Paper Birch

Paper Birch
(Betula papyrifera)

General Description

A native medium to tall tree which is loosely pyramidal when young, developing an irregular oval crown when mature. Drought stress followed by borer attack often causes decline. The largest tree in North Dakota is 61 feet tall with a canopy spread of 40 feet.

Leaves and Buds

Bud Arrangement - No terminal bud, lateral buds are alternate.

Bud Color - Lustrous, brown-black in color, scales on buds are downy on the edges.

Bud Size - Lateral buds are ovate, pointed, and 1/4 inch long.

Leaf Type and Shape - Simple, ovate to narrow-ovate.

Leaf Margins - Coarsely and doubly-serrate, sharp pointed, rounded at the base, and have 3 to 7 lateral veins.

Leaf Surface - Leathery smooth texture above, hairy on the veins below or nearly smooth.

Leaf Length - 2 to 3 inches.

Leaf Width - 1 to 2½ inches.

Leaf Color - Dark green on top, duller green below; bright yellow fall color.

Flowers and Fruits

Flower Type - Male catkins, 2 to 4 inches long hanging in groups of 1 to 3, female about 1 inch long, borne erect.

Flower Color - Flowers are greenish to brownish.

Fruit Type - Heart-shaped, winged nutlets attached to tiny oval seeds.

Fruit Color - Brownish.

Form

Growth Habit - Larger limbs grow upward and smaller branches are more horizontal and flexible. Pyramidal when young, irregular oval to rounded at maturity.

Texture - Medium-fine, summer; fine, winter.

Crown Height - 30 to 55 feet.

Crown Width - 20 to 40 feet.

Bark Color - Smooth bark, marked with horizontal lenticels, is reddish-brown when young, turning papery white with age.

Root System - Roots are shallow and superficial.

Environmental Requirements

Soils

Soil Texture - Does best on loamy or sandy soils along rivers, lakes or ravines.

Soil pH - 5.0 to 7.5.

Windbreak Suitability Group - 1, 1K, 3.

Cold Hardiness

USDA Zone 2.

Water

Does best on well-drained, moist sites. Does not tolerate drought. Similar to aspen in water needs.

Light

Full sun.

Uses

Conservation/Windbreaks

Small to medium tree for farmstead windbreaks on protected sites or along riparian areas.

Wildlife

Used as food by over 30 types of birds and mammals.

Agroforestry Products

Wood - Firewood, tooth picks, spools, carving and wood pulp. Sap is used to treat leather. Oil extract used to repel insects.

Food - Birch wine is made from the sugary sap.

Medicinal - Used for gout, rheumatism, dropsy, colds, coughs and other pulmonary ailments. It has also been used as a laxative, burn and wound treatment and in cancer research.

Urban/Recreational

Used as a landscape tree in yards and parks.

Cultivated Varieties

None.

Related Species

Asian White Birch (*Betula platyphylla*)

European White Birch (*B. pendula*) - Bronze birch borer susceptible.

Gray Birch (*B. populifolia*)

River Birch (*B. nigra*) - Resistant to bronze birch borers, but many sources are questionable in hardiness and adaptation in North Dakota.

Pests

Bronze birch borer is a major pest that can be a problem when trees are stressed by either drought or water-logging. Native birches are less susceptible to the borer than European birches. Extracts of *Betula* species are toxic to insect pests.

USDA NRCS
United States Department of Agriculture
Natural Resources Conservation Service

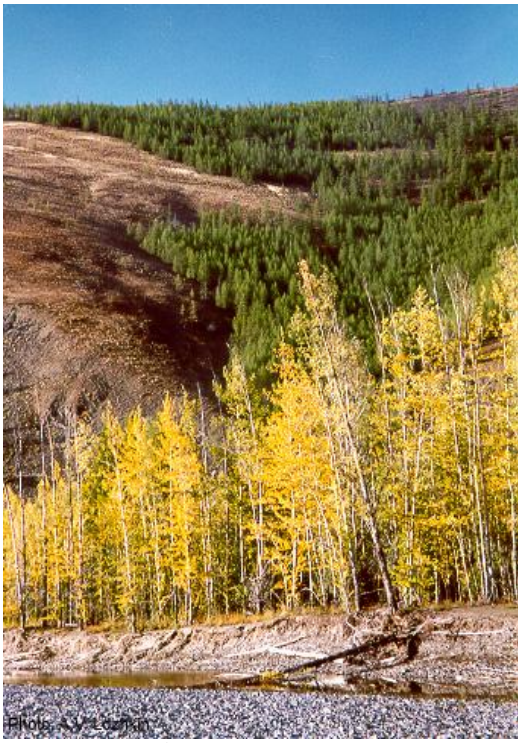
Plant Guide

PAPER BIRCH

Betula papyrifera Marsh.

Plant Symbol = BEPA

Contributed By: USDA NRCS National Plant Data Center



Paper birch in the foreground with larch in the background.
© A.V. Lozhkin
Atlas of Beringia
National Oceanic & Atmospheric Administration

Alternative Names

White birch (*B. p*. var. *paperifera*), paperbark birch, silver birch, canoe birch; western paper birch (*B. p*. var. *commutata*), mountain paper birch (*B. p*. var. *cordifolia*), Kenai birch (*B. p*. var. *kenaica*)

Uses

Ethnobotanic: The sap and inner bark is used as emergency food (MacKinnon & Pojar 1994). White birch can be tapped in the spring to obtain sap from which beer; syrup, wine or vinegar is made. The inner bark can be dried and ground into a meal and used as a thickener in soups or added to flour used in making bread. A tea is made from the root bark and young leaves of white birch. The Shuswap made soap and shampoo from the leaves (MacKinnon, Pojar, & Coupe´ 192). It is also used by native Americans to make canoes, buckets, and baskets. The Shuswap were noted for their beautiful birch bark baskets (Ibid.). North American Indian tribes used white birch to treat skin problems of various rashes; skin sores, and burns (Moerman 1998). The bark has been used to make casts for broken bones.

Economic: White birch wood is used commercially for pulpwood, plywood, veneer, and turnery. Tree chips are used for paper manufacture and fuel.

Medicinal: A decoction has been used to treat dysentery, various diseases of the blood, induce sweating, and to ensure an adequate supply of milk in nursing mothers (Moerman 1998). Birch gum could have been medicinal for some stone-age gathers. The chewable gum contains zylitol, a disinfectant, and some terpenes, which could give the chewier a mild buzz (MacKinnon & Pojar 1994).

Landscaping & Wildlife: *Betula papyrifera* is commonly used as a landscape tree for it's striking coloration. It is a desirable ornamental to be planted around homes and public buildings, in parks, and on campuses. Moose, snowshoe hare, and white-tailed deer browse paper birch. Numerous birds and small mammals eat the buds, catkins, and seeds.

Agroforestry: White birch is used in forested riparian buffers to help reduce stream bank erosion, protect aquatic environments, enhance wildlife, and increase biodiversity.

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: Birch family (Betulaceae). White birch is a deciduous small to medium sized native tree. The leaves are alternate, ovate or triangular, five to ten centimeters long. The flowers are male and female flowers in separate catkins two to four centimeters long, the catkins break up at maturity (MacKinnon & Pojar 1994). The fruits are mature seed catkins that are three to five centimeters long. The bark is thin, smooth, dark red to almost black on young stems, becoming reddish-brown and then bright creamy white (Farrar 1995).

Distribution: White birch is native in Northern North America. It is widely distributed from northwestern Alaska east across Canada to Labrador and Newfoundland, south in northwestern states to Pennsylvania and Iowa and in the western states to Montana and northeastern Oregon (Viereck & Little & 1972). For current distribution, please consult the Plant profile page for this species on the PLANTS Web site.

Adaptation

White birch is adapted to a variety of soils. It grows best in well-drained acid, sandy or silty loam, in cold soil temperatures and ample moisture. It is not tolerant of drought, compacted soils, or areas with high air temperatures. This species grows best in full sunlight and is very shade intolerant. It does not perform well in harsh conditions or heat and is not tolerant of pollution.

Establishment

Propagation from Seed: Propagation by seed requires that the seed is best sown as soon as it is ripe. Sow the seeds in containers or seed trays containing a seed germination medium to which a slow release fertilizer is added. Firm the medium and sow the seed thinly and evenly on top, and cover with medium to a depth of medium (Heuser 1997). Place the pots in a sunny location in a cold frame. Plant seedlings into their permanent positions in late spring or early summer. When seedlings are large enough to handle they should be placed into individual pots and grown in a cold frame for their first winter.

Management

Fertilization and irrigation should be done to maintain white birch vigorous condition and to help prevent borer infestation. Don't prune this birch or other birches until summer because they are "bleeders" and should not be cut when the sap is flowing.

White birch is susceptible to bronze birch borer and birch leaf minor.

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

Readily available at nurseries. Contact your local Natural Resources Conservation Service (formerly Soil Conservation Service) office for more information. Look in the phone book under "United States Government". The Natural Resources Conservation Service will be listed under the subheading "Department of Agriculture."

References

Barnes, B.V. & W.H. Wagner, Jr. 1981. *Michigan trees*. The University of Michigan Press, Ann Arbor, Michigan.

Britton, N.L. 1908. *North American trees*. Henry Holt & Company, New York.

Dirr, M.A. 1997 *Dirr's hardy trees and shrubs: an illustrated encyclopedia*. Timber Press, Portland, Oregon.

Dirr, M.A. 1990. *Manual of woody landscape plants: their identification, ornamental characteristics, culture, propagation, and uses*. 4th ed. Stipes Publishing Co., Champaigne, Illinois.

Great Plains Flora Association 1986. *Flora of the great plains*. University Press of Kansas, Lawerence, Kansas.

Farrar, J.L. 1995. *Trees of the northern United States and Canada*. Iowa State University Press, Ames, Iowa.

Heuser, C.W. 1997. *The complete book of plant propagation*. The Taunton Press, Newtown, Connecticut.

Viereck, L.A. & E.L. Little, Jr. 1972. A*laska trees and shrubs*. United States Department of Agriculture, Washington, D.C. Agriculture Handbook No. 410.

Pojar, J. & A. MacKinnon 1994. *Plants of the Pacific Northwest coast: Washington, Oregon, British Columbia, and Alaska*. Lone Pine Publishing, Redmond, Washington.

Preston, R.J. Jr. 1948. *North American trees*. 2nd ed. The Iowa State College Press, Ames, Iowa.

MacKinnon, A., J. Pojar, & R. Coupe´. 1992. *Plants of the northern British Columbia*. Lone Pine Publishing, Canada.

McMinn, H.E. & E. Maino 1963. *An illustrated manual of pacific coast trees*. University of California Press, Berkeley, California.

Moerman, D. 1998. *Native American ethnobotany*. Timber Press, Oregon.

National Oceanic & Atmospheric Administration 1999. *Paleoenvironmental atlas of Beringia*. Accessed: 11jan02.

<http://www.ngdc.noaa.gov/paleo/parcs/atlas/beringia/vphotos.html>

Preston, R.J. Jr. 1989. *North American trees*. 4th ed. Iowa State University Press, Ames, Iowa.

Sargent, C.S. 1961. *Manual of the trees of North America*. Vol. 1. Dover Publications, Inc., New York, New York.

Weber, W.A. 1990. *Colorado flora: eastern slope*. University Press of Colorado, Niwot, Colorado.

Prepared By
Lincoln M. Moore
USDA NRCS National Plant Data Center, Baton Rouge, Louisiana

Species Coordinator
Lincoln M. Moore
USDA NRCS National Plant Data Center, Baton Rouge, Louisiana

Edited: 09jan02 jsp; 14feb03 ahv; 31may06 jsp

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>

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 neguudo* '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.

Ohio Buckeye

Ohio Buckeye *(Aesculus glabra)*

General Description

A medium-sized tree with an oval to rounded crown. Unique characteristics include palmate compound leaves, terminal candle-like flowers and large globose fruits. The largest tree in North Dakota is 49 feet tall with a canopy spread of 38 feet.

Leaves and Buds

Bud Arrangement - Opposite.

Bud Color - Brown, prominent scales.

Bud Size - Large, 1/2 to 1-1/5 inches long.

Leaf Type and Shape - Palmate compound, leaves with 5 and rarely 7 leaflets, leaflets are elliptic to obovate.

Leaf Margins - Acuminate, cuneate, and finely serrate.

Leaf Surface - Pubescent when young beneath, nearly glabrous when mature.

Leaf Length - 6 to 9 inches; leaflets 3 to 5 inches.

Leaf Width - 5 to 6 inches; leaflets 1 to 2 inches

Leaf Color - Medium green; yellow to amber fall color.

Flowers and Fruits

Flower Type - Upright panicles.

Flower Color - Greenish-yellow.

Fruit Type - Obovoid capsule, dehiscent, 1 to 2 inches long, with a prickly husk.

Fruit Color - Light brown, nutlike ovule or "buckeye," dark brown, glossy.

Form

Growth Habit - Dense, broad-oblong crowns, becoming rounded with age.

Texture - Medium-coarse, summer; coarse, winter.

Crown Height - 20 to 40 feet.

Crown Width - 20 to 35 feet.

Bark Color - Thick, ashy gray, deeply furrowed and plated.

Root System - Forms a tap root.

Environmental Requirements

Soils

Soil Texture - Adapted to a variety of soils, prefers moist loams. Leaf scorch is a problem on dry sites.

Soil pH - 5.0 to 7.5.

Windbreak Suitability Group - 1, 3, 4, 4C.

Cold Hardiness

USDA Zone 3.

Water

Not drought resistant. Needs adequate moisture during drought, or leaf scorch may become a problem.

Light

Full sun.

Uses

Conservation/Windbreaks

Medium height tree for farmstead windbreaks and riparian plantings.

Wildlife

Nuts are eaten by wildlife, including squirrels.

Agroforestry Products

Medicinal - Extracts of related species are used for fevers and as a source of quercitrin.

Urban/Recreational

Good specimen tree for landscaping. Attractive flowers and fall colors. Several hardy hybrid selections below are superior to the species.

Cultivated Varieties

None.

Related Species

Autumn Splendor Buckeye (*Aesculus* x *arnoldiana* 'Autumn Splendor') - Excellent, University of Minnesota introduction, semi-glossy, emerald green foliage, red-purple fall color. Good resistance to leaf scorch.

Homestead Buckeye *(A.* x 'Homestead') - Superior SDSU hybrid introduction, reddish-orange fall color, dense crown.

Yellow Buckeye (*A. flava*) - Good foliage quality, sufficient winter hardiness.

Common Horse-chestnut *(A. hippocastanum)* - Not hardy in North Dakota.

Pests

Susceptible to leaf scorch, leaf blotch and powdery mildew. No major insect pests. Extracts of *Aesculus* species are toxic to some insect pests.

USDA NRCS
United States Department of Agriculture
Natural Resources Conservation Service

Plant Guide

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>

Silver Buffaloberry

Silver Buffaloberry *(Shepherdia argentea)*

General Description

A tall, thorny, thicket-forming native shrub. Well adapted to dry, moderately alkaline and saline soils. Tolerates infertile soils, in part because of its ability to fix and assimilate atmospheric nitrogen. Berries used for jellies.

Leaves and Buds

Bud Arrangement - Opposite.

Bud Color - Silvery.

Bud Size - Small, solitary or multiple, stalked, oblong.

Leaf Type and Shape - Simple, oblong-elliptical.

Leaf Margins - Entire.

Leaf Surface - Finely-scaled, pubescent.

Leaf Length - 1 to 2 inches.

Leaf Width - 1/4 to 5/8 inch.

Leaf Color - Silvery-gray on both surfaces.

Flowers and Fruits

Flower Type - Dioecious.

Flower Color - Yellowish.

Fruit Type - Drupe-like, insipid, ovoid.

Fruit Color - Predominately red, however, some female plants can produce yellow fruits.

Form

Growth Habit - Loosely branched shrub of rounded outline.

Texture - Medium-fine, summer; fine, winter.

Crown Height - 6 to 14 feet.

Crown Width - 8 to 14 feet.

Bark Color - Brown.

Root System - Spreading.

Environmental Requirements

Soils

Soil Texture - Grows well in most soils.

Soil pH - 5.5 to 8.0. Adapted to moderately alkaline and saline soils.

Windbreak Suitability Group - 1, 1K, 3, 4, 4C, 5, 6D, 6G, 8, 9C, 9L.

Cold Hardiness

USDA Zone - 2.

Water

Drought tolerant. Not adapted to wet, poorly-drained sites.

Light

Full sun.

Uses

Conservation/Windbreaks

Medium to tall shrub for farmstead and field windbreaks, riparian plantings, and highway beautification.

Wildlife

Highly important for mule deer browse. Ideal cover and nesting site for many birds. Preferred food source of many songbirds and sharptail grouse. Good late winter food source for birds.

Agroforestry Products

Food - Fruit processed as jams and jellies.

Urban/Recreational

Ornamental foliage and fruit, but limited in use because of thorns and suckering habit.

Cultivated Varieties

Sakakawea Buffaloberry (*Shepherdia argentea* 'Sakakawea') - Released by USDA-NRCS, Plant Materials Center, Bismarck, North Dakota.

Related Species

Russet Buffaloberry (*Shepherdia canadensis*)

Russian-olive (*Elaeagnus angustifolia*)

Sea-buckthorn (*Hippophae rhamnoides*)

Silverberry (*E. commutata*)

Pests

Common diseases include stem decay and branch canker. Deer commonly browse the twigs and leaves. Stems are sometimes broken by snow.

USDA NRCS
United States Department of Agriculture
Natural Resources Conservation Service

Plant Fact Sheet

SILVER BUFFALOBERRY

Shepherdia argentea (Pursh) Nutt.

Plant Symbol = SHAR

Contributed by: USDA NRCS Plant Materials Program

USDA NRCS National Plant Materials Center
Beltsville, MD

Alternate Names
Elaeagnus utilis A. Nels., *Lepargyrea argentea* (Pursh) Greene

Uses
Windbreaks: Plant silver buffaloberry in the outer rows of multi-row plantings when supplemental moisture is available. This species has potential for single-row plantings where a low, dense barrier is desired.

Wildlife: The thorny thickets formed by the shrub create ideal cover for numerous bird and animal species. It is preferred nesting site for many songbirds. Some birds eat the fruit although it is not relished by a wide variety of species.

Recreation and Beautification: The thorns and suckering habit of this species must be taken into consideration when planning its use in recreation areas. The fruit is highly prized for making jelly.

Status
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).

Description
Shepherdia argentea (Pursh) Nutt., silver buffaloberry, is a deciduous, thorny shrub or small tree of 6 to 20 feet in height native to North America. It occurs as scattered to frequent plants along streams, in bottomlands, and on moist hillsides throughout western Wyoming and Colorado at elevations to 7,500 feet. The shrub is winter hardy and alkaline tolerant, but has only limited drought and shade tolerance. Under favorable conditions, it readily forms thorny thickets.

Fruits are reddish, globe-shaped "berries" (drupes) about 1/8 to 1/4 inch across; flowers are brownish-yellow, small, with male and female flowers borne on separate plants in clusters of 1 to 3 at the leaf axils; leaves are opposite, silvery-scurfy, oblong and entire, up to 2 inches long; stems are thorny, silvery-scurfy when young, brownish in age; roots are shallow and much branched, readily sprouting.

Adaptation and Distribution
This species is adapted to elevations below 7,500 feet and 15 to 20 inches of precipitation equivalent; it requires supplemental moisture in low precipitation zones.

For a current distribution map, please consult the Plant Profile page for this species on the PLANTS Website.

Establishment
Prepare a weed free site for planting.

Management
Planted areas should be kept free of weeds during the first 2 years of establishment. Care should be taken to prevent suckers from taking root in unwanted areas around homes and agricultural systems. Over-sprouting can be controlled mechanically or through the use of approved herbicides.

Pests and Potential Problems
This species may be subject to a heart rot disease which can cause serious problems. There are no known serious insect problems.

Cultivars, Improved, and Selected Materials (and area of origin)
Seedlings of silver buffaloberry are available from most hardwood commercial nurseries. 'Sakakawea' (Canada) was developed by the Bismarck, ND Plant Materials Center and released in 1984.

Prepared By & Species Coordinator:
USDA NRCS Plant Materials Program

Edited: 05Feb2002 JLK; 060817 jsp

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>

Buffaloberry

Shepherdia argentea

Growth Form: round to irregular
Crown Density: dense
Size: 10 feet high; spreading
Drought Resistance: good
Cold Hardiness: excellent
Growth Rate: moderate
Life Span: long
Elevational Range: to 7,500 feet
Soil Conditions: tolerates alkaline
Possible Insect Problems: unimportant
Possible Disease Problems: unimportant
Wildlife Value: good: food value; excellent: cover for small game and songbird nesting
Seasonal Color: not conspicuous
Miscellany: native; edible fruit for jellies; forms thickets

Taken from: Trees for Conservation, a buyer's guide, Colorado State Forest Service