



Siberian Crabapple (*Malus baccata*) and Manchurian Crabapple (*Malus baccata mandshurica*)

Habitat Management Suggestions for Selected Wildlife Species

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Description

These crabapples grow 10 to 15 feet tall as deciduous, round-topped, low growing trees. They are native to the temperate regions of northeastern Asia, northern China and Japan. Showy white flowers are displayed in full bloom in May, followed by berry-like, red apples 1/3 to 1/2 inch in diameter that ripen in the fall. The leaves are oval-shaped, finely-toothed along the edges and slightly hairy on the underside. The branches are somewhat thorny. 'Midwest' Manchurian crabapple is a winterhardy cultivar released in 1978 by the Bismark, North Dakota Plant Materials Center.

Adaptation

Crabapples will grow on almost any soil, but prefer a deep, loamy, well-drained soil high in organic matter. They have a low tolerance for alkali. The minimum moisture requirement under cultivation is 10 to 14 inches.

Establishment

The planting stock should be one or two years old, with no prior transplantings, and at least 15 inches tall. Usually the plants should be spaced 6 to 10 feet apart.

Management and Care

Since the foliage and twigs of apples are choice browse for many animals, ranging from elk to mice, the plants will usually require some degree of protection for continued survival. Pruning recommendations are to remove no more than 1/4 of the total foliage in any one year. This would appear to be a reasonable guide for browsing until further information is available. Cultivation and fertilization may be necessary, depending on competition from other vegetation, available moisture, soil fertility and site situations. Nitrogen, phosphorus and iron deficiencies occasionally occur requiring soil tests and fertilization. Fire blight disease is a common affliction of apples, requiring the recommended antibiotics.

Numerous publications on the culture of apples are available, ranging from bulletins to hard cover books.

Uses

Apple foliage is choice food for browsing animals including elk, deer and mice. The fruit is choice food for nearly all seed or plant-fruit eating wildlife. Deer and elk are particularly fond of apple fruit.

MANCHURIAN CRABAPPLE

Malus mandshurica (Maxim.)
Kom.
Plant Symbol = MAMA37

Contributed by: USDA NRCS Plant Materials Center,
Bismarck, North Dakota



Photo Credit: USDA NRCS Plant Materials Center, Bismarck,
North Dakota

Alternate Names

Common Alternate Names: None

Scientific Alternate Names: *Malus mandshurica* (Maxim.)
Kom. var. *sachalinensis* (Juz.) Ponamir; *Malus bacata* (L.)
Borkh. ssp. *mandshurica* (Maxim.) C.K. Schneid.

Uses

Conservation/Windbreaks: Manchurian crabapple can be used in single or multiple row windbreaks. Its dense branches provide wind and snow protection for farmsteads and cropland.

Wildlife: This species provides cover and habitat for wildlife. Manchurian crabapple is rated excellent as a food supply for wintering wildlife (Henderson, 1987). The fruit is a small apple generally less than ½ inch in diameter that can “raisin” on the tree and provide a winter food source for many birds and mammals.

Agroforestry Products: The wood is used in smoking meats and makes excellent quality firewood. Fruit can be used fresh, dried, or processed into juices, jellies, sauces, pies, cakes, and cider.

Urban/Recreational: The species can be used both in urban and recreational settings for shade and screening.

Ethnobotany: Apple juice is used for liver problems, gout, dysentery, and diarrhea. The fruit is used to dispel gas, dissolve mucous, cure flux, and as a tonic for colic (Herman et al., 1996).

Status

Manchurian crabapple is a plant hardiness zone 2 species that originates in northeast Asia. Please consult the PLANTS Web site and your State Department of Natural Resources for this plant’s current status (e.g., threatened or endangered species, state noxious status, and wetland indicator values).

Weediness

Manchurian crabapple may become weedy or invasive in some regions or habitats and may displace desirable vegetation if not properly managed. The fruit is highly edible by birds and mammals, and seed may be spread locally. Plants are not rhizomatous. Please consult with your local NRCS Field Office, Cooperative Extension Service office, state natural resource, or state agriculture department regarding its status and use. Weed information is also available from the PLANTS Web site at <http://plants.usda.gov/>. Please consult the Related Web Sites on the Plant Profile for this species for further information.

Description

Manchurian crabapple is a small, non-suckering, bushy tree with many showy, white petals. The small fruit is edible by wildlife. Manchurian crabapple needs well-drained, moist soils. It is a hardy, spring-flowering tree that has played a big part in the development of many new crabapple varieties (Knowles, 1995).

The buds are small, ⅛ to ¼ inch, alternate, and reddish-brown, with imbricate scales. The leaves are simple, ovate to elliptical-oblong with finely serrated edges. The leaf surface is smooth or pubescent. Leaves are 1½ to 3¼ inches long and 1 to 2½ inches wide. They are dark or olive-green above and paler green below. The leaves turn yellow in the fall. The flower is an umbel with white blossoms. The fruit is a pome, and generally smaller than ½ inch (Herman et al., 1996). It has a tendency toward pendulous branches with rather narrow leaves, slender branches, and bright red fruit (Bourdo, 1999).

It has a form that ranges from spreading to densely globose. It reached a height of 20 feet and a width of 20 feet in 20 years on a well-drained loam soil in east-central

South Dakota (Knudson, 2004). The bark is gray to reddish-brown. It has a spreading, fibrous root system.

Distribution

Manchurian crabapple is native to northeast Asia. For current distribution in North America, please consult the Plant Profile page for this species on the PLANTS Web site.

Adaptation

The species is cold hardy and moderately drought tolerant. It is adapted to a variety of soils, but prefers heavier loam. It prefers moist, but well-drained sites in full sun. It tends to become chlorotic with higher pH.

Establishment

Deer and rabbits often browse young plants. Planting should be done in the early spring when moisture conditions are best. Weed control helps establishment and growth rate. Irrigation may be needed to ensure early survival on dry sites.

Management

Conservation grade seedlings are usually 2 years old and 1-2 feet tall. Manchurian crabapple is a small tree that should be planted in the spring 6 to 10 feet apart. Seedlings grow medium fast. Dry conditions may cause die-back. Irrigation may be needed to ensure survival on drier sites. If animal populations are high, the trees should be protected from browse and girdling, especially in grassy areas (Knudson, 1984). Pruning should be done during dormancy. Manchurian crabapples are intolerant of poorly drained soil and are best planted on a soil of medium fertility. They should be planted in full sun. Shade will lessen the quality and quantity of flowers (Eisel, 1997).

Pests and Potential Problems

Susceptibility of the various varieties to bacterial fireblight (*Erwinia amylovora*) disease varies from susceptible to highly resistant, so caution is advised (Knowles, 1995). Other diseases typical of the *Malus* species include apple scab (*Venturia inaequalis*) and anthracnose canker (*Pezinula malicorticus*). Crabapples should not be planted with cedar or juniper trees because of the problem with cedar-apple rust (*Gymnosporangium juniperi-virginianae*). The leaves contain an anti-bacterial substance called phloretin, which may provide variable resistance to bacterial diseases. Insect pests include fall cankerworms (*Alsophila pometaria*), fall webworms (*Hyphantria cunea*), and apple maggot (*Rhagoletis pomonella*) (Herman et al., 1996).

Environmental Concerns

The fruit is a pea-sized apple, highly desirable by birds and small mammals. It is spread locally by these animals. Manchurian crabapple is not aggressive, and invasiveness is not usually a concern. Fire and herbicide can be used for control.



The small apples are eaten by many species of birds. (Photo credit: D. Tober, USDA NRCS PMC, Bismarck, ND)

Seeds and Plant Production

Seed is picked and cleaned in the fall. It is stratified approximately 30 days before planting in the fall. The seed can be mixed with damp, fine sand and kept at temperatures of 34 to 36 degrees F. Growers should watch closely the last few days to determine when the seeds begin to sprout and break dormancy. Seed is planted approximately ½ inch deep in beds or rows and mulched lightly with the surface kept moist until the seedling emerges. Planting stock should be approximately 12-24 inches tall.

Cultivars, Improved, and Selected Materials (and area of origin)

'Midwest' Manchurian crabapple was developed by the USDA NRCS Plant Materials Center at Bismarck, North Dakota. It is grown from open pollinated seed and recommended for use in windbreaks and for wildlife plantings. It was selected for its good seedling vigor and growth rates.

References

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