

CONSIDER MATURE CHARACTERISTICS WHEN SELECTING BIRCH VARIETIES

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Birch (*Betula*) is one of the most extensively used yet least understood trees found in the landscape today. One would guess that a clump white birch is incorporated into every landscape from the Northeast to the Midwest. Generally, birch prefer a high water table, well-drained soil, being found native near lakes, streams, and edges of swamps. The most widely used native birch include Sweet, River, Paper, and Gray Birch.

Sweet Birch (*Betula lenta*), of all the natives, is the most underutilized. Ultimately, in the landscape, it reaches 40 to 50 feet in height with a 35-foot spread. When young, it has a pyramidal habit of growth which, at maturity, is an upright oval. The summer foliage is a bright green. Fall color is an outstanding yellow, in fact, it is most colorful during the fall. The bark is a reddish-brown (cherry-like), that becomes scaly brown plates at maturity with a wintergreen odor. The preferred soil is a deep, well-drained soil, but Sweet Birch thrives under a variety of soil conditions, including sandy ridge with high water table. The most significant insect problem is Birch Skeletonizer with Bronze Birch Borer and Birch Leaf Miner of little importance. Diseases are inconsequential. In the landscape, this specimen tree is outstanding in naturalized areas of parks or commercial landscapes. It develops the most outstanding fall color of all birch.

River Birch (*Betula nigra*) has a native range from Massachusetts to Florida and as far west as Minnesota. It is usually found in moist, well-drained soils, being short-lived (100 years), early in plant succession, indicating it is an intolerant species, e.g., requires 50 percent or more sun. Although it prefers moist soils, it tolerates a wide range of conditions from moist to extremely dry and gravelly. This medium-sized tree reaches 40 to 60 feet in height with a 40 to 50 foot spread. It is pyramidal when young, becoming oval to round at maturity. The bark, when young, is cinnamon in color, exfoliating in sheets but, as it matures, is dark brown with deep plates. The summer foliage is a dark green with fall color being nonexistent. Its leaves fall early and rarely develop effective color. If you are looking for a medium tree with light bark, River Birch is effective for only 20 to 25 years and then must be removed (it is not a substitute for White Birch *B. papyrifera*). It is free of insect problems with anthracnose being the only significant disease. It grows rapidly and is a good specimen tree, multiple or single stem, for large-area landscapes, golf courses, or parks.

Paper Birch (*Betula papyrifera*) is a cold, Northern New England through Michigan tree. It will not tolerate a site or area where the mean daily temperature in July is above 70° Fahrenheit. Paper Birch is pyramidal when young, becoming an upright oval tree, 50 to 70 feet tall and 30 feet in width, at maturity, while holding lower branches clear to the ground. It must be pruned in August as it is a profuse bleeder in the spring. *B. papyrifera* should be pruned when branches are not more than two inches in caliper as it is a poor

compartmentalizer and heartwood rot is a real problem if branches larger than that are pruned. It thrives in well-drained soils with a high water table (swamps or river banks). If White Birch is grown in droughty soils, it soon loses vigor and succumbs to Bronze Birch Borer, its most significant problem. The brownish bark, when young, becomes a chalky white after five to six years, exfoliating in large strips. It is a good companion tree with oak and pine. The summer foliage is a dull green with fall color being a bright yellow. One must be aware there is a tremendous individual variation in the development of fall color. White Birch is an outstanding specimen tree or can be used in mass plantings, parks, and commercial landscapes. Often it is grown as clump birch for residential landscapes, but, one must realize, it will probably die within 15 to 20 years. Further, every spring, it should be sprayed for Birch Leaf Miner and, after the first 10 to 12 years, sprayed for Bronze Birch Borer.

Gray Birch (*Betula populifolia*) is native to New England and New York. It has a narrow, upright habit, reaching only 20 to 40 feet in height, at maturity, with a 10 to 20 foot spread. In the wilds, it is normally multiple-stemmed and suckers profusely from the roots, producing a thicket. Gray Birch thrives in sandy, infertile soil, wet to dry. The bark becomes a good

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Bark appearance can change with age in both color and texture.

chalky white but doesn't exfoliate. The wood is of little value but as a home landscape tree or small tree for golf courses or commercial landscapes, it is outstanding. It is often found associated with White Pine. It is susceptible to Birch Leaf Miner but is relatively resistant to Bronze Birch Borer. As with all native birch, it is damaged from salt spray (sodium chloride) or salt applied to the soil. Little pruning is needed or desired as, again, Gray Birch is a poor compartmentalizer and heartwood rot can be a problem.

European Birch (*Betula pendula*) looks like our native White Birch but is particularly susceptible to Birch Leaf Miner and Bronze Birch Borer. *B. pendula*, as reported by Kennedy and Nielsen, is so susceptible to these insect problems that it should not be planted in many Midwestern landscapes (Wisconsin, Ohio, Michigan, Illinois). When planted where it will survive, it will reach 40 to 50 feet in height with a 25 to 30 foot spread. The habit of growth is pyramidal, when young, becoming oval, at maturity, with pendulous branches. The tight white bark becomes marked, at maturity, with deep black fissures. Summer foliage is a glossy green with fall color being a poor dull yellow if it develops at all. It grows best in fertile soils. Pruning should be considered only during August as heartwood rot can easily be introduced when pruning. There are many cultivars of European Birch, but "Youngii" is the most outstanding and durable. Its one dominant characteristic, in addition to the pendulous habit, is no central leader.

Many Asian birches have been reported by Nielsen, Smith, and others to exhibit tolerance or resistance to Bronze Birch Borer. They include Monarch Birch, Japanese Birch, and "Szechuan" Birch. I am including them only in the hope that more will be tried throughout the Midwest.

Monarch Birch (*Betula maximowicziana*) reaches an ultimate height of 40 to 50 feet in the United States but in native Japan, it is often found over 100 feet in height. It has a round habit of growth with dense foliage. The leaves are dark green in summer with slight yellow fall color developing. It is rapid growing and displays good tolerance to urban conditions. The tight bark is a chalky white, similar to our native White Birch. Monarch Birch has been reported by Smith and Kozel as being resistant to Bronze Birch Borer. This tree is probably a hybrid, as it doesn't fit the classic taxonomic description. Nielsen, at OARDC, has recently reported true Monarch Birch species resistant to Bronze Birch Borer. Only time will tell if this resistance or tolerance holds up.

Japanese Birch (*Betula platyphylla japonica*) reaches 40 to 50 feet in height with a pyramidal habit of growth. The bark is a good clear white. The leaves are dark green in summer with little or no fall color. Dr. Ed Hasselkus, at University of Wisconsin, has reported this and "Szechuan" Birch as showing good resistance to Bronze Birch Borer. "In fact, when many other birches have died out, these two seem to continue."

"Szechuan" Japanese Birch (*Betula platyphylla japonica* "Szechuanica") is somewhat open when compared to Japanese Birch but maintains a good central leader. The leaves are a blue-green with fall color being nonexistent. Although this birch prefers moist soils, it seems to thrive when grown in turf and on dry sites.

When planting birch, one should remember they are relatively short-lived. Most *Betula* thrive in moist, well-drained, high-water table soils. Ranking from least susceptible to most susceptible to Bronze Birch Borer, they are Sweet, River, Gray, Paper, and European Birch. Pruning, when considered, should be done only in August. Birch is a profuse bleeder and poor compartmentalizer. Shigo has clearly shown that summer (August) is a good alternative and probably the prime time to prune trees which are known bleeders. Birch adapt well to our many conditions but due to Bronze Birch Borer, one should only use tolerant or resistant types. Further, nurserymen should inform the homeowner, *Betula* are relatively short-lived (25 to 30 years). Although there has been extensive work done on developing Bronze Birch Borer resistant trees by Nielsen and Smith at OSU, Cole Nursery in Circleville, Ohio, and Ed Hasselkus at the University of Wisconsin, only time will tell how these reported resistant trees will survive the landscape.

Birch can be a real asset in every landscape, but one should realize, first, they are relatively short-lived and require a high degree of maintenance. Further, Gray Birch is the smallest of all the birch, thriving on essentially sterile, sandy soils. Birch, in general, do not compete well with grass; therefore, planting with ground covers should be considered. And, lastly, high water table soils or frequent watering is needed if birch are to be kept healthy and free of Bronze Birch Borer. **WTT**

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