Birch In The Landscape: The Good, The Bad, And The Ugly

Greg Morgenson
NDSU Woody Plants Program

The many cultivars and species of birch offer a striking addition to landscapes when sited and planted correctly and where the climate is suitable for their optimal growth.

Well cared for birch in home landscape settings provide attractive seasonal interest and traditional tree benefits.

Unique plant forms, bark characteristics, and foliage color are offered.

The varying bark of birch species
So..... What happened to my beautiful birch?

Planted outside of its optimal growing conditions, stress is the result, decline and death follow.

Moisture stress, high soil pH, reflected heat, plant competition all contribute to decline.

Birch are found growing naturally in northern or mountain forests with evenly moist, shaded cool soils and slightly acidic to acidic soil pH. Generally growing on sunny sites with similar site requiring species and minimal ground vegetation competition. Trunks are often shaded for a portion of the day.

In urban landscapes we tend to plant birch in very open locations, full sun, and often with reflected heat. Turf is grown to the base of the tree which results in sod competition and bark damage from mowers and string trimmers.

Birch Problems in the landscape

Bronze Birch Borer

Chlorosis on high pH soils

Birch Leafminer

Bronze Birch Borer (BBB)

- Bronze birch borer is native to North America in our birch forests.
- North American species have poor to fair to very good tolerance to BBB.
- BBB tolerance is species and population dependent.
- European and most Asian species are very susceptible to BBB infestation and death.

Bronze Birch Borer Damage and Tree Death

Upper branch dieback
D shaped exit holes
Woodpecker damage
What can we do to avoid BBB caused decline?

- Plant tolerant species or cultivars of birch, avoid European and most Asian species.
- Place in an optimal planting site- mulched, root shaded site, north or northeast sides of homes.
- Avoid open, dry, full sun planting sites on the south and southwest of homes.
- Control sod completion, mulch, mulch, mulch.
- Avoid damage by mowers and string trimmers. Birch are very thin barked trees.
- Avoid granular herbicides, weed and feed type, in the root zone area.
- Keep pruning to a minimum to avoid tree stress and to help maintain trunk and limb shading.

The warmer, drier, and more exposed the site, vigor will decline and stress will occur!

Additional Birch Problems:

Chlorosis- the tree is not adapted to the planting site soil conditions.

What to plant, what to not plant:

- Avoid European white birch and cultivars of such as pendula and cutleaf weeping. These plants are highly preferable to bronze birch borer. The purple leaf cultivars are selections or hybrids with European white birch. Many Asian species are also very susceptible to BBB.

- North American species which have evolved with BBB have some low tolerance to very high tolerance in certain species and cultivars. Examples include paper birch, gray birch, river birch, yellow birch, sweet birch.

- Avoid European white birch and cultivars of such as pendula and cutleaf weeping. These plants are highly preferable to bronze birch borer. The purple leaf cultivars are selections or hybrids with European white birch. Many Asian species are also very susceptible to BBB.

Paper Birch- *Betula papyrifera*

40-65’ Height, 25-40’ Width

- Native across the Canadian provinces and in many northern states in the US. Native to North Dakota.
- Generally some tolerance to BBB until placed under stressful growing conditions.
- Populations from the northern Midwest are those Best generally suited to North Dakota conditions.
Paper Birch Cultivars

- Renaissance Reflection®
- Renaissance Oasis®
- Avalanche®
- Prairie Dream®
- Chickadee

Prairie Dream® Paper Birch

A highly BBB resistant selection by the NDSU Woody Plant Program originating from a native population in the Killdeer Mts. of North Dakota.

Northern Tribute® River Birch

NDSU Woody Plant Program release, excellent bark and soil pH tolerance

River Birch- *Betula nigra,*
40-60’ Height, 30-45’ Width, Use Minnesota or Wisconsin origin plants if possible.

*BBB Resistant*
Iron chlorosis on high pH soils, compacted clay soils

Asian White Birch, *Betula platyphylla*

- Asian cold hardy birch species
- Well adapted to North Dakota’s cold winters
- Soil pH tolerance on higher pH soils
- Susceptible to BBB under stressful planting conditions
Dakota Pinnacle® Asian White Birch
Unique upright growth form in the landscape
40-50’ Height, 15-20’ width
NDSU Release

Parkland Pillar® Asian White Birch
25-30’ Height, 6-9’ Width
TC Variant of Dakota Pinnacle

Other Birch Possibilities to trial:
Yellow Birch, Betula alleghaniensis
Minnesota to northeast US native, fair to good BBB tolerance

NDSU Absaraka Horticulture Farm - Common Garden Birch Planting for Long Term Evaluation

Korean Birch, Betula costata
30-35’ Height, 20-25’ Width
Soil pH adaptable
- Wonderful exfoliating bark
- Reported to have some tolerance to BBB

Dahurian Birch, Betula davurica
- Also known as East Asian or Asian black birch
- Soil pH adaptable to 8.2
- Eyecatching exfoliating bark
Other Birch Selections from the NDSU Woody Plant Selection and Improvement Program:

- Cinnamon Curls® Korean Birch
  - 9x9' Size at 30 years age

- Emerald Beacon™ Tianshan Birch
  - Betula tianschanica

NDSU Woody Plant Improvement Program

Dr. Todd West - todd.p.west@ndsu.edu
Greg Morgenson - gregory.morgenson@ndsu.edu

All photos Greg Morgenson except where noted