Alternatives to Borer–Susceptible Birches

By Roy Farrow

In recent years, the population of bronze birch borer (BBB), *Agrilus anxius*, has been on the rise in our region, leading to the demise of many of our beloved birch trees. The hardest hit birches are the non-native species, which are “ecologically naïve” to this native North American wood-boring beetle. Birch species whose native range overlaps with that of the BBB have evolved some resistance to it. These include *Betula papyrifera* (paper birch), *B. lenta* (sweet birch), *B. alleghaniensis* (yellow birch), *B. populifolia* (grey birch), and *B. occidentalis* (water birch). *Betula nigra* (river birch) is considered near-immune to colonization by BBB and is rarely attacked.

The U.S. Forest Service points out that although all birch species are susceptible to attack, only stressed and unhealthy native trees are at risk of colonization. Vigorous U.S. native trees can produce callus tissue surrounding a BBB larva, causing the insects to die before pupation. Tree vigor depends on a minimum of stress. Birch trees require cool, moist soils—and urban soil conditions often do not meet those standards. Even short periods of heat and drought can stress birch trees, and their shallow roots are easily damaged by soil disruption. Old age, wind breakage and root competition from nearby trees add to the list of tree stressors. For those who are unwilling to submit to a birch-less existence, choose wisely and manage diligently.

On the positive side, every loss is an opportunity in horticulture. When looking to replace a birch with another species, it is important to consider the niche that it was occupying, along with any other garden needs of a newly planted tree. When selecting and siting a new tree, I use three decision-making criteria.

**CRITERIA FOR CHOOSING AN ALTERNATIVE**

**Ecological Depth**

No tree should be an island. As Barry Commoner put it in his first Law of Ecology: “Everything is connected to everything else.” Your garden is an ecosystem, and all of our individual, personal ecosystems make up the greater urban forest. The degree to which your new plant benefits its local wedge of the world should be maximized.

Overall, *Betula* species are wonderful wildlife trees. The list of birds and animals that feed
from birch trees is long: Sapsuckers feed on the sap, while other woodpeckers feed on any grubs living in the wood. Songbirds such as Pine Siskins and Chickadees eat the seeds. Birches often host small insects, which in turn support populations of beneficial insects and insect-gleaning birds. Birch foliage provides food for the larvae of lepidopterans, such as Mourning Cloaks, Tortoiseshells and Dusky-wings (at least 80 species!). Due to their high-nutrient litter, birch trees are known to convert mor humus soils, low in microorganisms, to mull humus soils, rich in invertebrate life. Any tree seeking to replace a birch has a lot to live up to!

**Functionality**

This criterion is often summed up as “right plant, right place.” I find that people often do not spend enough time considering this basic tenet of sustainable gardening. Birch trees generally favor plenty of sun on their crown with their roots in cool, moist soil. If you have lost a tree to BBB, it is possible that your tree was predisposed to invasion due to a mismatch with the site conditions. As gardens grow, site conditions change. Even an originally well-sited tree may eventually succumb to competition as the neighboring plants grow along with it. Perhaps irrigation was not provided during a droughty spell because the tree was thought to be “established.”

The reality of your planting site must match the needs of your replacement plant well. Though the crown of your 30-year-old birch was receiving full sun, your five-foot-tall new addition may never thrive in the resulting shadowy pocket. Similarly, the rich and roome root zone that the original tree enjoyed may now be jealously dominated by the surviving old-guard trees of the garden.

Also, keep climate change in mind. Though local effects are difficult to predict, the climate models for our region indicate a rise in air temperatures, a decrease in soil moisture levels, and a lengthening of the growing season. Trees from warmer climes that were once tricky to grow here may make better replacements in years to come.

**Aesthetics**

Your new tree should be something that pleases you, inspires you, calms your mind or makes you giddy with delight. If you cannot replace the tree you lost with an exact replica, figure out which aspects of the tree you truly enjoyed and would like to see in your new planting. Also, think about what new features you might like to bring in with your next addition to the garden.

Though birch trees have many attractive features—such as pleasant fall color and open, airy canopies—the most prominent attribute that motivates people to plant them is their gorgeous white bark. Unfortunately, this feature seems to be the defining trait of the BBB-affected birches. *Betula pendula* (European white birch) and *B. utilis* var. *jacquemontii* (Himalayan white birch) are the two most commonly planted amenity trees for white bark—and, as their names suggest, neither is native to North America.

**BEAUTIFUL, BORER-RESISTANT AMERICAN BIRCHES**

*Betula papyrifera* (paper birch) is another birch displaying beautiful white bark. It grows to between 50 and 70 feet tall and produces good fall color. Paper birch is native to northern North America—including our region—and has evolved moderate BBB resistance. If sited well, with maintained vigor, paper birch should provide years of beauty and ecological benefits.

*Betula nigra* (river birch) from the eastern U.S. is a truly phenomenal garden plant. Growing quickly up to 60 feet tall, it takes a more burlesque approach with its bark. Instead of a smooth and demure white, the river birch’s silvery-white bark peels gratuitously to reveal pinks, salmons and cinnamon-browns underneath. The species is adaptable to many soil types, except for those with alkaline pH. River birch also is considered to be the most heat-tolerant of the North American native birches, a possibly advantageous trait considering climate change.

Dwarf and weeping cultivars are available. The cultivar *B. nigra* ‘Cully’, also known as the Heritage® birch, is a Great Plant Picks (greatplantpicks.org) tree selected for its richly colorful peeling bark. We recently planted a specimen by
the Arboretum Loop Trail, where it intersects with the Birch Parking Lot.

**ALTERNATIVES TO BIRCHES**

Following are short profiles of birch alternatives. Most feature attractive bark, while some also offer other traits associated with birches—such as good fall color; a light, airy canopy; and good resources for wildlife.

*Acer griseum* (paperbark maple) is well known for its gorgeous, peeling, mahogany bark and stunning, orange–and–red fall color. A small tree from China—and actually an endangered species there—it grows to about 25 feet tall and produces trifoliate green leaves (divided into three leaflets) with silver undersides. The tree does well in full sun, and all but the most compacted urban soils. As with most maples, its flowers, buds and seeds are eaten by a variety of birds and small mammals.

*Alnus rubra* (red alder) may be the most under–used ecological workhorse in designed gardens. Native to the Pacific Northwest, it’s a pioneer species that specializes in colonizing poor and disturbed soils. Alder root nodules host *Frankia alni*, a nitrogen–fixing bacteria that feeds the tree and enriches the soil. The leaf litter of red alder is particularly nutritious and helps support an abundance of soil and plant life.

*Alnus rubra* grows quickly in its youth and can reach 25 feet tall within 10 years, before slowing to a more reasonable pace. Its foliage is intolerant of shade, and this leads to an open, airy canopy, which in turn provides good viewing of the smooth, light–grey bark that ages to white—due to the prevalence of lichens. In spring, the male catkins elongate before the leaves arrive, and in fall the cones persist on the twigs. The seeds of alders are an important food source for Goldfinches, Chickadees, and other seed–eating birds in our area.

For smaller gardens, both *Cercis canadensis* (eastern redbud) and *Cercis siliquastrum* (Judas tree) provide a lush, airy feel—not to mention a stunning display of brilliant–pink pea flowers in the spring. *Cercis canadensis* ‘Forest Pansy’ is a deep–purple–leafed cultivar. Both species top out at about 25 feet tall and boast good fall color. *Cercis* species prefer moist soils and will require summer irrigation if used in a dry landscape.

No discussion of beautifully barked trees would be complete without mentioning *Eucalyptus* (gum tree), from Australia. Currently, only a small handful of the genus’s 660 species can thrive in the cold and wet of the Pacific Northwest, but more may become available to us as the climate warms (such as my personal favorite, *Eucalyptus nicholii*, an almost–hardy, narrow–leafed, willowy tree with foliage that smells like peppermint when crushed).

Growing to 20 feet, the beautiful *Eucalyptus pauciflora* ssp. *niphophila* (snow gum) is uncommon around Seattle, even though it’s exceptionally hardy; only the harshest winters will cause damage—and then only to smaller branches. Although *pauciflora* translates to “few–flowered,” the snow gum can put on a wonderful flower display in spring, providing
resources to early pollinators. The bark of the snow gum is smooth, typically white to light grey, and exfoliates in patches to give a mottled appearance. The evergreen leaves are blue-grey and concentrated with the compound cineole (a.k.a. eucalyptol), which gives them their signature scent.

*Lagerstroemia* (crapemyrtles) are known for beautiful, exfoliating bark and amazing fall color. Depending on the species or cultivar, bark displays come in a mix of pinks, tans and browns. Native to Southeast Asia and northern Australia, crapemyrtles generally prefer hot, sunny climates, however more and more hybrids are appearing that perform well in our region. The showy flowers arrive in late summer to early fall, depending of the warmth of the summer and the microclimate of the tree. Flower color ranges from white to pink to lavender all the way to deep red, and form ranges from wide-spreading shrubs to 25-foot-tall, upright trees. Crapemyrtle seeds are voraciously consumed by House Finches, Dark-Eyed Juncos, and other birds.

*Parrotia persica* (Persian ironwood) is another tree species that deserves to be planted more often in our gardens. Growing between 20 and 30 feet tall, it features silvery bark that—on mature specimens—exfoliates to reveal plates of green, tan and white beneath. In spring, the tree is covered with interesting, red, apetalous flowers. And in fall, the foliage color runs the gamut from orange to purple. Being native to northern Iran and the Caucasus region, it is quite drought tolerant when established.

Another regionally native tree worth considering is *Populus tremuloides* (quaking aspen). Growing up to 50 feet tall, it offers beautiful white trunks, small leaves that shimmy in the breeze, and wonderful yellow fall color. As with red alder and our native birches, its wildlife value is high. The foliage hosts Tiger Swallowtail and Viceroy butterflies, as well as sphinx moths. Many birds feed on the aspen seeds and insects attracted by the tree. Quaking aspen is not tolerant of urban pollutants, however, so this is not a tree for city centers.

Another genus known for outstanding bark is *Stewartia* (*stewartia*). The bark of *Stewartia pseudocamellia* peels off in thin plates revealing a reddish-brown and buff-colored mottle pattern akin to sycamore. *Stewartia monadelpha* displays fine-peeling reddish-cinnamon bark. Both species exhibit stunning fall color, typically a mixture of oranges to deep purples. Both prefer moist, well-draining soil and mature at about 40 feet. And both display large, camellia-like white flowers in early summer, a source of pollen and nectar for bees.

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