitive sites or steep slopes. Removing buckthorn by hand is easier if the soil is moist.

MnDNR

Before you pull or dig buckthorn, contact Gopher State One Call at (651) 454-0002 or (800) 252-1166 to make sure there are no buried utilities in the area.

If pulling individual plants is impractical, spray foliage of short buckthorn or seedlings with a herbicide. Glyphosate, commonly sold under the brand name Roundup, will kill all actively growing vegetation on which it is sprayed. Triclopyr will kill broadleaf plants, but will not harm grasses when applied properly.

Controlling Large Buckthorn Plants

Cindy Lueth

Buckthorn plants that are 2 inches in diameter or larger, are best controlled by cutting the stem at the soil surface and then covering or treating the stump to prevent re-sprouting.

Cindy Lueth

This can be done effectively with hand tools (for a few plants), chain saws, or brush cutters. If you are only cutting a few stumps, they can be covered with a tin can or black plastic to prevent re-sprouting. Otherwise, stumps should be treated within two hours after cutting with a herbicide containing triclopyr such as Ortho Brush-B-Gon or Garlon 3A or 4, or glyphosate to prevent re-sprouting.

The best time to cut and chemically treat the stumps is in late summer and throughout the fall. Herbicides can be

Cindy Lueth

applied to cut stumps with a paintbrush, wick applicator, or a low-volume sprayer. When using water-soluble herbicide products such as Ortho Brush-B-Gon, Garlon 3A, or any of the glyphosate products, treat only the cut surface. When using oil-based products like Garlon 4, treat the cut surface and the remaining bark to the ground line. In cases where more than a few plants are treated, add an indicator dye (available where pesticides are sold) to the herbicide to mark the cut stumps you have sprayed. Colored flags also can help mark cut stumps. When buckthorn is cut, the stumps are easily covered and lost under cut brush.

For basal stem treatment, a method that applies chemical through the bark, low-volume spray applications can be made with Garlon 4 and similar oil-based products. This application method uses triclopyr ester mixed with an oil diluent (i.e., Bark Oil Blue, kerosene, or diesel oil) applied directly to the bark of buckthorn from the root collar up about 12-18 inches. This treatment works best on stems less than 2-3 inches in diameter.

An ultra low-volume spray wand should be used to minimize herbicide use and reduce the potential for non-target injury. Buckthorn treated in this fashion can be left standing or cut at a later date.

SEED VIABILITY

Buckthorn seeds can remain viable in the soil for up to five years. Follow-up control of seedlings that emerge after initial control efforts is important on all sites. With no follow-up control, buckthorn will come back. Fire offers a long-term management option in grassland or savanna cover-types. Burning will need to be done every two to three years. If burning is not an option, a follow-up treatment of pulling or spraying the seedlings is needed. Successfully treating buckthorn requires a long-term commitment.

LIFE AFTER BUCKTHORN REMOVAL

After buckthorn removal, many sites may require replanting of desirable tree, shrub, and herbaceous species. Removing buckthorn not only will benefit the environment, it provides opportunities to create wildlife habitat, redesign your landscape, and beautify an area.

Do not make hasty decisions with your land after you have removed or controlled buckthorn. Think about the goals and objectives you have for your property. If you are replanting in the same places buckthorn once grew, the soil will benefit if you wait one or two years before replanting other trees and shrubs. Check with a local nursery, extension service, Minnesota Department of Natural Resources, or Minnesota Department of Agriculture for assistance on species recommended for your area.

Alternative plantings for buckthorn

Several species of native trees and shrubs display characteristics similar to buckthorn. The following plants are examples of some of the environmentally-friendly species available at garden centers and nurseries.

High-bush cranberry *(Viburnum trilobum)*

Welby Smith

This multi-stemmed bush has lovely spring flowers and persistent red berries. Left unpruned, it will grow tall, but it can be pruned into a dense hedge. The European species *(Viburnum opulus)* is often sold in nurseries, but is invasive, and should be avoided.

Nannyberry *(Viburnum lentago)*

Welby Smith

Nannyberry is a tall shrub that grows in a variety of soils. It spreads gradually from a central clump, forming nicely shaped thickets. It has sweet, edible, blue-black fruits.

Chokecherry *(Prunus virginiana)*

Welby Smith

Chokecherry grows in a variety of soil types. It develops into a tall shrub on rich, loam soils. When planted on dry, sandy soil, it takes on a shorter, bushier form. The bright berries make a delicious jelly and are an important food for wildlife.

Grey dogwood *(Cornus racemosa)*

Welby Smith

Grey dogwood commonly forms thickets at wetland margins, woods edges, streambanks, low spots in prairies and savannas, and along roadsides and abandoned fields. It tolerates a variety of soil types. It is good for filling slopes or edges.

Pagoda dogwood *(Cornus alternifolia)*

Welby Smith

Native to rich, deciduous forests, pagoda dogwood is also commonly planted as a small ornamental tree. It prefers rich, loam soil where the rooting area is protected from summer heat or drought. Its branches spread in horizontal layers, giving the tree a beautiful form.

American hazelnut *(Corylus americana)*

Welby Smith

American hazelnut is a widespread shrub found in dry to moist forests and woodlands. It grows in a variety of soil types and tolerates dry, sandy soil or gravelly slopes. In the open, it sends up many stems, forming clumps. It provides food and cover for wildlife.

Black chokeberry *(Aronia melanocarpa)*

Welby Smith

Black chokeberry typically grows at the margins of lakes and wetlands—places where the soil is fairly rich and moist, and where it can get partial sun. It is colonial, but not aggressive. Black chokeberry has attractive white flowers in early summer, and shiny black berries with lovely red foliage in the autumn.

FOR MORE INFORMATION:

Call the Minnesota Department of Natural Resources at (651) 296-6157 or (888) MINN-DNR or visit www.mndnr.gov/invasives/terrestrialplants/woody/buckthorn/index.html

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