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Birch, River (spp.)

Leaf Color Green
Fall Color Yellow

Leaf Identification

Type: Simple
Arrangement: Alternate
Venations: Pinnate
Margins: Double serrate
Shapes: Ovate and rhomboid
Length: 2in./5cm to 4in./10cm

Fruit Color Brown

The fruit is dry and elongated.

Environment

This plant tolerates some drought, flooding and a little salt. This plant will grow in dry to wet or submerged soil. Suitable soil is well-drained/loamy, sandy or clay. The pH preference is an acidic to slightly alkaline (less than 6.8 to 7.7) soil.

Landscape Uses

- Woodland garden
- Specimen

Attributes and Features

- Pest tolerant
- Attracts birds
- Attracts butterflies
- Inconspicuous blooms
- Inconspicuous fruit
- Fruit is edible by birds

Betula nigra

River Birch, Black Birch, Water Birch

Betulaceae (Birch)

Type Tree, woody plant

Hardy range 3B to 9A

Height 25' to 50' / 7.60m to 15.20m

Spread 25' to 35' / 7.60m to 10.60m

Growth rate Fast

Form Oval, pyramidal and upright or erect

Exposure Partial shade or partial sun to full sun

Persistence Deciduous

Bloom Color Brown

Bloom Time Spring and Winter

Native Habitat

Primarily alluvial soils in lower elevations along streams in the eastern US to north Florida.

Native to the following North American locales: Alabama, Arkansas, District of Columbia, Delaware, Florida, Georgia, Iowa, Illinois, Kansas, Kentucky, Louisiana, Massachusetts, Maryland, Minnesota, Missouri, Mississippi, North Carolina, New Hampshire, New Jersey, New York, Ohio, Oklahoma, Pennsylvania, South Carolina, Tennessee, Virginia, Vermont, Wisconsin, West Virginia

Crown, Branch and Twig

This plant is symmetrical with a medium texture and has a dense crown.

This plant's bark is very showy.

Branches or twigs are thin.

This plant is often grown with multiple trunks.

This plant can be trained to a single trunk.

Little pruning is required.

This plant has low flammability. National champion is 111 x 96 feet in Alabama.



Culture Notes

It is very well-suited for planting along stream banks where it is native and in other areas which are inundated for weeks. River birch tolerates low soil oxygen, flooding, and clay soil but needs moist conditions. The tree requires an acid soil, otherwise it becomes chlorotic. River birch is hardy, grows rapidly even as far south as in zone 8, but tends to be short-lived (30 to 40 years) in many urban settings in the south, possibly due to inadequate water supply. Situate the tree so it receives adequate water and allow for plenty of soil for root expansion. Trees cast light shade under the canopy making it easier to grow turf under the tree than under other trees with a denser canopy. Bark in the shade may not generate the light color that is considered so attractive. Birch pollen causes significant allergy in some people but pollen is produced for only a short period and in small amounts.

Plants serve as hosts for butterfly larvae.

Large trees are prone to trunk decay, especially if they were inappropriately pruned. Not a tree to plant and forget due to irrigation requirement in the southern portion of its range unless there is a subsurface clay layer or other strata that allows for access to a water supply. Plants often do poorly in zone 9 in the eastern US. Deer browse the twigs and foliage in all regions. It is the only American birch that fruits in the spring. Trees are very susceptible to damage from ice loads. Not unlike the elms, small twigs and branches drop regularly from the canopy.

The tree is not as susceptible to bronze birch borer as are other birches. It is not particularly adapted to heat but can make a nice tree in USDA hardiness zone 8b, possibly 9a in the eastern US if provided with irrigation and plenty of soil space. Plants perform best on north facing slopes in the Rocky Mountain region. Consider using Dura-Heat™ in the deep south because it appears more adapted to the heat than other cultivars; plants grow faster than Heritage. Dura-Heat™ has leaves staked closer on the twig than Heritage so plants appear more dense. Parent plant of this Dura-Heat is reported to be from Florida, but no one can be certain. 'Studetec' Tecumseh Compact™ is a compact form reaching perhaps 15 feet tall with a semi-pendulous habit. It is cold hardy into USDA hardiness zone 3.

Wood is considered diffuse porous meaning that there is little difference in size of pores between spring and summer wood. Birches in containers tolerate moderately-high soil salt solutions up to about 6 mmhos/cm according to the saturated media extract method.

Birches are considered poor compartmentalizers of decay. This means decay can develop and spread quickly following mechanical injury from construction activities near the tree, vandalism, storm damage, or improper pruning cuts. Seeds are attractive to birds including goldfinch and red poll.

Maintain adequate mulch area

Clear all turf away from beneath the branches and mulch to the drip line, especially on young trees, to reduce competition with turf and weeds. This will allow roots to become well established and keep plants healthier. Prune the tree so trunks and branches will not rub each other. Remove some secondary branches on main branches with included bark. This reduces the likelihood of the main branch splitting from the tree later when it has grown to become an important part of the landscape. Locate the tree properly, taking into account the ultimate size, since the tree looks best if it is not pruned to control size. The tree can enhance any landscape with its delightful spring flush of foliage. It can be the centerpiece of your landscape if properly located.

Tree establishment specifications

Choose good quality trees for planting. The most common cause of young tree failure is planting too deep. In most instances, the point where the top-most root in the root ball originates from the trunk (referred to as the root flare zone or root collar) should be located just above the soil surface. You may have to dig into the root ball to find the root flare. If there is nursery soil over this area, scrape it off. Never place ANY soil over the root ball. The planting hole should be at least twice the width of the root ball, preferably wider because roots grow best in loose soil. In all but exceptional circumstances where the soil is very poor, extensive research clearly shows that there is no need to incorporate any amendments into the backfill soil. Simply use the loosened soil that came out of the planting hole. Simply planting with the topmost portion of the root ball slightly higher than the surrounding soil might still install the tree too deep - be sure to locate the root flare.

Weed suppression during establishment is essential. Apply a 3-inch thick layer of mulch to at least a six-foot diameter circle around the tree. This area should be at least two feet in diameter for each inch of tree trunk diameter and maintained during the establishment period. Apply a thinner layer of mulch directly over the root ball but keep it at least 10 inches from the trunk. This allows rainwater, irrigation and air to easily enter the root ball and keeps the trunk dry. Placing mulch against the trunk and applying too thick a layer above the root ball can kill the plant by oxygen starvation, death of bark, stem and root diseases, prevention of hardening off for winter, vole and other rodent damage to the trunk, keeping soil too wet, or repelling water.



Regular irrigation after planting encourages rapid root growth that is essential for tree establishment. Trees provided with regular irrigation through the first growing season after transplanting require about 3 months (hardiness zones 9-11), 6 months (hardiness zones 7-8), or one year or more (hardiness zones 2-6) per inch of trunk diameter to fully establish roots in the landscape soil. Trees in desert climates may take longer to establish. Trees that are under-irrigated during this establishment period (and most trees are) often require additional time to establish because roots grow more slowly. Be prepared to irrigate through the entire establishment period, especially during periods of drought.

Irrigation also helps maintain and encourage the desirable dominant leader in the tree canopy on large-maturing trees. Instead of a dominant leader, trees that are under-irrigated during the establishment period often develop undesirable, low, co-dominant stems and double leaders that can split from the tree later.

Unlike established plants, which do best with deep, infrequent irrigation, research clearly shows that recently transplanted trees and shrubs establish quickest with light, frequent irrigation. For trees planted in spring or summer, provide one (cooler hardiness zones) to three irrigations (warmer hardiness zones) each week during the first few months after planting. Daily irrigation in the warmest hardiness zones provides the quickest establishment. Following the initial few months of frequent irrigation, provide weekly irrigation until plants are fully established. With every irrigation, apply one (cool climates) to two (warm climates) gallons of water per inch trunk diameter (e.g. 2 to 4 gallons for a 2-inch tree) over the root ball only. In most landscapes that receive more than 30 inches of rain or irrigation annually, if the mulch area is maintained weed-free, irrigation does not need to be applied outside of the root ball. Never add water if the root ball is saturated.

In cooler hardiness zones, in all but the driest years, irrigation of spring- and summer-planted trees usually can be discontinued once fall color has begun. Irrigation of fall planted trees, however, should be continued until foliage has dropped from the deciduous trees in the region. In warmer climates, irrigate fall-and winter-planted trees as described for the spring- and summer-planted trees.

In drier, desert climates there is benefit to be gained from applying additional irrigation outside of the root ball area. This is best done by making a large diameter berm four to six inches high, then filling it with water so it percolates into the soil. For the first two years, irrigate twice each week through the spring, once per week in summer provided monsoons arrive, and twice each week again in fall if it remains warm. Taper off watering to once or twice each month in winter and resume twice weekly next spring. For years three to five, water twice per month in spring, summer, and fall and once or twice per month in winter. During years five through seven, water once every three weeks in warm weather and once every six weeks in winter. After this, the drought-tolerant desert trees should be able to survive on natural rainfall.

Trees with good, strong structure need no pruning at planting, except to remove broken twigs. Do not remove branches to compensate for root loss - research has shown that this can be detrimental to establishment.

Balled and burlapped trees transplant fine spring or fall.

Pests, Diseases and Damaging Agents

Pests: Almost unique among the birches in that it is resistant to bronze birch borer (not immune) and leafminers. This species has been shown to be resistant to borers, but not Japanese beetles, in tests at the University of Kentucky. Lacebugs can cause leaf stippling, bronzing and defoliation. Resistant to Japanese beetles. Mistletoe can infest river birch - prune out infestation several feet below mistletoe. Application of too much nitrogen has been reported to increase susceptibility to insect damage. Asian long-horned beetle, a new pest in certain regions of the country since 1996, attacks and kills trees. Tunneling by beetle larvae girdles tree stems and branches. Potentially resistant trees include *Metasequoia* (Dawn Redwood), *Taxodium* (Baldcypress), *Corylus colurna* (Turkish Hazelnut), *Quercus* (Oak), *Gleditsia* (Honeylocust), *Tilia* (Linden), *Ginkgo*, and *Gymnocladus dioica* (Kentucky Coffee Tree).

Diseases: Leaf spots; chlorosis on soils with a high pH.

The "Little-leaf" syndrome is not well understood - cause is unknown for sure. This problem is bad enough in container nurseries to prevent container production in the deep south (southern Georgia and Florida); field production does not appear to be a problem in the deep south.

This genus is sensitive to sulfur dioxide air pollution. Sources of sulfur dioxide air pollution include fossil fuel combustion, smelting and refining of ores. Damage usually is confined to urban areas near power stations. Acute injury typically occurs when plants are exposed to high concentrations for a short period. In deciduous plants, tissue between veins on the upper and lower side of the leaf turns yellow, white or tan-brown. The veins usually remain green. In conifers, the tips of needles turn reddish-brown. As damage accrues, the discoloration progresses toward the base of the needle. Deciduous plants exposed to low concentrations of sulfur dioxide for long periods of time (chronic exposure) show a general chlorosis or yellowing of the foliage. Needles on conifers



exposed to chronic sulfur dioxide turn yellow and drop from the tree prematurely. If you suspect sulfur dioxide has injured this plant, look in the neighborhood for blackberry, raspberry, pumpkin, or squash plants. These serve as indicator plants for sulfur dioxide air pollution damage because they are very sensitive to it. Other sensitive plants include apple, birch, white pine, poplar, blue spruce and zinnia. Plants that resist injury include box-elder, dogwood, black gum, juniper, maple, spruce and sycamore.

