MONTANA STATE UNIVERSITY EXTENSION MontGuide

WEED FACT SHEETS MT201708AG Reprinted 10/18

Common Buckthorn

Common buckthorn is a woody shrub or small tree growing 6-25' tall that invades uplands, grasslands, and disturbed areas, forming dense thickets that may crowd or shade out native plants.

by Stacy Davis, Research Associate; and Jane Mangold, Associate Professor and Extension Invasive Plant Specialist Department of Land Resources and Environmental Sciences

COMMON BUCKTHORN IS NATIVE TO EUROPE

and northwestern Asia. It was introduced to North America in the late 1700s for its medicinal properties and became widely naturalized in the 1800s due to its extensive use in hedgerows. Common buckthorn is problematic in the northeastern and northcentral regions of the United States, as well as parts of southern Canada. It is recognized as invasive in all midwestern United States and regulated in Illinois, Iowa, Massachusetts, Minnesota, New Hampshire, Vermont, and Wisconsin. It was placed on the Montana noxious weed list in 2017 as a priority 2A species, meaning it is common in isolated areas. Common buckthorn has been reported in 27 Montana counties.

Species name: *Rhamnus cathartica* L. **Family:** Rhamnaceae

Identification: Common buckthorn is a large shrub to small tree that grows 6-25' tall. The outer bark is brown or gray, while the inner bark on older individuals is a distinctive orange to yellow color (expose inner bark by scraping stems and twigs with a knife, key, or even fingernail). The tips of twigs usually have short, sharp thorns (Figure 1). Common buckthorn leaves are oval, glossy, dark green with finely-toothed margins and 3-6 pairs of veins curving toward the tip from the mid-vein (Figure 1). Arrangement of leaves and buds ranges from alternate to nearly opposite. Leaves stay green late into fall, beyond the growing season of most native woody plants, making infestations easier to spot at this time (Figure 2). Common buckthorn is dioecious, meaning male and female flowers occur on separate plants; therefore only some individuals will bear fruit. Non-showy flowers form in clusters in the spring and are yellowish-green with four petals (Figure 3). Common buckthorn's berry-like fruits are about 0.25 inch in diameter and are purplish-black when ripe in the fall (Figure 4).

Not to be confused with: Glossy buckthorn (*Frangula alnus* Mill. [synonym. *R. frangula* L.]) is a non-native species that occurs across a similar geography (northeast and northcentral U.S.). It is listed as a noxious weed in some states, although this species has not been documented in Montana. Glossy buckthorn is thornless, leaves are not toothed, and buds and leaves are mostly alternate. Alder buckthorn (*R. alnifolia* L'Her) is the only native buckthorn species found in Montana, primarily in the western portion of the state; it resembles common buckthorn but lacks thorns, and flowers have five petals instead of four. Although chokecherry (*Prunus virginiana* L.) has a similar leaf shape to common buckthorn, chokecherry has 7-9 pairs of veins and no thorns. Also, chokecherry flowers have five petals instead of four, and flowers are born on 3-6" long racemes versus more inconspicuously in the leaf axil with common buckthorn.

Habitat: Common buckthorn grows in diverse habitats ranging from the understory of deciduous forests to disturbed areas such as fence rows, pastures, abandoned fields, and roadsides. It is more abundant in urban environments and nearby woodlands. Common buckthorn exhibits greater growth and abundance in areas with full

FIGURE 1. Leaves and thorn. (photo by Leslie J. Mehrhoff, bugwood.org)

FIGURE 2. Buckthorn in late fall. (photo by Jane Mangold, MSU)

FIGURE 3. Inconspicuous flowers. (photo by Robert Videki, bugwood.org)

FIGURE 4. Leaves and purplish-black fruit. (photo by Matt Lavin, MSU)

sun to partial shade (edge of forests). While moist but not saturated soils are optimal, alkalinity may be more important for common buckthorn establishment than soil moisture.

Spread: Common buckthorn reproduces only by seeds. The fruits either fall beneath the parent plant or are dispersed long distances by birds and small mammals that eat the seeds and subsequently excrete them.

Impacts: Common buckthorn forms dense and impenetrable thickets that can reduce recreation activities (e.g., hunting). The thickets may also crowd and shade out native shrubs and herbaceous plants, as well as prevent tree seedlings from establishing. Common buckthorn effectively competes for light, nutrients, and water, thus outgrowing many plants that attempt to establish beneath it. A few studies suggest that common buckthorn impacts wildlife presence and habitat use. Common buckthorn is an alternate host of the fungus that causes crown rust of oats and other grasses, which negatively affects yield and quality of oat crops. It is also an overwintering host plant for the soybean aphid, *Aphis glycines,* a non-native insect pest found in North America since the early 2000s. Common buckthorn is a potent purgative with ingestion of the bark, leaves, and berries causing nausea, vomiting, and diarrhea.

Management: Detecting common buckthorn early and acting quickly to eradicate or contain an infestation is advised. Autumn is an ideal time for monitoring because common buckthorn has visible foliage and noticeable black fruits at this time (Figure 2). Since common buckthorn is dioecious, focusing on identifying and managing individuals bearing fruits in large infestations is a key management strategy to limit spread. Targeting low-density sites will help limit future seed production, is less costly on a per-area basis, and the understory is more likely to return to native species than higher-density sites.

Successful management typically involves a combination of mechanical and chemical control. Seedlings (stems 0.5-1.5" diameter) can be controlled mechanically by hand-pulling or mowing. A foliar herbicide application (glyphosate, triclopyr, or triclopyr + 2,4-D) can be used for dense patches of smaller individuals. While management on common buckthorn can be done at any time of the year, it is advised to conduct foliar spraying in the late fall to reduce the chances of injury to desirable vegetation. Bigger individuals (stems up to 6" diameter) can be treated using a basal bark herbicide application. Large individuals (stems > 6" diameter) should be treated using a cut-stump + herbicide treatment. Cutting or girdling plants without subsequent herbicide applications results in the shrub developing new shoots. The use of systemic herbicides, such as glyphosate, is recommended in order to kill the root system. However, glyphosate is a non-selective herbicide, and should be used cautiously when applying in areas with desired vegetation. When managing common buckthorn in riparian areas, cut shrubs bearing fruit should be piled and burned to prevent spread of seed. If plants can be positively identified and managed prior to seed-set, burning slash may not be necessary.

Occasional prescribed fire will not eliminate common buckthorn, but repeated burns or integration with herbicides can be effective. There are no promising biological control options at this time. There is limited information on using grazing as a management strategy, although sheep have been observed to browse taller common buckthorn, and goats have been used to browse woody species. Regardless of management strategies used, sites should be re-visited for at least two years following treatment to manage new seedlings.

Additional resources

https://learningstore.uwex.edu/Assets/pdfs/A3924-02.pdf

http://www.michigan.gov/documents/dnr/Common_Buckthorn_389115_7.pdf

Acknowledgements

The authors would like to thank the following reviewers:

- Bill Hoch, Montana State University
- Dawn Littleton, University of Minnesota
- Mark Renz, University of Wisconsin
- Morgan Valliant, City of Missoula, MT

MONTANA STATE UNIVERSITY | EXTENSION

File under: Agriculture and Natural Resources (Weeds)
Reprinted October 2018