Arboretum
UNIVERSITY OF WISCONSIN–MADISON

Alternatives to Ash: Native Trees for Southern Wisconsin
Compiled by the UW–Madison Arboretum
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The UW–Madison Arboretum recommends planting native tree species to replace ash trees (*Fraxinus* spp.) infested with emerald ash borer or growing in quarantined areas. Compared with non-native species, native species are adapted to particular soil and climate conditions, require less maintenance (thus reducing the need for fertilizers and pesticides), have greater survival rates, and provide food and habitat for wildlife. Shading, slope, aspect, soil type, tree form, and size should all be considered when selecting an appropriate replacement or alternative native tree. Site-specific considerations will also guide your choices. Trees planted along sidewalks, streets, driveways, or other paved surfaces face different stresses from those in open yards or forested areas. Soil compaction, salt, pollution, and drought conditions, as well as overhead wires or other structures, are factors for street trees.

Trees on this list are native to southern Wisconsin. We have selected them—based on size and form, attractiveness, diversity of site requirements, tolerance for disturbance, and wildlife value—to help you find trees that suit your site characteristics and personal preference. Cultivars are not included.

WisFlora (wisflora.herbarium.wisc.edu) is a comprehensive online database of the flora of Wisconsin. It is a collaborative effort of the UW–Madison herbarium, UW–Steven's Point herbarium, and other Wisconsin herbaria. Search WisFlora by genus and species of the trees listed below for in-depth information.

Other useful resources:
Landscape Plants of the Upper Midwest – UW Extension interactive guide to regional plants
USDA Plants Database – comprehensive standardized information about U.S. plants

BIRCH
River birch (*Betula nigra*)
Size / form: 50–75′ tall by 35–50′ wide; pyramidal to round
Site requirements: full sun; wet to moderate, slightly acidic soil, 6.5 pH or less
Growth rate: fast
Attractive features: red-brown exfoliating bark; yellow fall foliage
Wildlife value: birds feed on seeds; excellent cover for birds and other animals
Disturbance tolerance: tolerant of flooding and dry conditions; resistant to soil compaction

HACKBERRY
Northern hackberry (*Celtis occidentalis*)
Size / form: 75–90′ tall, 40–60′ wide; open-grown umbrella-like form
Site requirements: full sun to partial shade; tolerates a wide range of soil types from dry to sandy to compacted heavy clay, pH 6.6–8.0
Growth rate: moderate to fast
Attractive features: wide, corky, knobby bark; purple-black fall fruit
Wildlife value: birds and mammals use tree for food, cover, and nesting

Disturbance tolerance: tolerant of drought, wind, and wet soils; sensitive to salt

HICKORY

Bitternut hickory (*Carya cordiformis*)
Shagbark hickory (*Carya ovata*)
Size / form: 75–100′ tall, open round to oblong crown
Site requirements: full sun to partial shade; tolerant of many soil types, pH 5.6–8.0
Growth rate: slow
Attractive features: yellow fall foliage
Wildlife value: birds and mammals feed on the large nuts
Disturbance tolerance: intermediate sensitivity to compaction
Additional resources:

HONEYLOCUST

Honeylocust (*Gleditsia triacanthos*)
Size / Form: 50–75′ tall, 40–50′ wide; irregular, plumelike form
Site requirements: full sun; tolerant of compact, heavy clay soil, pH 6.1–7.5
Growth rate: fast
Attractive features: bright golden yellow fall color
Wildlife value: seed pods eaten by birds and mammals
Disturbance tolerance: tolerant of drought, salt, and periodic flooding

HORNBEAM

American hornbeam, musclewood (*Carpinus caroliniana*)
Size / form: 35–55′ tall by 2/3 of height (20–35′) wide; oval to round
Site requirements: prefers partial shade, will grow in full sun; slightly acid to neutral soil, pH 6.1–7.5
Growth rate: slow
Attractive features: grey, sinewy bark; orange to deep red fall foliage
Wildlife value: good food source and habitat for songbirds and waterfowl
Disturbance tolerance: sensitive to soil compaction and drought

IRONWOOD

Ironwood, Eastern hop-hornbeam (*Ostrya virginiana*)
Size / Form: 50′ tall, 35′ wide; broad crown of small spreading branches
Site requirements: full sun to shade; moderate to dry soil, pH 6.1–8.0
Growth rate: slow to moderate
Attractive features: scaly bark, hop-like seed; pale yellow fall foliage
Wildlife value: food for birds and mammals
Disturbance tolerance: sensitive to compaction

KENTUCKY COFFEE-TREE

Kentucky coffee-tree (*Gymnocladus dioicus*)
Size / Form: 50–75′ tall, 40–50′ wide; oval, ascending limbs, few lateral branches
Site requirements: full sun; adaptable to most soils, pH 6.6–7
Growth rate: slow to moderate
Attractive features: large bluish-green leaves, yellow fall foliage; shallow ash-gray furrows in bark with orange fissures
Wildlife value: limited
Disturbance tolerance: tolerates salt, drought, and periodic flooding

LINDEN

American linden, basswood (*Tilia americana*)
Size / Form: 60–80′ tall, 40–50′ wide; oval form
Site requirements: full sun to partial shade; wet-mesic woods; loamy soil, pH 6.5–7.5
Growth rate: moderate
Attractive features: fragrant pale yellow flowers in summer; large heart-shaped leaves, yellow fall foliage
Wildlife value: native bees and honeybees for nectar
Disturbance tolerance: sensitive to salt, air pollution, and soil compaction

MAPLE

Red Maple (*Acer rubrum*)
Size / form: 75–100′ tall, 35–75′ wide; oval to round
Growth rate: moderate to fast
Site requirements: shade tolerant, wet to medium forests; tolerant of poorly drained and compacted soil, pH range 4.5–6.5
Growth rate: moderate to fast
Attractive features: gray smooth bark when young, red cast from flowers in early spring, light green in summer; usually red foliage in fall
Disturbance tolerance: sensitive to salt
Wildlife value: high for native bees and white-tailed deer; excellent cover for birds and other animals

OAK

Swamp white oak (*Quercus bicolor*)
Size / Form: 50–75′ tall, 50–60′ wide; oval, wide-spreading with age
Site requirements: full sun; tolerant of wet soil; needs acid soil or will get chlorotic, pH 6.0–6.5
Growth rate: slow to moderate
Attractive features: dark green foliage, golden yellow in fall
Wildlife value: cover for birds and mammals; acorns are food for birds and mammals
Disturbance tolerance: tolerant of soil compaction; resistant to salt and drought stress

Bur oak (*Quercus macrocarpa*)
Size / Form: 70–100′ tall, 75–100′ wide; wide-spreading, rounded
Site requirements: full sun; adaptable to most soils, pH 4.6–8.0
Growth rate: slow
Attractive features: deeply furrowed bark; wide spreading growth form
Wildlife value: cover for birds and mammals; acorns are food source for wildlife
Disturbance tolerance: sensitive to compaction

Pin oak (*Quercus palustris*)
Size / Form: 70–80′ tall, 40–50′ wide; pyramidal with tight branching
Site requirements: full sun; moist to wet poorly drained clay soils, pH 5.5–6.5
Growth rate: fast
Attractive features: scarlet red late fall foliage
Wildlife value: acorns are food source for wildlife
Disturbance tolerance: resistant to soil compaction, salt, and drought

SERVICEBERRY

Serviceberry, Juneberry, Shadbush (*Amelanchier* spp.)

Size / form: varies
Site requirements: partial to open sun; well- to moderately well-drained soil, pH 6.1–6.5
Growth rate: moderate
Attractive features: large white flowers late April–early May
Disturbance tolerance: sensitive to soil compaction, tolerates dry conditions
Wildlife value: great cover for birds and other animals; berries are plentiful food source for birds

Reference:

Hightshoe, Gary L. 1988. *Native Trees, Shrubs and Vines for Urban and Rural America: A Planting Design Manual for Environmental Designers*. John Wiley and Sons, Inc. New York