

OHIO BUCKEYE

Aesculus glabra Willd.

Plant Symbol = AEGL

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



Nobel Foundation Plant Image Gallery
© Samuel Roberts Noble Foundation

Alternate common names

Horse chestnut, buckeye, American buckeye, fetid buckeye, stinking buckeye, white buckeye, Texas buckeye (var. *arguta*)

Warning: Ohio buckeye is highly toxic when taken internally.

Uses

Poisonous Plant: All parts of the plant (leaves, bark, fruit) are highly toxic if ingested – because of the glycoside aesculin, the saponin aescin, and possibly alkaloids. Symptoms are muscle weakness and paralysis, dilated pupils, vomiting, diarrhea,

depression, paralysis, and stupor. Many landowners have eradicated it to prevent livestock poisoning. Native Americans ground buckeye to use as a powder on ponds to stun fish.

Commercial: The soft, lightwood of Ohio buckeye has limited commercial use as sawtimber and it is of little commercial importance. It is used for making artificial limbs because it is light, easily worked, and resists splitting; it is also used in small quantities for various kinds of woodenware, crates, veneer, and toys. Pioneers used the wood for cabin structure and furniture.

Ornamental: The tree is an attractive ornamental, best in open, natural settings or parks because of its broad crown. It also is sometimes cultivated as an ornamental shrub.

Other: Buckeye seeds have sometimes been carried as good-luck charms and to prevent rheumatism. Despite the poisonous properties to humans and livestock (below), squirrels are known to eat the raw seeds. Native Americans ate roasted seeds as a starchy meal.

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: Horsechestnut Family (Hippocastanaceae). Native, small trees, most less than 15 m tall (rarely to 45 m), with a dense oval to round crown, branching quite low, sometimes (usually on drier sites) a thicket-forming shrub; twigs thick, red-brown, hairy when young, with large triangular leaf scars; terminal buds large, orangish brown with keeled scales; bark smooth and light gray, becoming rough and scaly. Leaves are deciduous, opposite, palmately compound, leaflets 5-7(-11), oval to obovate or lanceolate, 6-13 cm long with a finely toothed margin, emerging bright green, deepening to dark green, often developing yellow or orange fall color, emitting a strong fetid odor when crushed. The leaves have a somewhat unique shape. Flowers are creamy to greenish yellow, about 1-2 cm long, in large, showy, upright, branched, terminal clusters at ends of leafy branches, only those flowers near the base of the branches of a cluster are perfect and

fertile -- the others are staminate; petals 4; stamens longer than petals. Fruits are rounded capsules about 3 cm wide, borne on a stout stalk, with a warty or prickly, thick, leathery husk; seeds 1(-3) smooth, glossy, chestnut-brown seeds, each with a pale scar (the "buck's eye"). The common name refers to its abundance in Ohio and the supposed likeness of the nut to the eye of a buck; other names are derived from the fetid odor of the crushed leaves, bark, broken twigs, and flowers.

Variation within the species: Two morphological segments are said to exist within the species: var. *glabra* is the northern (northwestern) segment with 5 leaflets, var. *arguta* the more southern form with 7-11 leaflets and other minor and variable differences in vestiture and leaflet shape. Var. *arguta* is weakly differentiated and commonly not recognized (see for example Diggs et al. 1999).

Distribution

Primarily a species of the east-central US. Var. *glabra* grows from western Pennsylvania, Ohio, and southern Michigan west to Illinois and south to Tennessee, Alabama, and rarely in Georgia, Mississippi, and states peripheral to the main northern range. Var. *arguta* (if recognized) is native to upland forests of Texas, Oklahoma, Arkansas, Missouri, Kansas, Missouri, Iowa, and Nebraska. Ohio buckeye is planted in various localities in the eastern US, including localities north and east of its main range. For current distribution, please consult the Plant Profile page for this species on the PLANTS Web site.

Adaptation

Ohio buckeye occurs in mixed hardwood forests of bottom lands along river and stream banks and in rich, moist soils of ravines and other steep to gentle slopes, less commonly on drier sites mixed in oak-hickory stands, on limestone slopes in the southwestern portion of the range.

It is shade tolerant and often found in beech-sugar maple woods. In dense stands, side competition and shade foster straight boles and encourage natural pruning of this tree, which otherwise tends to have a large crown that retains branches on the lower portions.

Ohio buckeye is one of the first trees to leaf out in spring. Flowering: March-May, after the leaves appear; fruiting: September-October.

Establishment

Seeds of Ohio buckeye ordinarily germinate in the spring after wintering on the ground. Seedlings can grow under some shade, but the species seems to develop best as isolated individuals in openings along streambanks and on other moist sites. Young trees show moderate growth rates and may begin producing fruit at 8 years. Most trees live 80-100 years.

Ohio buckeye can be propagated by seed (stratify 60-120 days at 33-41° F); seeds must be kept moist to avoid loss of viability.

Management

Leaf scorch and leaf blotch are usually the most serious problems of Ohio buckeye. Leaf scorch, seemingly a response to heat and drought along urban streets, results in browning of the leaf margins. By late summer to early fall the trees look unsightly and are often partially defoliated. Air pollution may be more responsible for this problem than heat or drought. The leaf blotch (*Guignardia aesculi*) begins as brown spots or blotches on the leaves and may eventually give the tree a scorched appearance. This disease may slow the growth rate but does no permanent damage to the tree and can be controlled on ornamentals.

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

This tree is available through most local nurseries. *Aesculus* 'Autumn Splendor' is similar to wild forms but has glossy dark green leaves that remain in good condition throughout the growing season, resistant to leaf scorch, and develops a maroon-red fall color. The Eurasian native horse-chestnut (*Aesculus hippocastanum*) is occasionally planted as an ornamental shade tree, but Ohio buckeye is more common. Ohio buckeye is often used as an understock for grafting cultivars of other species of *Aesculus*.

References

Brizicky, G.K. 1963. *The genera of Sapindales in the southeastern United States*. J. Arnold Arb. 44:462-501.

Diggs, G.M., Jr., B.L. Lipscomb, & R.J. O'Kennon 1999. *Shinners & Mahler's illustrated flora of north central Texas*. Sida, Botanical Miscellany, No. 16.

Felter, H.W. & J.U. Lloyd 2000. *King's American dispensatory: Aesculus*. Scanned version. <<http://metalab.unc.edu/herbmed/eclectic/kings/aesculus.html>>

Hardin, J.W. 1957. *A revision of the American Hippocastanaceae*. Brittonia 9:145-171, 173-195.

Samuel Roberts Nobel Foundation 1999. *Noble foundation plant image gallery*. Ardmore, Oklahoma. 29nov2000.
<<http://www.noble.org/imagegallery/index.html>>

Williams, R.D. 1990. *Aesculus glabra Willd. – Ohio Buckeye*. Pp. 92-95, IN: R.M. Burns and B.H. Honkala (tech. coords.). *Silvics of North America. Volume 2. Hardwoods*. USDA, Forest Service Agric. Handbook 654, Washington, D.C.
<http://willow.ncfes.umn.edu/silvics_manual/Table_of_contents.htm>

Prepared By

Guy Nesom

Formerly 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; 30may06jsp

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.