



INVASIVE ALIEN SPECIES

European Buckthorn

(*Rhamnus cathartica*)

Aka Buckthorn, Common Buckthorn

SK Provincial Designation: Noxious

Overview:

European buckthorn is a deciduous shrub or small tree, introduced from Europe in the early 1800's as an ornamental hedge plant and widely planted as such. By the 1920's it was discovered that European buckthorn was an alternate host for an oat rust.

This shrub is dioecious (each produces only male or female flowers) therefore fruiting trees are always female. Reproduction is primarily by seed – cut stems will re-sprout but roots do not have rhizomes. The extent of the root system seems to vary with site characteristics.

European buckthorn begins flowering late spring/early summer and flowers can appear with leaf-out. Fruits turn from green to red and to black when ripe by late summer/early fall. The fruits tend to remain on the plant through most of the winter.

European buckthorn forms dense, even-aged stands which crowd and shade out native understory plants. If not consumed, most of the fruits fall directly below the parent plant, creating a dense understory of buckthorn seedlings. However, birds can spread the seeds long distances if they consume the berries.

European buckthorn bark, leaves, and fruits have a strong laxative effect when consumed. Other effects include nausea, stomach cramps, diarrhea, and irritation of the lining of bowels to the point of bleeding.



Photo: Chris Evans, Illinois Wildlife Action Plan, Bugwood.org



Photo: Jan Samanek, State Phytosanitary Administration, Bugwood.org

Habitat:

European buckthorn grows in well drained sand or clay soils, or poorly drained calcareous or alkaline soils. It has a wide range of environmental tolerances (temperature, moisture, substrate, shade) but grows best on fertile, sunny, moist, and disturbed sites. It is hardy to -40 °C.

Identification:

Stems: Grow 1-4 m tall in shrub form with many stems and branches. In tree form a single main stem with ascending branches growing to 5-8 m tall. Most branches are tipped with a thorn 0.5-2.2 cm long. Young bark is smooth with lighter-colored lenticels and older bark is grey and scaly. Branches have prominent leaf scars and terminal buds are hairy in winter.

Leaves: Are simple, elliptic, dull green, and smooth on both surfaces with minutely toothed edges. Leaf size is 1.5-7 cm long and 0.9-7 cm wide. Leaves occur near branch tips, are usually opposite but sometimes alternate, and often remain green until falling in late autumn.

Flowers: Are small, inconspicuous, and occur in small clusters. Two to eight staminate flowers are clustered in leaf axils, and pistillate flowers occur in clusters of 2 to 15. Fruits can be single or in clusters, borne in leaf axils or at the end of spur branches. Fruits are 5-10 mm in diameter bearing 1-4 seeds. Seeds are 4-5 mm long.

Prevention:

European buckthorn seeds germinate best in disturbed sites. Germination and seedling survival is poor under thick litter layers. Therefore under-planting disturbed wooded area with native woody species is potentially effective to prevent primary invasion or reinvasion of buckthorns. Seed dispersal is aided by rodent caches and birds consuming the fruits. European buckthorn fruits have a laxative effect which facilitates dispersal.

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European Buckthorn (continued)

Control:

Grazing: Consumption of European buckthorn by cattle in sufficient quantity causes poisoning, and reduces milk quantity and quality. Sheep and goat grazing as control has been experimented with. Invasive plants should never be considered as forage.

Mechanical: Prescribed burning will top kill stems and destroy the above-ground seeds but will require repetition. European buckthorn can also be difficult to ignite. In wetland areas, raising the water table can effectively kill the shrub. Small plants can be hand pulled when the soil is moist. Larger plants will require some digging to get the root out. Soil disturbance will aid germination of buried seed so these areas will require future control efforts.

Chemical:¹ Triclopyr is registered for use on buckthorn. Consult your Ministry of Agriculture Regional Forage Specialist, or the Agriculture Knowledge Centre at 1-866-457-2377 or the Guide to Crop Protection for more details.

Biological: As of 2008 two potential agents were being tested.



Photo: Chris Evans, Illinois Wildlife Action Plan, Bugwood.org



Photo: Paul Wray, Iowa State University, Bugwood.org



Photo: Chris Evans, Illinois Wildlife Action Plan, Bugwood.org

1. Always follow the product labels. Pesticides should only be applied by certified pesticide applicators. The use of pesticides in any manner not published on the label or registered under the *Minor Use of Pesticides* regulation constitutes an offence under both the *Federal Pest Control Products Act* and provincial acts in Saskatchewan. For the latest information on pesticides for agricultural use in Saskatchewan, please consult the provincial *Guide To Crop Protection*, produced annually by the Saskatchewan Ministry of Agriculture.