

Crataegus douglasii Lindl.
ROSACEAE

black hawthorn

Synonyms: *Crataegus brevispina* Dougl. ex Steud.
Crataegus brockwayae Sarg.



General Description.—Black hawthorn, also known as Douglas hawthorn, river hawthorn, western thorn apple, and Douglas thorn tree, is a thorny deciduous shrub or small tree 1.5 to 9 m in height. It may have multiple stems from the base or a single stem that begins branching just above the ground. The bark of older stems is smooth to scaly and gray to brown; twigs are hairless, shiny, slender, and reddish, and support stout, slightly curved spines up to 3 cm long. Leaves are alternate, thin, lanceolate to obovate, serrate to doubly serrate, and 1.5 to 9.5 cm long and almost as wide. Showy, five-petaled, white flowers about 12 mm wide with 10 pink stamens are borne in terminal corymbs. The flowers emit a somewhat fishy odor. Fruits are small (12 mm in diameter), apple-like black pomes with thick, light-yellow pulp and three to five nutlets (Borialforest.com 2003, Hansen 2003, Sargent 1923, Viereck and Little 1972, Welsh 1974).

Range.—Black hawthorn is native to southern Alaska, British Columbia, Alberta, Saskatchewan, Ontario, Washington, Oregon, California, Nevada, Utah, Idaho, Wyoming, Montana, North Dakota,

South Dakota, Minnesota, Wisconsin, and Michigan (Borialforest.org 2003, Natural Resources Conservation Service 2003, Soper and Heimbürger 1982). There are two recognized varieties. *Crataegus douglasii* var. *douglasii* occupies nearly all the range (Natural Resources Conservation Service 2003) and var. *duchenensis* is found in a small area in Utah (Welsh and others 1987). Former varieties *rivularis* and *suksdorfii* are now recognized as separate species (Natural Resources Conservation Service 2003).

Ecology.—Black hawthorn grows mostly in forest understories but also occurs in the open, often in pure thickets. It is both a riparian species and grows in upland sites where adequate moisture is available. Slopes may be level to steep. Elevations vary from 670 to 1,646 m. Soils vary greatly but typically are deep and fine textured. The species usually does not occupy recently disturbed sites. One exception is that it is common in avalanche tracks in Glacier National Park. Although the species grows along streams, it seldom grows in flood-prone areas. Black hawthorn burns readily but is somewhat fire tolerant due to sprouting and suckering. However, the extent of its stands and thickets in eastern Washington has been limited by frequent fires (Habeck 1991).

Reproduction.—Black hawthorn flowers open in May (Sargent 1923) or June (Soper and Heimbürger 1982). The flowers are insect pollinated (Hansen 2003). The fruits ripen and fall in August through September (Sargent 1923). Fruits in southeastern Washington averaged 4.78 seeds/fruit (Habeck 1991). Seeds make up about 15 percent of the weight of ripe fruits. There are from 47,000 to 52,000 cleaned seeds/kg (Brinkman 1974). The species is difficult to reproduce from cuttings (Hansen 2003). Black hawthorn sprouts readily when cut and may sucker from the roots (Habeck 1991).

Growth and Management.—Growth of newly established seedlings is slow (Habeck 1991). Particulars on natural stand management are lacking. Fruits are ripe when they are black and

lustrous (Habeck 1991) and must be picked by hand or clipped with a pruning pole. Pulp should be removed from the seeds by maceration and then seeds should be air dried before sowing or storage. Seeds should be scarified with H₂SO₄ and stratified at 1 °C for 84 to 112 days before sowing. Brinkman (1974) found that germination reached about 30 percent in 35 to 45 days. Another source cites 50 to 80 percent germination (Habeck 1991). Dumroese and others (1997) report germination from 20 to 80 percent for lots treated identically. Seedlings of most hawthorn species develop long taproots and should not be kept in the nursery for more than 1 year (Habeck 1991). Pruning should be avoided and final target height of seedlings should be 25 cm (Dumroese and others 1997).

Benefits.—Black hawthorn contributes to the beauty of the riparian vegetation, helps protect the soil from streambank and overflow erosion, and offers benefits to fauna. Although not as “showy” as some other hawthorns, the species is hardy and has been used to a limited extent as an ornamental. It makes excellent hedges and natural barriers, and is planted as a wildlife cover and food plant, and for stream bank stabilization (Hansen 2003). Livestock readily eat black hawthorn foliage but the thorny structure of shrubs and small trees makes it difficult for them to utilize it well. They prefer shrubs less than 1 m in height which they may hedge. Mule deer also browse it. With 3.7 percent protein, 3.8 percent fat, 19.3 percent fiber, and 4.0 percent ash, the species is moderately palatable to browsing animals. Deer, upland game birds, song birds, and rodents eat the fruits. Black hawthorn makes excellent escape and nesting cover for wildlife (Habeck 1991). The fruits are made into pies, jellies, and jams (Hansen 2003). Native Americans ate the fruits, sometimes dried and mixed with fat and other ingredients. The wood is hard and heavy and was used for tools and weapons (Washington State Department of Transportation 2003). Native Americans used the thorns for piercing ears, lancing boils, and making fish hooks (Hansen 2003). They prepared a poultice of chewed leaves to relieve swelling and took decoctions of sap, bark, wood, and root for stomach problems (Moerman 1986).

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