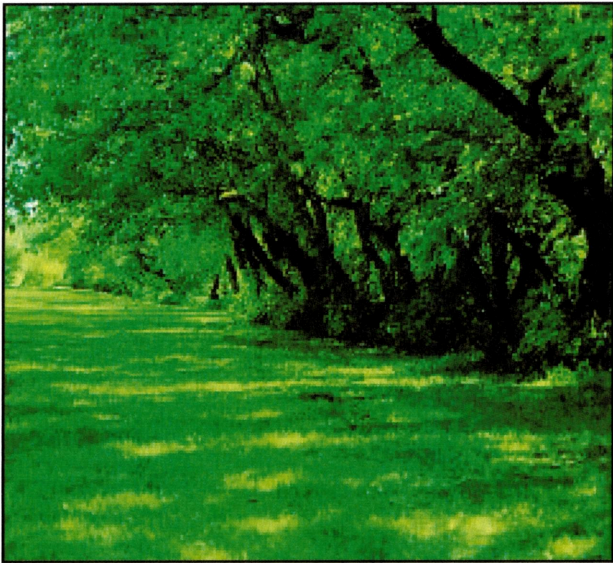


# Boxelder



# Boxelder (*Acer negundo*)

## General Description

A relatively fast-growing, short-lived, medium to tall tree of irregular form. Native to river bottoms, ravines and hillsides. Foliage is very susceptible to phenoxy herbicides. Also called Manitoba maple or ash-leaved maple. The largest tree in North Dakota is 61 feet tall with a canopy spread of 63 feet.

### Leaves and Buds

Bud Arrangement - Opposite.

Bud Color - Glaucous, gray.

Bud Size - About 1/4 inch long.

Leaf Type and Shape - 3 to 7 leaflets per leaf, 5 commonly.

Leaf Margins - Coarsely-serrated, pointed at the tip, sometimes 3-lobed, with irregular toothed margin.

Leaf Surface - Glabrous, may have a few hairs on underside.

Leaf Length - Leaves 3 to 7 inches; leaflets 2 to 3 inches.

Leaf Width - Leaves 2½ to 4 inches; leaflets 1 to 2 inches.

Leaf Color - Light green above, paler green below; yellow fall color.

### Flowers and Fruits

Flower Type - Dioecious, corymbs (male flowers), pendulous racemes (female flowers).

Flower Color - Yellowish-green to reddish-orange.

Fruit Type - Double-winged samara.

Fruit Color - Tan to light brown.

### Form

Growth Habit - The short, crooked trunk commonly divides into several stout and wide spreading branches, forming a rounded to irregular spreading crown.

Texture - Medium, summer; coarse, winter.

Crown Height - 30 to 60 feet.

Crown Width - 30 to 60 feet.

Bark Color - Dark gray to gray-brown bark with shallow ridges.

Root System - Shallow to deep, depending on the site.

## Environmental Requirements

### Soils

Soil Texture - Adapted to a wide range of soils.

Soil pH - 5.0 to 7.5.

Windbreak Suitability Group - 1, 3, 5.

### Cold Hardiness

USDA Zone 2.

### Water

Does best on well-drained moist soils along stream banks, but moderately drought tolerant.

### Light

Full to partial sun. Shade tolerant.

## Uses

### Conservation/Windbreaks

Small to medium tree for farmstead and field windbreaks, and riparian plantings. Of little value for field windbreaks where phenoxy herbicides, e.g. 2,4-D, are used.

### Wildlife

Food and cover for birds and mammals. Older trees often provide good den sites.

### Agroforestry Products

Wood - Crates, boxes, and firewood.

Food - Sap used by Indians and others to make syrup and sugar.

Medicinal - Used in cancer research.

### Urban/Recreational

Used as a shade tree on boulevards and in yards, but not very desirable.

## Cultivated Varieties

Baron Boxelder (*Acer negundo* 'Baron') - Introduced by Morden Research Station, Morden, Manitoba, male selection, hardy.

Flamingo Boxelder (*A. negundo* 'Flamingo') - This variegated cultivar lacks hardiness in the Northern Plains.

Variegated Boxelder (*A. negundo* 'Variegatum') - Irregular white-margined leaves, not winter hardy in Northern Plains.

## Related Species

Amur Maple (*Acer ginnala*)

Silver Maple (*A. saccharinum*)

Tatarian Maple (*A. tataricum*)

## Pests

Common diseases include stem decay. Boxelder bugs, a nuisance to people, are associated with boxelder. Highly sensitive to phenoxy herbicides. Extracts of some *Acer* species are toxic to some insect pests.

## BOXELDER

*Acer negundo* L.

Plant Symbol = ACNE2

Contributed By: USDA NRCS National Plant Data Center & the Biota of North America Program



Robert Mohlenbrock  
USDA, NRCS, Wetlands Science Institute  
@ PLANTS

### Alternate common names

Ash-leaf maple, California boxelder, western boxelder, Manitoba maple

### Uses

The wood of Boxelder is light, soft and weak, and of low commercial value. It is used for pulp and rough lumber, usually mixed with other bottomland species, and has been used for boxes and crates, low-quality furniture, and interior finishing.

Boxelder produces sap high in sugar content and can be used to produce syrup sometimes called "mountain molasses." Native Americans used the cambium for

food, boiled down the sap for syrup and candy, and made a tea from the inner bark to induce vomiting. The new branches were used to make charcoal for ceremonial painting.

The trees are useful for quick growth in naturalized riparian plantings, but they are short-lived and disease-prone. The species was once planted in the U.S. as a street tree and ornamental cultivars have been developed (including forms with red fall color, variously variegated leaves, and without seeds). It is not now commonly planted in the U.S., where its removal is sometimes more of a challenge. The quick growth of this species, however, and its tolerance to urban conditions, allows it to contribute to shade and rapid re-greening in disturbed city sites, particularly in the Great Plains and the West, because of its drought and cold tolerance. Boxelder can be used temporarily until replaced by slower growing but longer lasting trees.

Boxelder was once widely planted in shelterbelts in the Great Plains to reduce wind erosion and dust storms, but these shelterbelts have largely been removed. Its fibrous root system and prolific seeding habit make it valuable for erosion control in some parts of the world. The seeds are important winter food for birds and small mammals, deer browse young plants.

### Status

Please consult the PLANTS Web site and your State Department of Natural Resources for this plant's current status, such as, state noxious status, and wetland indicator values.

### Description

*General:* Maple Family (Aceraceae): Boxelder is a native tree growing to 20 m tall, with broad rounded crown, usually developing a shallow, fibrous root system; bark light gray-brown with shallow fissures, becoming deeply furrowed; twigs slender, shiny green, usually glabrous but sometimes hairy. The leaves are opposite, 13-20 cm long, pinnately compound with 3(-5 or more) leaflets 5-10 cm long and 3-6 cm wide, long-pointed, coarsely toothed and often shallowly lobed. The flowers are yellow-green, about 5 mm long, the male (staminate) flowers fascicled, the female (pistillate) flowers in drooping racemes; most trees are either male or female (the species is essentially dioecious), but bisexual flowers occur on a few trees (technically polygamo-

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National Plant Data Center <<http://npdc.usda.gov>>

dioecious). Fruits are winged nutlets (samaras) in a pair, 2.5-4 cm long, clustered on long stalks. The common name refers to the resemblance of leaves to those of ash (*Fraxinus*). Boxelder, its other often used common name, refers to a resemblance to elder (*Sambucus*) and the use of the soft wood for box making.

Boxelder is unusual among American maples in having compound leaves. Apart from the opposite leaves, seedlings and young saplings of Boxelder bear a remarkable resemblance to poison ivy (*Toxicodendron radicans*) and are often mistaken for it by beginning naturalists.

#### *Variation within the species:*

Substantial variation occurs over the range of the species; numerous forms and varieties have been described, but only six varieties currently recognized (in some treatments, for example, see McGregor 1986). These are primarily distinguished by coloration of the branches, twig and fruit pubescence, and leaflet number.

- Var. *arizonicum* Sarg. – Arizona and New Mexico
- Var. *californicum* (Torr. & Gray) Sarg. – California
- Var. *interius* (Britt.) Sarg. – midwest US into the western states
- Var. *negundo* – the eastern half of the US, with naturalized western outlyers
- Var. *texanum* Pax – south-central US
- Var. *violaceum* (Kirchn.) Jaeger – north-central US and most of Canada

#### **Distribution**

Boxelder is the most widely distributed of all American maples – its native range extends from the east coast of the U.S. to California, and from Alberta to southern Mexico and Guatemala. The range is relatively continuous in the eastern U.S., but broken into small areas in the West and toward Central America. It has become naturalized in areas far outside of its native range, including Europe. It is not known from northern North America. For current distribution, please consult the Plant Profile page for this species on the PLANTS Web site.

#### **Adaptation**

Boxelder is natively a tree of river bottoms and disturbed sites on heavy, wet soils, often seasonally flooded (up to 30 days). It is one of the most common bottomland trees throughout its range, usually following the pioneer species of cottonwood and willow in colonizing alluvial bottoms, then growing with silver and red maples, American elm, American sycamore, and sweetgum. Populations in

native habitats have decreased because of clearing of bottomland forest for agriculture, but they have greatly increased in urban areas. Success of the species on disturbed urban sites owes to its prolific seed production and wide dispersal, ease of germination, tolerance of low oxygen conditions, and fast growth on clay or heavy fill. Boxelder also is found as a pioneer species on disturbed upland sites where a seed source is nearby.

Flowering: March-May (with or just before the leaves), fruiting: August-October. The flowers are wind pollinated but also visited by bees.

#### **Establishment**

Flowering in Boxelder is in early spring and large quantities of seed are produced each year, beginning on trees 8-11 years old. The seeds ripen in autumn, fall continuously from autumn until spring, and are light, large-winged, and widely wind-dispersed. They over-winter and germinate the following spring. Best germination follows stratification for 60-90 days at 33° F.

Boxelder seeds germinate in shade or full sun but seedlings begin to die off after 1-2 years unless openings are formed. Successful seedbeds vary greatly. Trees are fast growing, producing up to 1-inch diameter annual growth for the first 15-20 years. Early growth is best in full sun but tolerant of partial shade. Young trees commonly produce stump and root sprouts. Average longevity is about 60 years; maximum longevity is rarely more than 100.

#### **Management**

Boxelder is tolerant to stressful sites and requires little special care, but it is relatively short-lived and the branches of older trees are susceptible to ice and wind damage. Boxelder is highly sensitive to 2,4-D and also is susceptible to fire and mechanical damage because of its thin bark.

The boxelder bug is a common associate of boxelder throughout most of its range. The nymphs feed mainly on female (pistillate) trees in leaves, fruits, and soft seeds. The trees are not greatly damaged but the insects sometimes invade human habitation in large numbers with the onset of cold weather.

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

Boxelder is available at most nurseries within its distribution.