

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-

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.

References

Koelling, M.R. & R.B. Heiligmann (eds.) 1996. *North American maple syrup producers manual*. Ohio State Univ. Extension Bull. 856. AUG00. <<http://www.ag.ohio-state.edu/~ohioline/b856/index.html>>

Li, H.-L. 1960. *The cultivated maples*. Morris Arbor. Bull. 11:41-47.

Maeglin, R. R. and L. F. Ohmann 1973. *Boxelder (Acer negundo): a review and commentary*. Bull. Torrey Bot. Club 100:357-363.

McGregor, R.L. 1986. *Acer*. Pp. 569-570, IN: Great Plains Flora Association. *Flora of the Great Plains*. Univ. of Kansas Press, Lawrence, Kansas.

Overton, R.P. 1990. *Acer negundo* L. *Boxelder*. Pp. 41-45, IN: R.M. Burns & B.H. Honkala (tech. coords.). *Silvics of North America. Volume 2. Hardwoods*. USDA, Forest Service Agric. Handbook 654, Washington, D.C.

Prepared By

Guy Nesom, BONAP, North Carolina Botanical Garden, University of North Carolina, Chapel Hill, North Carolina

Species Coordinator

Lincoln Moore, USDA, NRCS, National Plant Data Center, Baton Rouge, Louisiana

Edited: 17jan01 jsp; 07feb03ahv; 24may06jsp

For more information about this and other plants, please contact your local NRCS field office or Conservation District, and visit the PLANTS Web site <<http://plants.usda.gov>> or the Plant Materials Program Web site <<http://Plant-Materials.nrcs.usda.gov>>

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, sex, religion, age, disability, political beliefs, sexual orientation, and marital or family status. (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's [TARGET Center](#) at 202-720-2600 (voice and TDD).

To file a complaint of discrimination write USDA, Director, Office of Civil Rights, Room 326-W, Whitten Building, 14th and Independence Avenue, SW, Washington, DC 20250-9410 or call 202-720-5964 (voice or TDD). USDA is an equal opportunity provider and employer.

Read about [Civil Rights at the Natural Resources Conservation Service](#).