

Deciduous Trees¹

Name ²	Zones ³	Soil / Climate	Pests / Diseases / Other Problems	Size ⁴	Exposure	Flowers / Fruit / Foliage	Additional Features
<p><i>Acer platanoides</i></p> <p>Norway Maple</p> <p>Aceraceae Maple Family</p>	4A-7A	<p>Adaptable; adapted to a wide range of soils including acidic to alkaline, clay, loamy, and sandy soils that are well-drained.</p> <p>Medium salt tolerance and tolerates moderate drought.</p> <p>Tolerates urban conditions.</p> <p>Sunscauld can be a problem on young, stressed trees.</p>	<p>Aphids, scales, and borers can sometimes be a problem.</p> <p>Susceptible to Verticillium wilt which can kill trees.</p> <p>Girdling roots (a problem caused by poor production and planting practices) can cause a serious decline in tree health; this can be true for many tree species that have not been grown and planted properly.</p> <p>Leaf scorch can be a problem during periods of high temperatures accompanied by wind.</p>	<p>H: 50-75'</p> <p>S: 35-60'</p>	Prefers full sun, but tolerates partial shade to shade.	<p>Flowers – greenish yellow in stalked clusters; showy, fragrant; insect pollinated.</p> <p>Bloom Time – early spring (May).</p> <p>Summer Foliage – green to maroon and variegated depending on cultivar; leaves opposite and palmately 5-lobed.</p> <p>Fall Color – yellow to gold; generally late to develop and poor, but can be very good with an extended fall.</p> <p>Fruit – a double samara; green, becoming tan; matures in fall (September/October).</p>	<p>Introduced from Europe; has become invasive in the eastern United States; typically has a single trunk; form is typically rounded, but may be rounded to columnar depending on cultivar; dense shade and surface roots makes it difficult to grow turf under Norway maples; many named selections (cultivars) based on form and leaf color are available; the species is propagated by seed and the cultivars by grafting (budding).</p>
<p><i>Acer rubrum</i></p> <p>Red Maple</p> <p>Scarlet Maple</p> <p>Soft Maple</p> <p>Swamp Maple</p> <p>Aceraceae Maple Family</p>	3A-7A	<p>Fairly adaptable; prefers acidic, sandy loam soils, but tolerates clay, loamy, and sandy soils so long as they are acidic; not a good choice for alkaline soils.</p> <p>Tolerates flooding and moderate drought, but has low salt tolerance.</p> <p>Intolerant of stressful urban conditions.</p> <p>Sunscauld can be a</p>	<p>Mites, aphids, and twig borers can cause cosmetic damage.</p> <p>Anthraco-nose, leaf scorch, and nutrient deficiencies (on alkaline soils) can sometimes be troublesome.</p> <p>Susceptible to Verticillium wilt which can kill trees.</p>	<p>H: 50-75'</p> <p>S: 40-60'</p>	Full sun to partial shade.	<p>Flowers – red in dense clusters; small, but showy; male and female flowers variously produced on separate trees (dioecious; individual trees male or female) or on different branches of the same tree (monoecious); wind and insect pollinated.</p> <p>Bloom Time – early spring (April).</p> <p>Summer Foliage – green, silvery-green beneath;</p>	<p>Native to North America including Minnesota; the most widely distributed trees in North America; fall color is usually best on acidic soils; typically has a single trunk; form is typically upright oval to rounded; frequently hybridizes with silver maple to produce the hybrid Freeman maple (<i>Acer x freemanii</i>); a number of cultivars have been selected based on form and</p>

		problem on young, stressed trees.				leaves opposite and palmately 3- to 5-lobed. Fall Color – yellow, orange, or red. Fruit – a double samara; green to reddish, becoming tan; matures in spring (May/June).	foliage characteristics including fall color; the species is propagated by seed and the cultivars by grafting (budding) and stem cuttings.
<p><i>Acer saccharinum</i></p> <p>Silver Maple River Maple Soft Maple White Maple</p> <p>Aceraceae Maple Family</p>	3A-9A	<p>Very adaptable; prefers acidic, clay, loamy, and sandy soils that are well drained, but tolerates most soils including high pH (alkaline) soils.</p> <p>Medium salt tolerance and tolerates drought and flooding; a floodplain species.</p>	<p>Susceptible to a variety of pest problems, but none are usually serious enough to warrant control.</p> <p>Susceptible to Verticillium wilt which can kill trees.</p>	H: 50-80' S: 40-60'	Full sun to partial shade.	<p>Flowers – red or orange in dense clusters; male and female flowers produced on separate trees (dioecious; individual trees male or female) or on separate branches on the same tree (monoecious); wind pollinated.</p> <p>Bloom Time – early spring (March/April).</p> <p>Summer Foliage – green, silver beneath; leaves opposite and palmately 5-lobed.</p> <p>Fall Color – generally late to develop and poor, but can be a fairly good yellow with an extended fall.</p> <p>Fruit – a double samara; green, becoming tan; matures in spring (May/June).</p>	<p>Native to North America including Minnesota; typically has a single trunk; form is upright oval to rounded; surface roots can be problematic in turf; frequently hybridizes with red maple to produce the hybrid Freeman maple (<i>Acer x freemanii</i>); several cultivars have been selected based on form and foliage characteristics; the species is propagated by seed and the cultivars by grafting (budding) and stem cuttings.</p>
<p><i>Acer saccharum</i></p> <p>Sugar Maple Hard Maple Rock Maple</p> <p>Aceraceae Maple Family</p>	3A-9A	<p>Prefers acidic to slightly alkaline, clay, loamy, and sandy soils that are moist, but well-drained</p> <p>Intolerant of salt, compacted soils, and flooding.</p> <p>Generally intolerant of urban conditions.</p>	<p>Mites, aphids, scales, borers, and leafhoppers can sometimes cause cosmetic damage.</p> <p>Susceptible to Verticillium wilt which can kill trees.</p> <p>Sunscald can be a problem on young, stressed trees.</p> <p>Leaf scorch can be a</p>	H: 50-80' S: 40-60'	Full sun to shade.	<p>Flowers – yellow-green in pendulous clusters; male and female flowers produced separately on the same tree (monoecious); interesting, but inconspicuous; primarily wind pollinated, but visited by insects.</p> <p>Bloom Time – spring (May).</p>	<p>Native to North America including Minnesota; the primary species used for maple syrup production; typically has a single trunk; form is upright oval to rounded; a number of selections (cultivars) have been made based on form and fall color; the species is propagated by seed and the</p>

			problem on droughty sites.			<p>Summer Foliage – green; leaves alternate and palmately 3- to 5-lobed.</p> <p>Fall Color – yellow, orange, and red.</p> <p>Fruit – a double samara; green, becoming tan; matures in fall (September/October).</p>	cultivars by grafting (budding).
<p><i>Betula nigra</i></p> <p>River Birch Red Birch</p> <p>Betulaceae Birch Family</p>	4A-9A	<p>Prefers acidic moist soils, but tolerates clay, loamy, and sandy soils that are well drained.</p> <p>Low salt tolerance, but tolerates drought and flooding; a floodplain species.</p>	<p>No pests of major concern; resistant to bronze birch borer.</p> <p>Chlorosis can be problematic and fatal on high pH (alkaline) soils; river birch should not be planted on alkaline soils.</p>	<p>H: 25-65' S: 25-50'</p>	Full sun to partial shade.	<p>Flowers – small and inconspicuous in separate male and female catkins; male catkins pendulous, female catkins erect; wind pollinated.</p> <p>Bloom Time – early spring (April/May).</p> <p>Summer Foliage – green; leaves alternate, toothed.</p> <p>Fall Color – yellow.</p> <p>Fruit – a winged nutlet; borne in mature female catkins; matures in spring (May/June).</p>	<p>Native to North American including Minnesota where it is found along the Mississippi River in southeastern part of the state; interesting, exfoliating, cinnamon-colored bark; may have a single trunk or multiple trunks; form is upright oval and slightly weeping; 'Heritage' is a superior selection (cultivar; propagated by cuttings and tissue culture); the species is propagated by seed.</p>
<p><i>Betula papyrifera</i></p> <p>Paper Birch Canoe Birch White Birch</p> <p>Betulaceae Birch Family</p>	2A-4B	<p>Prefers acidic, moist, but well-drained sandy or sandy loam soils, but tolerates a variety of soil textures.</p> <p>Intolerant of drought.</p>	<p>Leaf miner can sometimes be severe; bronze birch borer can attack, disfigure, and kill stressed trees.</p> <p>Does not tolerate hot, dry conditions and tends to be short-lived in urban situations.</p>	<p>H: 65-80' S: 30-50'</p>	Full sun to partial shade.	<p>Flowers – small and inconspicuous in separate male and female catkins; male catkins pendulous, female catkins erect; wind pollinated.</p> <p>Bloom Time – spring (April/June).</p> <p>Summer Foliage – green; leaves alternate, toothed.</p> <p>Fall Color – yellow.</p> <p>Fruit – a winged nutlet; borne in mature female catkins; matures in fall (August/September).</p>	<p>Native to North America including Minnesota; showy, white, exfoliating bark; may have a single trunk or multiple trunks; form is upright oval when young, becoming more rounded with age; propagated by seed.</p>

<p><i>Celtis occidentalis</i></p> <p>Common Hackberry Sugarberry</p> <p>Ulmaceae Elm Family</p>	<p>3A-7A</p>	<p>Adaptable; prefers alkaline soils and tolerant of a variety of soil textures</p> <p>Tolerant of drought and flooding; a floodplain species.</p> <p>Very wind resistant.</p>	<p>Generally disease and insect free except for witches' brooms and nipple gall.</p>	<p>H: 75-95' S: 50-65'</p>	<p>Full sun to partial shade.</p>	<p>Flowers – light green, inconspicuous; male and female flowers produced on current season's growth; male flowers in clusters near the base of the shoots and female flowers singly or in pairs in the leaf axils above the male flowers; wind pollinated.</p> <p>Bloom Time – spring (April/May).</p> <p>Summer Foliage – green, lighter green beneath; leaves alternate, toothed.</p> <p>Fall Color – yellow.</p> <p>Fruit – a drupe; green, becoming reddish-brown to brown-purple; matures in fall (August/September); persistent.</p>	<p>Native to North American including Minnesota; interesting warty bark; typically has a single trunk and a rounded form; a few cultivars have been selected based on form and foliage characteristics; the species is propagated by seed and the cultivars by grafting (budding).</p>
<p><i>Fraxinus pennsylvanica</i></p> <p>Green Ash Red Ash</p> <p>Oleaceae Olive Family</p>	<p>3A-8B</p>	<p>Very adaptable; tolerant of most soils and grows almost anywhere.</p> <p>Tolerant of drought, high pH (alkaline) soils, and flooding; a floodplain species.</p> <p>Salt tolerant.</p>	<p>Susceptible to a number of pests, but, with the exception of emerald ash borer (EAB), few are a serious threat.</p> <p>Emerald ash borer, a serious introduced pest, is likely to decimate all three species of ash that native to Minnesota (green, black, and white ash) across much of the state and it is not recommend that these species be planted.</p>	<p>H: 50-70' S: 30-50'</p>	<p>Full sun to partial shade</p>	<p>Flowers – green in branched clusters, inconspicuous; male and female flowers produced on separate trees (dioecious; individual trees male or female); primarily wind pollinated.</p> <p>Bloom Time – spring (May/June)</p> <p>Summer Foliage – shiny green; leaves opposite and pinnately compound with 5 to 9 leaflets.</p> <p>Fall Color – yellow</p> <p>Fruit – a samara; green, becoming tan when mature in fall (August/September); persistent.</p>	<p>Native to North America including Minnesota where it is found throughout the state; typically has a single trunk and an upright oval or rounded form; a number of cultivars have been selected based on form, foliage characteristics, and being seedless (males); have been made based on widely planted as a replacement for American elm following the devastation of this species by Dutch elm disease; unfortunately green ash has been overplanted and is now similarly threatened by the emerald ash borer.</p>

<p><i>Ginkgo biloba</i></p> <p>Ginkgo Maidenhair Tree</p> <p>Ginkgoaceae Ginkgo Family</p>	3A-8A	<p>Adaptable; acidic to alkaline, clay, loamy, and sandy soils that are well drained.</p> <p>Salt and drought tolerant.</p> <p>Wind and snow resistant.</p>	<p>Pest-free. Deer resistant.</p>	<p>H: 50-80' S: 30-50'</p>	Full sun to light shade.	<p>Flowers – technically none (see inset); individual trees are male or female (dioecious); pollen is produced in catkin-like clusters of green pollen sacs (pollen cones/strobili) and the ovules are produced in pairs on stalks; the reproductive organs are inconspicuous.</p> <p>“Bloom Time” – spring (April).</p> <p>Summer Foliage – green; leaves alternate, fan-shaped, and sometimes notched and lobed.</p> <p>Fall Color – clear yellow.</p> <p>Fruit – technically none (see inset); seeds mature in fall (September).</p>	<p>Introduced from China; the fleshy, greenish-yellow seeds produced on female trees can be messy so it is best to plant male selections or to plant ginkgo trees away from hardscapes and to underplant with shrubs or groundcovers other than turf; trees have interesting, corky bark and a single trunk; form is variable, pyramidal to rounded; several cultivars have been selected based on form, fall color, and being seedless (male); the species is propagated by seed and the cultivars by grafting (budding); one of the oldest species of trees (250 million years) – a living fossil.</p>
<p>Unlike the other trees on this list which are angiosperms (covered seed; flowering plants whose seeds are enclosed within a fruit; a fruit is a ripened ovary), ginkgo is a gymnosperm (naked seed; non-flowering plants whose seeds are not enclosed within a fruit); gymnosperms do not produce true flowers or fruits; although the seeds (ripened ovules) look like fleshy fruits, the fleshy tissue is actually an outgrowth of the seed coat.</p>							
<p><i>Malus spp.</i></p> <p>Apples & Crabapples</p> <p>Roseaceae Rose Family</p>	4A-8A	<p>Adaptable; acidic to alkaline, clay, loamy, and sandy soils that are well drained.</p> <p>Low salt tolerance, but tolerates wetness and moderate drought.</p>	<p>Susceptible to a variety of pests including aphids, fall webworm, scale insects, mites, tent caterpillars, powdery mildew, apple scab, cedar/apple/hawthorn rust, and fireblight; cultivars resistant to scab, rust, and fireblight are available.</p>	<p>H: 8-35' S: 8-30'</p>	Full sun.	<p>Flowers – very showy; white, pink, lavender, reddish-purple; fragrant; insect pollinated.</p> <p>Bloom Time – spring (May).</p> <p>Summer Foliage – green; sometimes purple or with purple highlights; leaves alternate sometimes lobed.</p> <p>Fall Color – generally poor; usually yellow.</p> <p>Fruit – a pome; green, becoming yellow, orange, red, or purple; mature in late summer and fall (August-October); sometimes persistent.</p>	<p>Native to temperate Europe, Asia, and North America; several species are native to North America, but only one species is native to Minnesota – <i>Malus ioensis</i> (prairie crabapple); apples and crabapples typically have a single trunk, but can be shrubby; form is variable and can be rounded, spreading, weeping, columnar, or horizontal; many named cultivars have been selected based on form, flowering and fruiting characteristics, and disease resistance; propagated by seed, grafting, and stem cuttings.</p>

<p><i>Populus deltoides</i></p> <p>Eastern Cottonwood Necklace Poplar</p> <p>Salicaceae Willow Family</p>	<p>2A-8B</p>	<p>Adaptable; acidic or alkaline soils; found on a variety of soils along rivers and other waterbodies.</p> <p>Tolerates drought and flooding; a floodplain species.</p> <p>Salt and pollution tolerant.</p>	<p>Attacked by a variety of insects and diseases with stem cankers and leaf rust being the most significant.</p>	<p>H: 75-130' S: 50-75'</p>	<p>Full sun.</p>	<p>Flowers – individual flowers inconspicuous in pendulous male and female catkins produced on separate trees (dioecious; individual trees male or female); wind pollinated.</p> <p>Bloom Time – spring (April/May).</p> <p>Summer Foliage – green, shiny; leaves alternate, toothed; flattened petioles (leaf stalks) are responsible for its fluttering leaves.</p> <p>Fall Color – golden-yellow.</p> <p>Fruit – a capsule; green; filled with cottony seeds; mature in summer (May/June).</p>	<p>Native to North America including Minnesota; typically has a single trunk and a rounded, arching form; the cottony seeds produced by the female trees are sometimes considered a nuisance; a number of cultivars have been selected based on enhanced disease resistance and being seedless (male); the species is propagated by seed and the cultivars by stem cuttings..</p>
<p><i>Populus grandidentata</i></p> <p>Large-Toothed Aspen Bigtooth Aspen</p> <p>Salicaceae Willow Family</p>	<p>2A-7B</p>	<p>Moist loamy or sandy loam soils, acidic to alkaline.</p> <p>An early succession/ pioneer species.</p>	<p>Attacked by a variety of insects and diseases and, like most poplars, an important food source for wildlife.</p>	<p>H: 50-65' S: 30-50'</p>	<p>Full sun.</p>	<p>Flowers – individual flowers inconspicuous in male and female catkins produced on separate trees (dioecious; individual trees male or female); wind pollinated.</p> <p>Bloom Time – spring (April/May).</p> <p>Summer Foliage – green; leaves alternate with large distinct teeth; flattened petioles (leaf stalks) are responsible for its fluttering leaves.</p> <p>Fall Color – golden-yellow to orange.</p> <p>Fruit – a capsule, green; filled with cottony seeds; mature in spring (May/June).</p>	<p>Native to North America including Minnesota; has a single trunk but sometimes suckers widely to produce small colonies; interesting greenish-yellow to olive green bark on young trees becomes gray with age; less common than quaking aspen in the wild; an important pulp species that is sometimes planted in the landscape; propagated by seed and primarily by suckering in the wild.</p>

<p><i>Populus tremuloides</i></p> <p>Quaking Aspen Trembling Aspen</p> <p>Salicaceae Willow Family</p>	2A-7A	Dry to moist sandy or sandy loam soils, acidic to alkaline.	Attacked by a variety of insects and diseases, but hypoxylon canker is the most serious problem in the wild and in landscapes.	H: 50-65' S: 30-40'	Full sun.	<p>Flowers – individual flowers inconspicuous in male and female catkins produced on separate trees (dioecious; individual trees male or female); wind pollinated.</p> <p>Bloom Time – spring (April/May).</p> <p>Summer Foliage – green; leaves alternate with small teeth; leaves borne on long flattened petioles (leaf stalks) which are responsible for its fluttering/trembling leaves.</p> <p>Fall Color – yellow to golden-yellow.</p> <p>Fruit – a capsule; green; filled with cottony seeds; mature in spring (May/June).</p>	Native to North America including Minnesota; the most widely distributed tree in North America; interesting light green to nearly white bark on younger trees; sometimes planted in the landscape, but tends to sucker extensively; produces large clonal colonies in the wild; propagated by seed and primarily suckering in the wild.
<p><i>Quercus alba</i></p> <p>White Oak</p> <p>Fagaceae Beech Family</p>	3B-8A	<p>Prefers slightly acidic, clay, loamy, and sandy soils that are well drained.</p> <p>Tolerates moderate drought and moist sites.</p> <p>Intolerant of flooding</p>	<p>Usually pest and disease free and none of major concern although the potential list is long. Concerns include galls, scales aphids, boring insects, caterpillars, gypsy moth, fall cankerworm, twig pruner, lace bugs, and leaf miners.</p> <p>Anthrachnose, canker diseases, leaf blister, fungi, powdery mildew, shoestring root rot, and chlorosis due to micronutrient deficiencies.</p>	H: 50-75' S: 50-80'	Full sun to partial shade.	<p>Flowers – female flowers inconspicuous and green in the leaf axils; male flowers borne in long, thin yellow-green catkins, interesting, but not showy; wind pollinated.</p> <p>Bloom Time – spring (May).</p> <p>Summer Foliage – dark green, pale green beneath; leaves alternate with rounded lobes and sinuses extending half or more than half way to the center vein.</p> <p>Fall Color – reddish-purple to purple.</p> <p>Fruit – a nut (acorn); green, becoming brown; matures in one year in fall (August/September).</p>	Native to North America including Minnesota; typically has a single trunk and a rounded form; like all of the oaks, a very important wildlife species; propagated by seed.
<p><i>Quercus</i></p>	3A-7B	Adaptable to most	Although attacked by a	H: 60-80'	Full sun.	Flowers – female flowers	Native to North America

<p><i>Quercus rubra</i></p> <p>Red Oak Northern Red Oak</p> <p>Fagaceae Beech Family</p>	<p>3A-8A</p>	<p>Acidic to slightly alkaline, clay, loamy, and sandy soils that are well drained.</p> <p>High salt tolerance and tolerates drought.</p> <p>Intolerant of flooding.</p>	<p>Although susceptible to attack by a variety of insects and diseases, few are of significant concern; examples include galls, scales aphids, boring insects, caterpillars, gypsy moth, fall cankerworm, twig pruner, lace bugs, leaf miners, bacterial leaf scorch.</p> <p>Anthracnose can be a serious problem in wet weather.</p> <p>Oak wilt is probably the most significant concern and kills red oak trees; best to prune during the dormant season and do not prune in spring; can spread from tree to tree through root grafts.</p> <p>Chlorosis caused by micronutrient deficiencies can sometimes be a problem on alkaline soils.</p>	<p>H: 50-80' S: 50-60'</p>	<p>Full sun.</p>	<p>Flowers – female flowers inconspicuous and green in the leaf axils; male flowers borne in long, thin yellow-green catkins, interesting, but not showy; wind pollinated.</p> <p>Bloom Time – spring (May).</p> <p>Summer Foliage – medium green; leaves alternate with regular, pointed lobes and sinuses that extend about half way to the center vein.</p> <p>Fall Color – orange-red; foliage becomes light brown and persists on trees through the winter on young trees and sometimes the lower portion of the crown on older trees.</p> <p>Fruit – a nut (acorn); green, becoming brown; takes two years to mature in fall (August/September).</p>	<p>Native to North America including Minnesota; typically has a single trunk and a rounded form; like all of the oaks, a very important wildlife species; propagated by seed.</p>
<p><i>Tilia americana</i></p> <p>American Linden Basswood</p> <p>Tiliaceae Linden Family</p>	<p>3A-7B</p>	<p>Adaptable; acid to alkaline; prefers moist soils, but also tolerates drier sites.</p> <p>Tolerant of flooding, a floodplain species.</p> <p>Sunscald can be a problem on young, stressed trees.</p>	<p>Aphids, basswood leaf miner, scale, canker, and Japanese beetle.</p> <p>Susceptible to Verticillium wilt which can kill trees.</p>	<p>H: 50-90' S: 35-50'</p>	<p>Full sun to partial shade.</p>	<p>Flowers – cream colored in cymes, inconspicuous, but fragrant; insect pollinated, a favorite of bees.</p> <p>Bloom Time – late spring to early summer (June/July).</p> <p>Summer Foliage – dark green, lighter green beneath; leaves alternate, heart-shaped with an uneven base, toothed.</p> <p>Fall Color – yellow-brown to yellow.</p> <p>Fruit – pea-sized nutlet; green, becoming brown; matures in fall (August/September); persistent.</p>	<p>Native to North America including Minnesota; found in the wild throughout the state; tends to produce multiple trunks; form tends to be pyramidal to upright oval; flower/fruit clusters are attached to a wing-like, membranous bract (modified leaf); several cultivars have been selected based on form and foliage characteristics; the species is propagated by seed and the cultivars by grafting (budding).</p>

<p><i>Tilia cordata</i></p> <p>Littleleaf Linden</p> <p>Tiliaceae Linden Family</p>	3B-7A	<p>Prefers acidic soil, but tolerates a variety of soil conditions including high (alkaline) pH and clay, loamy, and sandy, well drained soils.</p> <p>Intolerant of salt, but tolerates moist sites and moderate drought.</p>	<p>Despite susceptibility to a variety of insects and diseases including aphids, lace bugs, caterpillars, spider mites, anthracnose, and several canker-causing fungi, control is usually not needed for most except for Japanese beetle which can skeletonize foliage when present.</p> <p>Susceptible to Verticillium wilt which can kill trees.</p>	<p>H: 50-80'</p> <p>S: 35-50'</p>	Full sun to partial shade.	<p>Flowers – cream colored in cymes; inconspicuous, fragrant; insect pollinated.</p> <p>Bloom Time – late spring to early summer (June/July).</p> <p>Summer Foliage – dark green; leaves alternate, heart-shaped, toothed.</p> <p>Fall Color – yellow-green to yellow, but not great.</p> <p>Fruit – small, round nutlet; green, becoming brown; matures in fall (August/September).</p>	<p>Introduced from Europe; smooth bark; tends to have multiple trunks, but can be trained to a single trunk; form is pyramidal, upright oval or rounded; quite a few cultivars have been selected based on form and foliage characteristics; the species is propagated by seed and the cultivars by grafting (budding).</p>

<p><i>Ulmus americana</i></p> <p>American Elm</p> <p>Gray Elm</p> <p>Water Elm</p> <p>White Elm</p> <p>Swamp Elm</p> <p>Ulmaceae Elm Family</p>	<p>2A-9B</p>	<p>Very adaptable; prefers acidic to alkaline, clay, loamy, sandy soils that are well drained.</p> <p>Medium salt tolerance and tolerant of drought and flooding; a floodplain species.</p> <p>Tolerates urban conditions.</p>	<p>Many, including bark beetles, leaf beetles, elm borers, gypsy moths, mites, elm leaf miners, and scales.</p> <p>Dutch elm disease (DED), phloem necrosis, leaf spot diseases, bacterial leaf scorch, and cankers.</p> <p>An increasing number of DED-resistant cultivars worthy of planting have been selected from survivor trees and are commercially available.</p>	<p>H: 75-90'</p> <p>S: 50-60'</p>	<p>Full sun to partial shade.</p>	<p>Flowers – inconspicuous; greenish-purple, petalless, in loose clusters.</p> <p>Bloom Time – spring (April/May).</p> <p>Summer Foliage – dark green; leaves alternate, elliptical, pointed with an asymmetrical base, toothed.</p> <p>Fall Color – yellow to gold; best with an extended fall.</p> <p>Fruit – samara; green, becoming greenish-tan, fringed; matures in May/June.</p>	<p>Native to North America including Minnesota; found in the wild throughout the state; typically has a single trunk; form is vase shaped; important in native ecosystems and the most common boulevard tree in the eastern United States and southeaster Canada until DED was introduced to North America; a number of cultivars have been selected based on form, foliage characteristics and resistance to DED; the species is propagated by seed and the cultivars by cuttings and grafting.</p>
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¹ Deciduous Trees – Woody plants (trees, shrubs, and woody vines) are often classified as being deciduous or evergreen; deciduous plants lose their leaves at the end of the growing season and produce new leaves each year while evergreen plants retain green leaves throughout the year; evergreens also produce new leaves (needles) each year and lose older needles each year, but the needles live for two or more years making the plants evergreen; this is a list of deciduous trees (trees that lose their leaves at the end of the growing season each year); a tree is generally defined as a tall woody plant that typically has a single stem or trunk.

² Name – Botanical and Common Name(s).

³ Zones – USDA Cold Hardiness Zones.

⁴ Size – H = Height; S = Spread.

Notes:

This is only a partial list of the native and introduced deciduous tree species that can be planted in Minnesota landscapes; a complete list would include over 100 species.

The crown sizes listed represent a typical range for each species; individual trees may be bigger or smaller depending on location and the resulting light and soil (fertility and moisture) conditions and cultivar; trees that are part of forest canopies or are surrounded by neighboring trees in designed landscapes tend to be taller and narrower as a consequence of crowding and stretching for light.

Remember that native plants, including trees, are an important part of native ecosystems and thereby serve as important an important food source for a variety of native insects, animals, and micro-organisms (e.g., specific to Lepidoptera – butterflies and moths – alone, maples are reported to support over 280 species, birches over 400 species, poplars over 360 species, oaks over 530 species, lindens over 150 species, and elms over 200 species); and while these creatures may often be considered pests in designed landscapes, they, just like the plants themselves, are also important components of native ecosystems as food and ecosystem engineers.

Resources:

Dirr, M.A 1990. Manual of Woody Landscape Plants: Their Identification, Ornamental Characteristics, Culture, Propagation, and Use. Fourth Edition. Stipes Publishing Co., Champaign, IL

Dirr, M.A. 2011. *Dirr's Encyclopedia of Trees and Shrubs*. Timber Press, Inc., Portland, OR.

Smith, W.R. 2008. *Trees and Shrubs of Minnesota: The Complete Guide to Species I*. University of Minnesota Press, Minneapolis, MN.

Snyder, L.C. 2000. *Trees and Shrubs for Northern Gardens (new and revised edition)*. Anderson Horticultural Library, Minnesota Landscape Arboretum, Chanhassen, MN.

Talamy, D.W. 2007. *Bringing Nature Home*. Timber Press, Inc., Portland, OR.