

Arboretum Review



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LEON C. SNYDER

Birch--species and cultivars

The native paper or canoe birch is familiar to everyone living in the upper midwest. The white bark that peels off in papery strips is the feature that makes this tree so attractive. Many other native and introduced birches are not so well known.

Two common insect pests make the growing of birches difficult. The bronze birch borer makes tunnels under the bark and causes irregular bulges on the twigs and branches. Trees often are killed as the result of this injury. The other insect pest is a leaf miner. This insect mars the beauty of the foliage but seldom does any permanent damage to the tree.

In nature most of the birches grow in cool, moist soil, either in lowlands or on north-facing slopes. Under these conditions, the bronze birch borer seldom does much damage. When birches are planted in compacted soils in the open, they are subjected to moisture and temperature stresses and become more susceptible to the bronze birch borer.

Little research has been done on the relative susceptibility of the various species and cultivars to the bronze birch borer. In the arboretum, we have planted many species and cultivars of both the native and introduced species. We have been evaluating these birches for their landscape effects and for their hardiness. Observations on borer damage have been made but no scientific evaluation of their susceptibility to either the borer or leaf miner has been made.

We have too many birches to cover each one in detail in this report. The following are the ones that we have had the most experience with:

Betula alleghaniensis (yellow birch)—This species is the largest of the birches. It is native from Quebec to Manitoba and in the south from West Virginia to Iowa. It grows in moist, rich woods and often can be found intermixed with black ash and tamarack in boggy places.

The yellow birch takes its name from the color of its bark. On young trees the bark is smooth, but as the trees mature, the bark peels in papery strips. On very old trees the outer bark turns dark and breaks into flat plates.

Other common names for the yellow birch are curly birch, hard birch, black birch, red birch, and silver birch. **Betula lutea** is another scientific name that is often used.

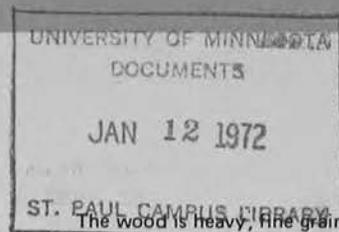
River birch (*Betula nigra*)



Sweet birch (*Betula lenta*)



Leon C. Snyder is director of the University of Minnesota Landscape Arboretum



The wood is heavy, fine grained and highly prized for making furniture. Another identifying characteristic of the species is the aromatic inner bark that has the flavor of wintergreen.

This species is growing well in the arboretum. It is planted at the foot of a north-facing wooded slope and at the edge of a boggy area. So far the trees have not been troubled by the borer.

Betula lenta (Sweet Birch)—This native of eastern North America has been fully hardy in our trials. Trees planted in 1961 are now about 25 feet tall. Young trees are densely pyramidal but they become open and round topped at maturity. The bark on young trees is smooth, shiny, and a dark reddish-brown color. On old trees the bark becomes almost black, and broken into large irregular plates. The twigs are slender, reddish brown, with a strong wintergreen taste. The fall color is a rich golden yellow color. No bronze birch borer injury has been observed on our plantings. This species can be grown either as a single stem tree or as a clump.

Betula nigra (River Birch)—This birch is native from Florida north into southern Minnesota and Wisconsin. In Minnesota it occurs along the Mississippi river bottoms as far north as Hastings. Although native in river bottoms where it can withstand spring flooding, it appears to grow as well or even better on the heavier upland soils. It has not done too well on sandy soils. At the Horticultural Research Center, trees were planted more than 30 years ago on moist soil at the edge of Lake Tamarack, and at the same time trees were planted on upland in a heavy clay soil. The trees have done well in each location and are now about 40 feet tall. At the arboretum, trees planted in 1961 are now about 30 feet tall and trees planted in 1965 are about 20 feet. These trees are growing in sod and have not received any special attention.

This tree can be grown either as a single stemmed tree or as a clump. The clump effect is especially attractive with this species. The reddish brown, exfoliating bark on young trees and on the branches of older trees gives a warm effect during the winter months with snow on the ground. As the trees mature the bark on the main stems thickens and turns black. The fall color is an attractive golden yellow.

This is one of the few birches that appears to have any resistance to the bronze birch borer. So far we have had no borer problems at the arboretum or at the Horticultural Research Center. Other researchers have made the same observation.

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Betula papyrifera (paper birch)—This is our native white-barked species. It is often called the canoe birch since this is the tree that the Indians used to build their birchbark canoes. This species with its various botanical varieties is found all the way across Canada and down into the Central and Northeastern States. In Minnesota, it is common throughout the natural wooded areas of the state.

In nature this species reaches its best development on north-facing slopes and in or around the edges of swamps. This suggests that the tree likes a cool, moist soil. Under favorable conditions, the trees reach a mature height of from 40 to 50 feet with a trunk diameter of a foot or more.

When planted in exposed sites or where the soil becomes dry and compacted, the paper birch is short-lived. Whenever the trees are under a moisture stress, they are more subject to borer damage. It is for this reason that many nurseries are reluctant to sell the paper birch or any of the white-barked species for planting in any but the most favorable sites.

Betula populifolia (gray birch)—This is a small tree native to northeastern North America. It commonly grows on poorer soils than the paper birch and is occasionally planted in this area. The bark is chalky white with

triangular black spots below each lateral branch. This tree has little to recommend it over the paper birch.

Betula verrucosa (European white birch)—This native of Europe and Asia Minor is perhaps the most widely planted of all of our birches. The taxonomy of this species is in a state of flux with many books listing it as either *B. alba* or *B. pendula*.

In general appearance, the typical species resembles our native canoe birch except that the branches are more slender and pendulous. Many horticultural selections or cultivars are on the market. These include: 'Fastigiata' with its columnar form; 'Gracilis' with its cut leaves and pendulous branches; 'Purpurea' with its purplish leaves and branches; 'Tristis' with its roundish head and slender, pendulous branches; 'Youngi' with its irregular form and drooping branches.

These cultivars are planted more often than the species but all are very susceptible to borer and leaf miner problems. 'Gracilis' and 'Tristis' have been best in our trials.

The following species are included in arboretum trials:

Not all of these birches have been checked for trueness to name. Since the source of many of our plants has been seed from botanic gardens and arboreta, it is quite possible that some of our plants may be of hybrid origin. We will continue to evaluate these birches for landscape uses and for insect and disease resistance.

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Species	Origin	Remarks
<u><i>B. x andrewsii</i></u>	Rocky Mountains	<u><i>B. papyrifera</i></u> x <u><i>B. fontinalis</i></u>
<u><i>B. alnoides</i></u>	S.W. China, Himalaya	white bark
<u><i>B. coerulea grandis</i></u>	Eastern North America	white bark
<u><i>B. costata</i></u>	Manchuria and Korea	white bark
<u><i>B. davurica</i></u>	Manchuria and Korea	white bark
<u><i>B. ermanii</i></u>	Japan and N.E. Asia	white bark
<u><i>B. fontinalis</i></u>	Rocky Mountains	shrubby tree, reddish-brown bark
<u><i>B. forrestii</i></u>	W. China	white bark
<u><i>B. fruticosa</i></u>	N. China	white bark
<u><i>B. glandulosa</i></u>	Alaska to Greenland	small shrub
<u><i>B. grossa</i></u>	Japan	cherry-like bark
<u><i>B. humilis</i></u>	Europe and N. Asia	small leaved shrub
<u><i>B. Jackii</i></u>	E. N. America	<u><i>B. pumila</i></u> x <u><i>B. lenta</i></u>
<u><i>B. jacquemontii</i></u>	W. Himalaya	white bark
<u><i>B. Kirghisorum</i></u>		white bark
<u><i>B. litwinowii</i></u>	E. Europe	white bark
<u><i>B. nana</i></u>	N. Europe, N. America	small shrub
<u><i>B. occidentalis</i></u>	W. N. America	wet soils
<u><i>B. potaninii</i></u>	W. China	shrub
<u><i>B. pubescens</i></u>	Europe and Siberia	white bark
<u><i>B. pumila glandulifera</i></u>	N. America	small bog birch
<u><i>B. x purpusii</i></u>	N.E. America	<u><i>B. alleghaniensis</i></u> x <u><i>B. pumila glandulifera</i></u>
<u><i>B. x sandbergii</i></u>	N. America	<u><i>B. pumila glandulifera</i></u> x <u><i>B. papyrifera</i></u>
<u><i>B. x turkestanica</i></u>	Turkestan	white bark
<u><i>B. utilis</i></u>	W. China, Himalaya	white bark

Agricultural Extension Service
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 University of Minnesota
 St. Paul, Minnesota 55101
 Roland H. Abraham, Director
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