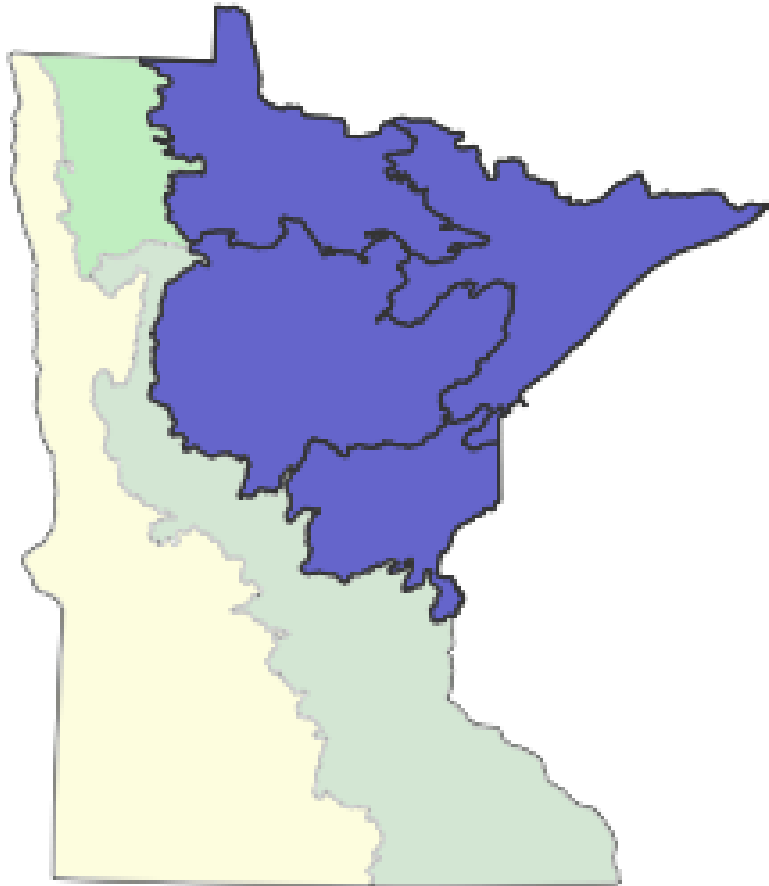


Recommended Trees for Minnesota, An Ecosystem Approach: Northeast Minnesota, The Laurentian Mixed Forest Province*

**Authors: Gary Johnson, Emily Golden Hanson, Ryan P. Hogan, Eric North.
University of Minnesota, Department of Forest Resources.**



The Laurentian Mixed Forest Province

*Northeast Minnesota is a beautifully diverse area ranging from forests hugging the shores of Lake Superior, Canada, the Boundary Waters, and the St. Croix River. Because of that diversity, this list of trees must be put in perspective to those very different biomes, the five sections of the Laurentian mixed forest province.

*All information on the Laurentian Province and included sections was taken from the Ecological Classification System, Minnesota Department of Natural Resources, 2021:
<https://www.dnr.state.mn.us/ecs/index.html>.*



Department of Forest Resources

UNIVERSITY OF MINNESOTA
Driven to Discover®

Province Sections:

Northern Minnesota and Ontario Peatlands (MOP).

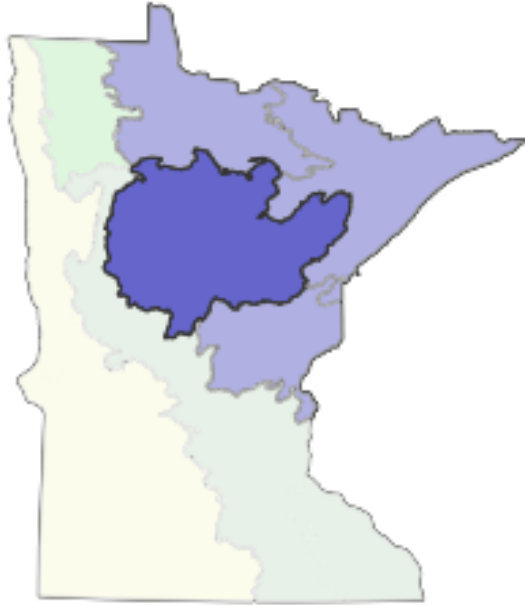


Flat and poorly drained. About half of the section consists of clayey deposits from Glacial Lake Agassiz. The lake deposits are covered primarily by bogs, swamps, fens, and other peatland vegetation. At the eastern edge of the MOP, the peatlands are acidic, deep, and support extensive areas of acid peatland communities such as black spruce bogs and poor swamp forests. At the western edge of the section, the peatlands are richer in minerals, and shallower. Tamarack swamps, rich fens, and other rich peatland communities tend to be common in this part of the Section.

Some areas, especially along the eastern and southern borders of the MOP in the Littlefork Vermilion Uplands Subsection, have uplands formed of glacial till (*sediment deposited by glaciers*). Mesic and wet forests of aspen, paper birch, spruce, balsam fir, white cedar, and black ash are typical in these areas. Uplands formed of sandy shoreline deposits are present across the MOP. These low, sandy uplands are less extensive than either the peatlands or glacial fill uplands. They are characterized by fire-dependent forests of jack pine or red pine.

Communities within this section include Warroad, Baudette, and International Falls.

Northern Minnesota Drift and Lake Plains (MDL).

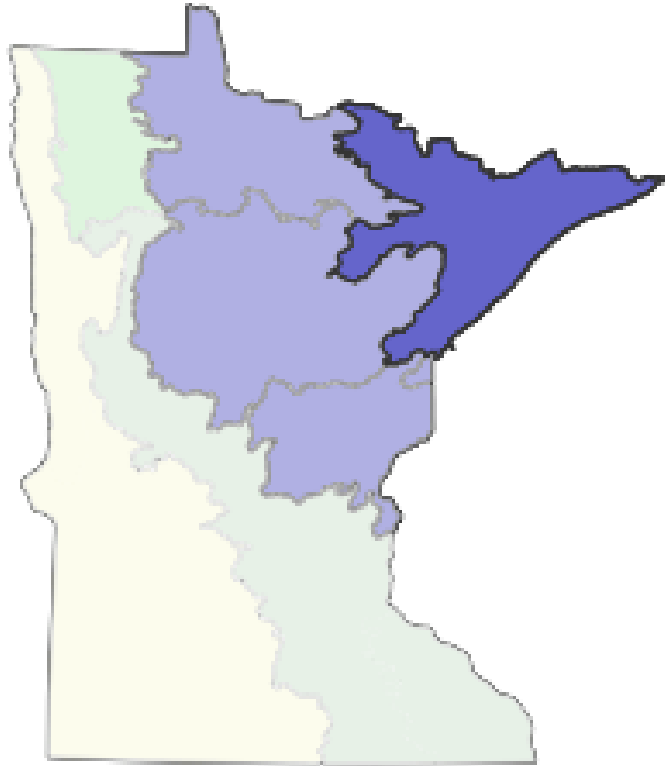


The (MDL) covers the center of northern Minnesota. The MDL has complex surface geology, formed over many episodes of glaciation. Mesic forests of sugar maple, basswood, paper birch, aspen, and northern red oak are widespread. They occur mostly on moraines (*mounds of rocky sediment deposited by glaciers*) or till plains characterized by rough topography, fine-textured parent material, or soils with subhorizons that perch snowmelt and rainfall. Historically, forests and woodlands of jack pine and red pine were very common on the sandy outwash plains formed by glacial meltwater.

Sandy and gravelly deposits that cap many of the major moraines in the western part of the MDL provide habitat for mixed forests of pine and boreal hardwood species such as quaking aspen and paper birch. The eastern part of the MDL has expansive areas of acid peatland communities such as black spruce bogs and poor swamp forests, along with rich swamp forests of white cedar and black ash. Sedge meadows and alder and willow swamps occur along the slow moving streams draining the flat lake plains and along the Mississippi and Leech Lake rivers.

Communities within this section include Bemidji, Grand Rapids, Park Rapids, and Wadena.

Northern Superior Uplands (NSU).

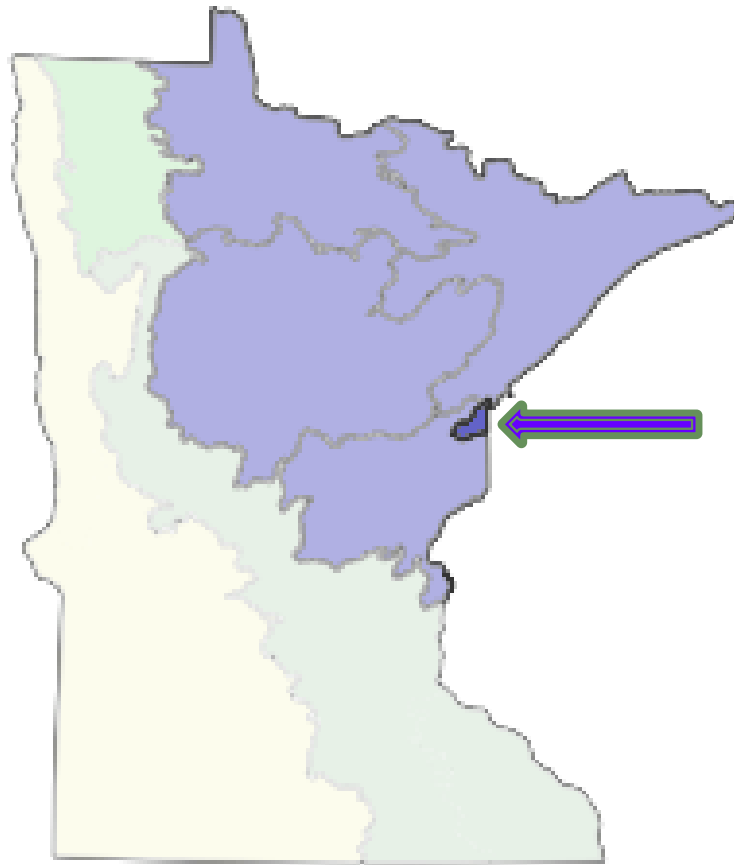


The NSU is characterized by glacially scoured bedrock terrain with thin and discontinuous deposits of coarse loamy till (*sand, silt, little clay, and organic matter*) and numerous lakes, and reflects the rugged topography of the underlying bedrock. The NSU receives more of its precipitation as snow than any section in the state, has the longest period of snow cover, and the shortest growing season. Forests with red and white pine were widespread in the past, mixed with aspen, paper birch, spruce, and balsam fir.

Much of the pine was cut in the late 1800s and early 1900s, leaving forests dominated mostly by aspen and paper birch. Jack pine forests are present on droughty ridges and bedrock exposures, as well as on local sandy outwash deposits. The highlands along Lake Superior have a local climate moderated by the lake that favors forests dominated by sugar maple with some white pine, yellow birch and white cedar.

Communities within this section include: Babbitt, Grand Marais, Grand Portage, Hibbing, Two Harbors and Virginia.

Southern Superior Uplands (SSU).

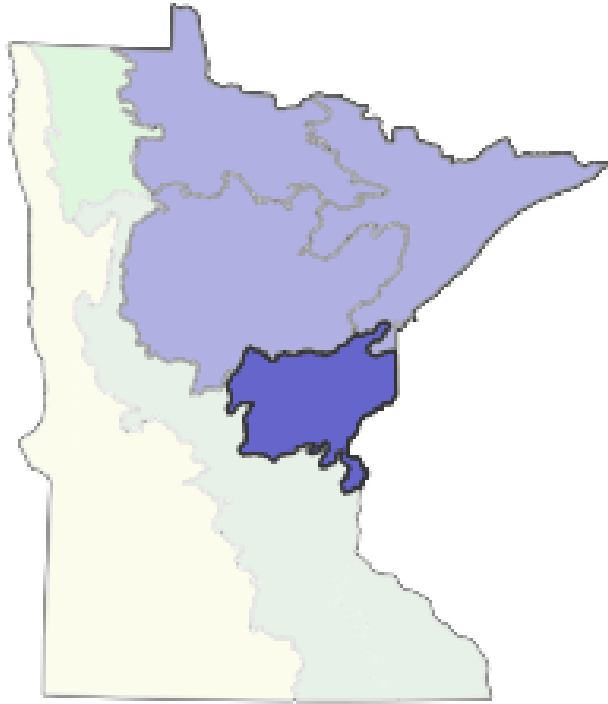


The Southern Superior Uplands occurs mainly along the south shore of Lake Superior in northern Wisconsin and has a limited extent in Minnesota. The land surface is composed mostly of clayey sediments and the landscape is highly dissected by the Nemadji River and its tributaries, characterized by steep-sided ravines. The ravine slopes support wet-mesic forests of aspen and paper birch mixed with conifers such as white spruce, balsam fir, white cedar, and white pine; and mesic forests of sugar maple, basswood, and paper birch.

High areas between the ravines represent flat, clayey, poorly drained remnants of the glacial lake bed. These sites most commonly have wet forests dominated by black ash mixed with white cedar and yellow birch.

Communities within this section include areas of Duluth, Hermantown, and Proctor.

Western Superior Uplands (WSU).



The Western Superior Uplands Section is a large region that advanced southward from the Lake Superior Basin. These landforms are coarse-textured near the southwestern edge of the WSU but become increasingly clayey to the northeast. The areas of coarser drift (*clay, silt, sand, gravel, boulders deposited by glaciers*) are occupied by forests dominated by northern red oak, while areas of clayey till have forests of sugar maple, aspen, and birch.

Sandy terraces along the St. Croix River and small sand plains in other parts of the section have fire-dependent woodlands or forests of jack pine, bur oak, northern pin oak, and aspen. Fire-dependent pine, oak, and aspen forests are also present occasionally with mesic hardwood forests on coarse till and drumlins (*teardrop-shaped hills of rock, sand, and gravel*). Peatlands and other wetland communities are present mostly as inclusions within the broad areas of hardwood forest.

Communities within this section include Aitkin, Brainerd, Cambridge, Moose Lake, and North Branch.

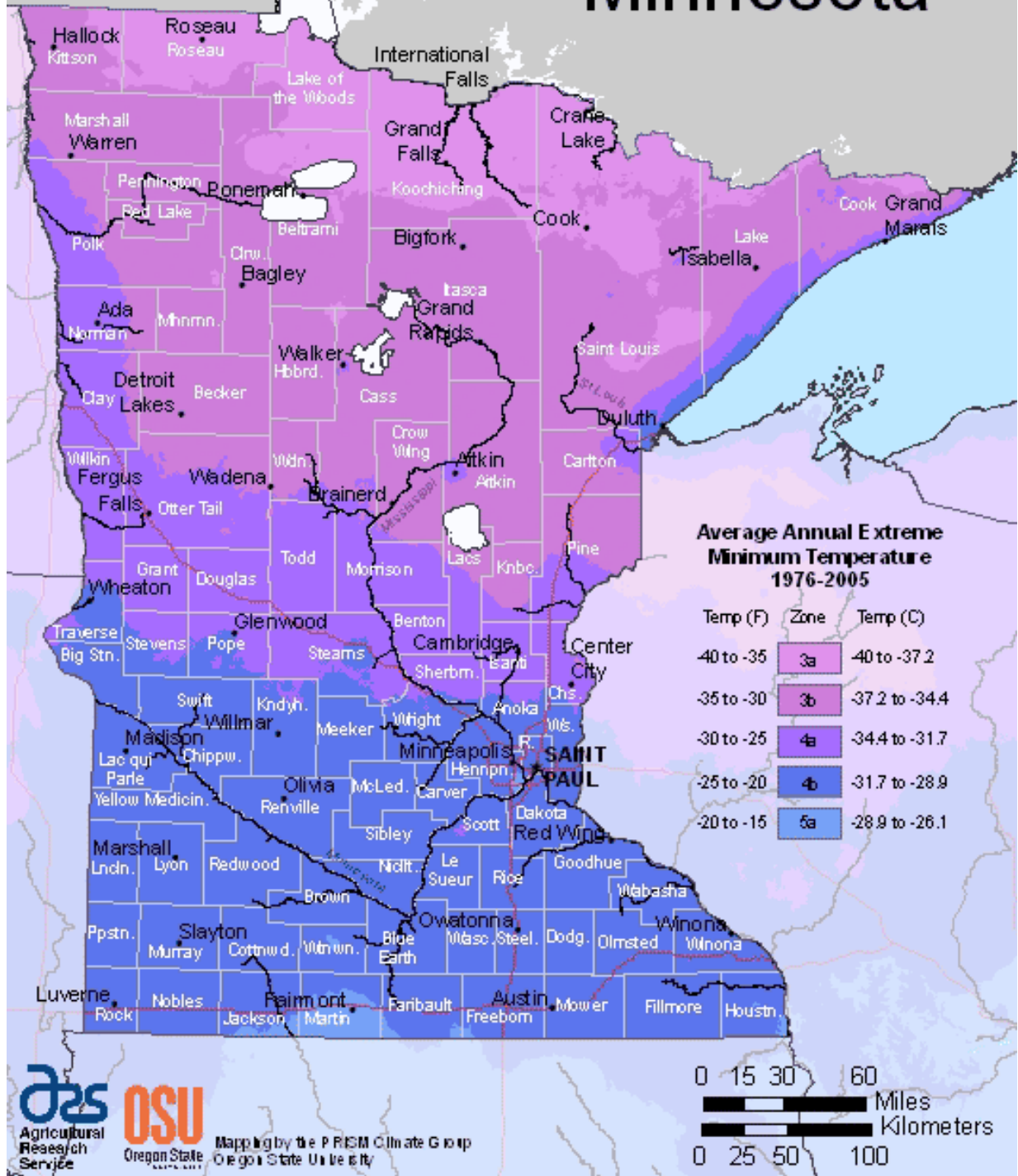
Preparing This Guide

Collection of data

Preparing guides such as this one are exercises in historical reviews, analyses of existing trees, opinions of practicing professionals, objective reviews of tree performances in a reasonable number of sites, and guessing on what may make it in the future. To that end, a variety of resources were used to compile the tree lists. Historical reviews of the province sections was conducted courtesy of the Minnesota **Department of Natural Resources' published Ecological** Classification System. Tree selection and performance **Surveys** were collected from practicing professionals, DNR foresters, municipalities, and garden centers. **Ground-truthing** the extent and condition of existing trees was conducted by the University of Minnesota, Department of Forest Resources research team. Several communities within the Laurentian province were included in this research.

The **2012 USDA Plant Hardiness Zone Map** was used to identify the hardiness zones for the various sections of the province. Much of the specific information on tree species, varieties (aka, cultivars), and hybrids was provided by the research and development divisions of Bailey Nurseries, Inc. (Saint Paul, MN), and Jeffries Nurseries (Manitoba, Canada); the Minnesota Department of Natural Resources Ecological Classification System (dnr.state.mn.us/ecs/212/index.html); *Native Trees, Shrubs, and Vines for Urban and Rural America* by Gary L. Hightshoe; the North Dakota State University Woody Plant Improvement Program; *Salt Damage in Landscape Plants* from Purdue Extension, ID-412-W; the University of Minnesota Extension (extension.umn.edu/find-plants/fruit), and *The Best Plants for 30 Tough Sites* (conservancy.umn.edu/handle/11299/51549).

USDA Plant Hardiness Zone Map
Minnesota



Using The Guide

In the end, a guide is exactly that: a guide. The Laurentian Province is a geographically large and diverse area and some recommended species may fail when they shouldn't have while others may thrive when they shouldn't have. Do not be afraid to experiment (in moderation) and if a species doesn't survive in your area, don't plant it again until it's known why it didn't survive and thrive.

Noting that a particular tree is cold hardy to the biome in question or is native to it doesn't guarantee that it will thrive or even survive. Also, if a tree isn't native to a particular biome doesn't mean it won't thrive there; trees rarely (okay, never) read books. The label "native" as used in this guide indicates the tree is native to North America. An internet search will identify whether the tree in question is native to an exact ecological section of the province.

Trees selected for use from this publication should follow some basic (bio-) logic. **First**, if the community in question is part of the cold hardiness zone 3, it would not be wise to depend on trees listed for zone 4b. **Second**, even if a tree is listed for zone 3, it may not tolerate poorly drained, powdery-dry, or shallow soils. **Third**, there are many microclimates in northeastern Minnesota that may support marginally hardy trees, so it wouldn't be foolish to occasionally try something new...just don't plant 100 of them. **Fourth**, if the proposed planting site is in a community, it is very likely that the native soil has been highly altered and there are likely to be many microclimates that protect the trees from wind, sun, cold. There is no substitute for a thorough site analysis before selecting tree species.

The Quick Guide is just that. It lists the tree species as they fall into one or more of the following categories as well as their cold hardiness zone. For many, this list may be all that is needed to put together a palette of suitable trees for the community.

The Expanded Guide provides more information on the tree species beyond their ability to survive cold winters, and may help the community better select trees for characteristics that are more desirable for specific locations. For instance, if deicing salts are limiting the survival of trees in a landscape, the spread sheet will provide information (where available) on relative tolerances to salts.

Categories of Trees.

Trees are first listed as either **Deciduous** (hardwoods), or **Coniferous** (softwoods). The terms "hardwood" or "softwood" should not be interpreted as wood strength; they botanically identify the different wood tissues typical for either group of trees. Douglas-fir is a very strong and dense wood, even though it is categorized as a softwood. Willows are very soft and relatively weak wooded trees, despite being categorized as hardwoods.

Recommended Trees are those that have demonstrated the ability to survive and usually thrive in their respective cold hardiness zones and site characteristics (e.g. size, tolerance of deicing salt spray, shade). Think of these species as those who could reliably make up as much as 5% of the total tree population of a community or large landscape.

Limited Use Trees as the label implies should be chosen carefully and planted in moderation, usually due to their vulnerability to diseases or insect pests (e.g. Dutch elm disease, emerald ash borer), a high level of required maintenance, sensitivity to weather extremes (e.g. snow or ice loads, drying winds or sun exposure), or they have been overplanted in the past. These trees should not represent more than 1-2% of the total tree population in a community or large landscape.

Trees To Try are the worthy, climatic adaptive trees that deserve a chance but need to be located in specific microclimates. The Northern Superior Uplands is generally much colder than St. Paul, but the cold hardiness zone for the narrow band of land contiguous to Lake Superior is the same cold hardiness zone as St. Paul. It wouldn't be wise to plant a lot of trees in this category, but it may be worth a try if the microclimates are available. Tree species in this category should not represent more than 0.5-1% of a tree population.

Caution. This category identifies the trees that should not be planted in northeast Minnesota, primarily due to their invasiveness (e.g. Russian olive, an introduced species), or aggressiveness (e.g. black locust, a native species). In particular, these species should not be planted next to or near unmaintained, natural areas where they can escape and take over the native landscape.

Tree Credentials

Common and Scientific names. Common names tend to be regional, for instance “red maple.” This could be the native red maple, or a Japanese red maple, or a red/burgundy leafed variety of Norway maple. To that end, each tree is listed by its common name, followed by the correct scientific name that cannot be misinterpreted.

Size. In feet; the approximate height and width at a reasonable maturity. This can be highly variable depending on the quality of the landscape soil and moisture levels.

Shape. Shape can become an important factor in selecting trees. For instance, a pyramidal shaped tree is excellent for blocking undesirable views or noises from the ground level, but a poor choice for a tree on a boulevard (blocks views of oncoming traffic). A spreading or rounded tree is better for providing shade and an upright or oval tree is best for street tree plantings.

Salt Tolerance. This refers solely to deicing salt spray tolerance. This is relative criteria. Even trees with salt tolerance can be damaged if too much salt is used near them. The list of salt tolerant trees is a short one.

Pollinator Status. Indicates whether or not the tree has value for nectar, pollen, or bud resin. Good to know if you are trying to create a pollinator-friendly landscape.

Light Requirement. Indicates whether a tree grows best in full sun, partial sun, or moderate shade. Partial sun would include eastern or northern exposures. Moderate shade would be equivalent to an understory tree.

Vulnerability to Ice or Wind Loading Events. Low, moderate or high vulnerability to branch breakage due to the weight of ice or snow, or the force of wind storms.

NA Native. Yes or no, is it native to North America.

The Quick Guide

Recommended Deciduous Trees – Zones 2-3

Common Name	Scientific Name	Cold Hardiness Zone
Alder, Prairie Horizon®	<i>Alnus hirsuta</i> 'Harbin'	3
Apple - Crabapple varieties:	<i>Malus species</i>	
'Centennial'		3
Chestnut		3
'Dolgo'		3
Sargent		3
'Spring Snow'		3
'Thunderchild'		3
Apples, edible:	<i>Malus species</i>	
Frostbite™		3b
Red Baron		3
Haralson		3
Honeygold		3
Apricot	<i>Prunus armeniaca</i> var. <i>mandshurica</i>	3b-4a
Ash, Manchurian	<i>Fraxinus mandshurica</i>	3
Aspen/Poplar	<i>Populus species</i>	2-3b
Balsam Poplar	<i>P. balsamifera</i>	2
Eastern Cottonwood	<i>P. deltoides</i>	3b
Big Toothed Aspen	<i>P. grandidentata</i>	3a
Quaking Aspen	<i>P. tremuloides</i>	2
Basswood, American	<i>Tilia americana</i>	3a
Birch species	<i>Betula species</i>	2-3b
Black Birch	<i>B. lenta</i>	3b
Yellow Birch	<i>B. alleghaniensis</i>	3a
Tianshan Birch	<i>B. tianshanica</i>	3b
'Whitespire Senior	<i>B. populifolia</i> 'Whitespire Sr.'	3
Beech, Blue	<i>Carpinus caroliniana</i>	3

Buckeye, Ohio	<i>Aesculus glabra</i>	3b-4a
Prairie Torch® Buckeye	<i>A. x 'Bergeson'</i>	3
Cherry species	<i>Prunus species</i>	2-3b
Amur Chokecherry	<i>P. maackii</i>	3
Pin Cherry	<i>P. pensylvanica</i>	2
Black Cherry	<i>P. serotina</i>	3b
Chokecherry	<i>P. virginiana</i>	2
Dogwood, Pagoda	<i>Cornus alternifolia</i>	3b
Hackberry, Common	<i>Celtis occidentalis</i>	3
Hawthorn	<i>Crataegus x</i>	3b-4a
Snowbird Hawthorn	<i>mordenensis 'Snowbird'</i>	
Toba Hawthorn	<i>Crataegus x</i>	3b-4a
	<i>mordenensis 'Toba'</i>	
Ironwood	<i>Ostrya virginiana</i>	3
Lilac, Peking Tree.	<i>Syringa pekinensis</i>	3
Beijing Gold®		3
Copper Curls®		3
Great Wall™		
Lilac, Japanese Tree.	<i>Syringa reticulata</i>	3
Snowdance™	<i>'Bailnce'</i>	
Linden, Littleleaf varieties	<i>Tilia cordata</i>	3
'Morden'	<i>T.c. 'Morden'</i>	3
Norlin™	<i>T.c. 'Ronald' Norlin™</i>	3
Shamrock™	<i>T.c. 'Baileyi' Shamrock™</i>	3
Maackia, Amur	<i>Maackia amurensis</i>	3a
Summertime™		3a
MacNificent®		3a
Maples	<i>Acer species and</i>	2-3
	<i>varieties</i>	
Boxelder Maple	<i>Acer negundo</i>	2
Freeman Maple varieties	<i>A. x freemanii</i>	3
Autumn Blaze®		3
Firefall™		3
'Marmo'		3
Sienna Glen®		3
Mountain Maple	<i>A. spicatum</i>	2
Red Maple varieties	<i>A. rubrum</i>	3a
'Autumn Spire'		3a
'Northwood'		3a
'Prairie Rouge'		3a
'Red Rocket'		3a

Silver Maple varieties	<i>A. saccharinum</i>	3
'Silver Cloud'		3
'Silver Queen'		3
Sugar Maple varieties	<i>A. saccharum</i>	2-3
Inferno®		2
Northern Flare®		3
Mountain-ashes	<i>Sorbus species</i>	2-3
American Mt.-ash	<i>S. americana</i>	2
European Mt.-ash	<i>S. aucuparia</i>	3
Showy Mt.-ash	<i>S. decora</i>	2
Oaks	<i>Quercus species and hybrids</i>	2-3
Admiration®	<i>Q. x jackiana</i> 'Jefmir'	2
Bur Oak	<i>Q. macrocarpa</i>	2
Urban Pinnacle®	<i>Q. macrocarpa</i> 'JFS-KW3' PP22815	3
Northern Pin Oak	<i>Q. ellipsoidalis</i>	3b
Majestic Skies™	<i>Q. ellipsoidalis</i> 'Bailskies'	3b
Prairie Stature Oak	<i>Q. bimundorum</i> 'Midwest'	3b
Red Oak	<i>Q. rubra</i>	3a
Plums	<i>Prunus species and varieties</i>	2-3
American Plum	<i>P. americana</i>	3
'Prairie Red'	<i>P. americana</i> 'Prairie Red'	3
Muckle Plum	<i>P. x nigrella</i> 'Muckle'	2
Serviceberries	<i>Amelanchier species</i>	2-3
Saskatoon Serviceberry	<i>A. alnifolia</i>	2
Canadian Serviceberry	<i>A. canadensis</i>	3

Recommended Coniferous Trees – Zones 2-3

Common Name	Scientific Names	Cold Hardiness Zone
Cedar, Eastern Red	<i>Juniperus virginiana</i>	3
Cedar, Northern White	<i>Thuja occidentalis</i>	2
Fir	<i>Abies species</i>	2
Balsam	<i>A. balsamea</i>	2
White	<i>A. concolor</i>	3

Larches	<i>Larix species</i>	2
American Larch	<i>L. americana</i>	2
European Larch	<i>L. decidua</i>	2
Siberian Larch	<i>L. sibirica</i>	2
Pines	<i>Pinus species</i>	2-3
Jack Pine	<i>P. banksiana</i>	2
Limber Pine	<i>P. flexilis</i>	2
Red Pine (Norway Pine)	<i>P. resinosa</i>	2
Swiss Stone Pine	<i>P. cembra</i>	2b-3
White Pine	<i>P. strobus</i>	3
Spruces	<i>Picea species and varieties</i>	2-3
Black Hills Spruce	<i>P. glauca var. densata</i>	2
Engelmann Spruce	<i>P. engelmannii</i>	2
Norway Spruce	<i>P. abies</i>	3
White Spruce	<i>P. glauca</i>	2

Limited Use Trees (Deciduous and Coniferous) – Zones 2-4

Common Name	Scientific Name	Cold Hardiness Zone
Ash, species	<i>Fraxinus</i>	2-4a
Black Ash	<i>F. nigra</i>	2
Green Ash	<i>F. pennsylvanica</i>	2
White Ash	<i>F. americana</i>	3a-4b
Birch, species and varieties	<i>Betula</i>	2-4
European White Birch	<i>B. pendula</i>	3b
Gray Birch	<i>B. populifolia</i>	4
Paper Birch	<i>B. papyrifera</i>	2
River Birch	<i>B. nigra</i>	4
Cherry, 'Canada Red' Chokecherry	<i>Prunus virginiana</i> 'Canada Red'	
Elm, American	<i>Ulmus americana</i>	3-4
Prairie Expedition® Elm	<i>U. a.</i> 'Lewis and Clark' Prairie Expedition®	3
'New Harmony' Elm	<i>U. a.</i> 'New Harmony'	4
'Princeton' Elm	<i>U. a.</i> 'Princeton'	4
St. Croix™ Elm	<i>U. a.</i> 'St. Croix'	3

Elm, Asiatic	<i>Ulmus</i> hybrids and varieties	3-4
Accolade™	<i>U. japonica</i> x <i>wilsoniana</i> 'Morton'	4
'Discovery'	<i>U. davidiana</i> var. <i>Japonica</i> 'Discovery'	3
Northern Empress®	<i>U. davidiana</i> var. <i>Japonica</i> 'Burgundy Glow'	3
Triumph™	<i>U japonica</i> x <i>wilsoniana</i> 'Morton Glossy'	4
Hickory, Bitternut	<i>Carya cordiformis</i>	4
Spruce, Black	<i>Picea nigra</i>	2
Walnut, Black	<i>Juglans nigra</i>	4
Walnut, White/Butternut	<i>J. cinerea</i>	3
Willow, species	<i>Salix</i> species	2-3

Trees To Try (Deciduous and Coniferous) – Zone 4

Common Name	Scientific Name	Cold Hardiness Zone
Apple – Crabapple	<i>Malus</i> species varieties	4
Sugar Tyme®		
Sparkling Sprite®		
Snow Crystal™		
'Prairiefire'		
Firebird®		
'Cardinal'		
'Adirondack'		
'Adams'		
Apple – Edible	<i>Malus</i> species varieties	4
Honeycrisp		
First Kiss®		
Bladdernut, American	<i>Staphylea trifolia</i>	4
Catalpa, Northern	<i>Catalpa speciosa</i>	4
Cedar, Atlantic White	<i>Chamaecyparis</i> <i>thyoides</i>	4
Cherry, Tart	<i>Prunus cerasus</i> varieties	4
'Meteor'		
'North Star'		4

Coffeetree	<i>Gymnocladus dioicus</i>	4
Ginkgo	<i>Ginkgo biloba</i> , male varieties	4
'Autumn Gold'		
Princeton Sentry®		
Hickory, Shagbark	<i>Carya ovata</i>	4
Honeylocust, Thornless	<i>Gleditsia</i> varieties	4
Imperial™	<i>G. triacanthos</i> forma <i>inermis</i> 'Impcole'	4
Streetkeeper™	<i>G. t. f inermis</i> 'Draves'	4
Hop Tree/Wafer-ash	<i>Ptelea trifoliata</i>	4
Magnolia, Cucumbertree	<i>Magnolia acuminata</i>	4
Maple, Sugar	<i>Acer saccharum</i> variety	4
Fall Fiesta®	<i>A. s.</i> 'Bailsta'	4
Mountain-ash, Korean	<i>Sorbus alnifolia</i>	4
Oak, White	<i>Quercus alba</i>	4
Oak, Hybrids	<i>Quercus</i>	4
Heritage® Oak	<i>Q. x macdanielii</i> 'Clemons'	4
Regal Prince® Oak	<i>Q. x warei</i> 'Long'	4
Schuette's Oak	<i>Q x schuettei</i> (<i>Q. macrocarpa</i> x <i>Q. bicolor</i>)	4
Redbud, Eastern	<i>Cercis canadensis</i> Minnesota Strain	4
Rubber Tree, Hardy	<i>Eucommia ulmoides</i>	4
Serviceberry	<i>Amelanchier</i> species and varieties	4
Autumn Brilliance®	<i>A. canadensis</i>	4
'Snowcloud'	<i>A. laevis</i>	4
Spruce, Serbian	<i>Picea omorika</i>	4
Wahoo, Eastern	<i>Euonymus atropurpureus</i>	4
Witchhazel	<i>Hamamelis virginiana</i>	4
Yellowwood	<i>Cladrastis kentukea</i>	4
Yew, Japanese Upright	<i>Taxus cuspidata</i> var. <i>capitata</i>	4

Caution! Trees To Avoid

Common Name	Scientific Name	Why Avoid?
Alder, Black	<i>Alnus glutinosa</i>	Invasive when planted near unmaintained areas
Poplar, White	<i>Populus alba</i>	Nearly impossible to get rid of
Corktree	<i>Phellodendron amurense</i>	Females are invasive when planted near unmaintained areas. Even the "male" varieties can produce some female flowers and fruit,
Elm, American	<i>Ulmus americana</i>	This native species is very susceptible to Dutch elm disease
Elm, Siberian	<i>Ulmus pumila</i>	Very invasive in open areas/fields; harbors Dutch elm disease for years
Lilac, Japanese Tree	<i>Syringa reticulata</i>	The species is invasive when planted near unmaintained areas in zone 4. Select non-invasive or seedless varieties
Locust, Black	<i>Robinia pseudoacacia</i>	Very aggressive native species. Will take over, especially on poor planting sites
Maple, Amur	<i>Acer ginnala</i>	Very invasive
Maple, Norway	<i>Acer platanoides</i>	Can become invasive when planted near unmaintained, zone 4 landscapes
Pine, Austrian	<i>Pinus nigra</i>	Very susceptible to foliar and twig diseases
Prickly Ash	<i>Zanthoxylum americanum</i>	This native species will take over edges of

		woodlands and open fields that are not regularly maintained. Gets tall enough to be considered a small tree.
Olive, Russian	<i>Elaeagnus angustifolia</i>	Very invasive, especially when planted near unmaintained landscapes

The Expanded Guide

The following table provides more detailed information that may help make better tree-to-landscape decisions. Refer to the definitions of categories (e.g. shape) found on page 11 for more details on what the descriptions mean and their limitations.

Availability of the listed species, cultivated varieties (cultivars), and hybrids is always a limitation. Most are available from wholesale nurseries in Minnesota or Manitoba, Canada. If they are available from those wholesale nurseries, they will be available to more local retail nurseries. To that end, if a particular species or variety is chosen for the landscape, an order will need to be placed with the local retail nursery and most likely won't be available until the following planting season, a short 365 days away.

We encourage the readers to purchase trees from local nurseries whenever possible or practical. If that fails, there are several mail-order nurseries in the northern states that can provide most of the tree selections. Contact the Minnesota Nursery and Landscape Association for a list of MN nurseries.

Deciduous (hardwood) Trees									
Name	Size	Shape	Zone	Salt Spray	Pollinator	Light	Wind/Ice	Native	Notes:
Alder, Prairie Horizon® Manchurian (<i>Alnus hirsuta</i> 'Harbin')	25x15	Pyramidal	3	Somewhat		Partial	Mod	No	Potential tree for under power lines.
Alder, Black (<i>Alnus glutinosa</i>)								No	Not recommend: becoming invasive in Minnesota when planted near natural areas.
Apple, Crabapple (<i>Malus</i> species, varieties)									There are two types of apples: crabapples (fruit 2" in diameter or less), and eating apples. For crabapples, there are edible or ornamental crabapples.
'Centennial'	20x15	Pyramidal	3	Yes	Yes	Full	Low		Excellent disease resistance. Good for jams, jellies, preserves.
'Chestnut'	15x15	Rounded	3	Yes	Yes	Full	Low		Excellent disease resistance. Excellent for fresh eating; perfect lunch box apple.
'Dolgo'	25x20	Spreading	3	Yes	Yes	Full	Low		Good disease resistance. Excellent for jams, jellies, preserves.
Sargent	8x12	Spreading	3	Yes	Yes	Full	Low		Excellent disease resistance. Ornamental.
'Spring Snow'	20x15	Oval	3	Yes	Yes	Full	Low		Scab vulnerable. Fruitless.
'Thunderchild'	15x15	Rounded	3	Yes	Yes	Full	Low		Scab vulnerable. Ornamental
Sugar Tyme®	20x15	Spreading	4	Yes	Yes	Full	Low		Very good disease resistant. Ornamental.
Sparkling Sprite®	12x12	Rounded	4	Yes	Yes	Full	Low		Excellent disease resistance. Ornamental.
Snow Crystal™	15x12	Oval	4	Yes	Yes	Full	Low		Excellent disease resistance. Ornamental.
'Prairiefire'	20x20	Spreading	4	Yes	Yes	Full	Low		Excellent disease resistance. Ornamental
Firebird®	8x10	Oval	4	Yes	Yes	Full	Low		Excellent disease resistance. Ornamental.
'Cardinal'	16x22	Spreading	4	Yes	Yes	Full	Low		Excellent disease resistance. Ornamental.
"Adirondack'	15x8	Upright	4	Yes	Yes	Full	Low		Most scab resistant crabapple available.
'Adams'	20x20	Rounded	4	Yes	Yes	Full	Low		Very good disease resistance. Ornamental.
Apple, Edible (<i>Malus</i> species, varieties)									Since edible apples are grown on a variety of root stocks, heights and shapes are variable and will not be listed.
Frostbite™	n/a	n/a	3b	Yes	Yes	Full	Low	UMN introduction	Late season apple. Great lunch box apple.

Honeycrisp	n/a	n/a	4	Yes	Yes	Full	Low	UMN introduction	Mid-season apple.
First Kiss®	n/a	n/a	4a	Yes	Yes	Full	Low	UMN introduction	Early season apple.
Red Baron	n/a	n/a	3	Yes	Yes	Full	Low	UMN introduction	Mid-season apple
Haralson	n/a	n/a	3	Yes	Yes	Full	Low	UMN introduction	Late season apple
Honeygold	n/a	n/a	3	Yes	Yes	Full	Low	UMN introduction	Late season apple
Apricot (<i>Prunus aremeniaca</i> var. <i>mandshurica</i>)	30x25	Varies	3b-4a	Unknown	Yes	Full	Low		'Wescot' and 'Scout' are zone 3b, 'Moongold' and 'Sungold' are zone 4. If you like plump, sweet, juicy apricots, you should go to the grocery store.
Ash (<i>Fraxinus</i> species)									Unless the planting site is in an area of Minnesota that regularly gets colder than -35 F each winter, do not plant the native black, green, or white ash due to the threat of emerald ash borer. Select Manchurian ash as an alternative and plant in moderation.
White Ash (<i>F. americana</i>)	75x40	Irregular	3b-4a	Somewhat	No	Sunny to partial shade	Mod	Yes	Recommended cultivars: Autumn Purple®, 'Autumn Blaze,' and Northern Blaze® (zone 3)
Manchurian Ash (<i>F. mandshurica</i>)	50x35	Oval	3	Somewhat	No	Sunny to partial shade	Mod	No	Recommended cultivar: 'Mancana'
Black Ash (<i>F. nigra</i>)	50x35	Irregular	2	Somewhat	No	Sunny to partial shade	Mod	Yes	Recommended cultivars and hybrids: 'Fallgold,' 'Northern Treasure,' 'Northern Gem.' The latter two varieties have exhibited some resistance to emerald ash borer.
Green Ash (<i>F. pennsylvanica</i>)	65x45	Irregular	2	Somewhat	No	Sunny to partial shade	Mod	Yes	Recommended cultivars: 'Summit,' 'Patmore,' 'Foothills,' Prairie Spire®, Dakota Centennial®.
Aspen/Poplar (<i>Populus</i> species and cultivars)									
Balsam Poplar (<i>P. balsamifera</i>)	50x25	Irregular	2	Yes	Yes	Full	Mod	Yes	

Eastern Cottonwood (<i>P. deltoides</i>)	75x50	Upright	3b	Yes	Yes	Full	Mod	Yes	Cottonwoods are dioecious (aka, boys or girls); be kind to your neighbors and plant male selections.
Bigtooth Aspen (<i>P. grandidentata</i>)	50x25	Upright	3a	Somewhat	Yes	Full	Mod	Yes	The most urbane of all poplars.
Quaking Aspen (<i>P. tremuloides</i>)	35x20	Upright	2	Somewhat	Yes	Full	Low	Yes	No tolerance for compacted, clayey, or saturated soils.
<i>White Poplar (Populus alba)</i>									Don't plant it. It will never go away.
Basswood, American (<i>Tilia americana</i>)	75x50	Oval	3a	No	Yes	Sunny to mod shade	Mod	Yes	Probably the best tree for pollinators. Recommended cultivars: 'American Sentry,' 'Boulevard,' True North, Frontyard®
Beech, American (<i>Fagus grandifolia</i>)	50x50	Oval	4b	No	Yes	Sunny to mod shade	Low	Yes	Try this in very sheltered locations in zone 4 locations. Requires organically rich soil and regular moisture.
Birch (<i>Betula</i> species)					*				*Birches are wind-pollinated, but their leaves are a food source for butterflies and moths.
Black Birch (<i>B. lenta</i>)	50x35	Upright	3b	Somewhat		Sunny to partial shade	Low	Yes	One of the wintergreen birches. Crush the twigs, leaves, and they smell like wintergreen mints.
Yellow Birch (<i>B. alleghaniensis</i>)	60x35	Upright	3a	Somewhat		Sunny to partial shade	Low	Yes	Same comment as black birch. Yellow birch is one of the finest cabinet woods available.
River Birch (<i>B. nigra</i>)	50x35	Broad	4	Unknown		Sunny to partial shade	Low	Yes	River birch is very sensitive to alkaline soils. Recommended varieties: 'Northern Tribute,' 'Heritage,' Dura Heat®
Paper Birch (<i>B. papyrifera</i>)	50x35	Rounded	2	Yes		Sunny to partial shade	Low	Yes	Paper birches are susceptible to bronze birch borer when water stressed. Mulch and provide regular water to avoid this problem. Recommended varieties: 'Chickadee' and Prairie Dream®.
Asian White Birch (<i>B. platyphylla</i>)	30x15	Upright	3	Yes		Full	Low	No	Still sensitive to bronze birch borer. Recommended cultivars: Prairie Vision®, Parkland Pillar®, Dakota Pinnacle®.
Gray Birch (<i>B. populifolia</i>)	35x25	Irregular	4	Yes		Full	Mod	Yes	The only thing this tree has going for it is that it is native...and deicing salt tolerant. Recommended cultivar: 'Whitespire Senior.'
Tianshan Birch (<i>B. tianshanica</i>)	30x12	Upright	3b	Yes		Full	Low	No	Very cold hardy. Better tolerance of droughty weather.
Bladdernut, American (<i>Staphylea trifolia</i>)	12x12	Rounded	4	Unknown	Yes	Sunny to mod shade	Low	Yes	Barely more than a big shrub, but worth planting. Does very well along the St. Croix river. Try in sheltered, zone 4 sites.
Blue Beech, (<i>Carpinus caroliniana</i>)	35x35	Rounded	3	Unknown	Yes	Sunny to mod shade	Low	Yes	Does well in alkaline soil, as a full sun or understory tree. Oranges and reds in the autumn.

Buckeye, Ohio (<i>Aesculus glabra</i>)	35x20	Irregular	3b-4a	Yes	Yes	Sunny to partial shade	Low	Yes	One of the most salt tolerant trees growing in Minnesota.
Prairie Torch® buckeye (<i>A. x 'Bergeson'</i>)	25x25	Rounded	3	Yes	Yes	Sunny to partial shade	Low	Yes	Autumn color is brilliant orange-red. Superior to the species.
Catalpa, Northern (<i>Catalpa speciosa</i>)	75x35	Irregular	4	Somewhat	Yes	Full	Low	Yes	Try it in protected areas of zone 4a and “warmer” (although we’ve sighted healthy ones in zone 3b). It ranks as the number one tree in zones 4 and 5 for tolerating hostile growing sites.
Cherry (<i>Prunus</i> species) Amur chokecherry, black cherry, ‘Canada Red’ chokecherry, chokecherry, pin, sour cherries									With the exception of black cherry, all cherries are relatively short-lived. Cherry leaves and twigs are poisonous when ingested. Do not plant wild cherries in areas where animals (horses, cattle) may graze off them. With the exception of grazing animals, all cherries are excellent wildlife plants (the fruit). Cherries are difficult to transplant, so purchase and plant when they are small.
Amur Chokecherry (<i>P. maackii</i>)	20x20	Rounded	3	Somewhat	Yes	Full	Mod	No	Excellent wildlife tree; attractive reddish-gold bark; attractive spring flowers.
Pin Cherry (<i>P. pensylvanica</i>)	12x10	Upright	2	Yes	Yes	Sunny to mod shade	Low	Yes	A small tree for small spaces, excellent wildlife value, tolerant of most sites.
Black Cherry (<i>P. serotina</i>)	50x35	Oval	3b	Yes	Yes	Sunny to partial shade	Low	Yes	Under-used landscape tree that deserves more attention. As with all cherries, yellow fall color, white flowers in the spring.
Canada Red Cherry (<i>P. virginiana</i> ‘Canada Red’)	25x15	Irregular	2	Yes	Yes	Full	Low	Yes	Green leaves turn reddish-purple in summer. Very susceptible to black knot fungal twig and stem canker/gall. Tends to sucker profusely so only grow it as a lawn tree where the suckers are mown off every 5-7 days.
Chokecherry (<i>P. virginiana</i>)	25x20	Irregular	2	Yes	Yes	Full	Low	Yes	Excellent wildlife (birds) tree.
‘Meteor’ sour cherry (<i>P. cerasus</i> ‘Meteor’)	12x12	Rounded	4	Yes	Yes	Full	Low	No	Excellent eating and pie cherries. Ripens shortly after ‘North Star.’ Self-pollinating.
‘North Star’ sour cherry (<i>P. cerasus</i> ‘North Star’)	10x10	Rounded	4	Yes	Yes	Full	Low	No	Earliest of the edible tart (a nice way of saying “sour”) cherries for MN. Self-pollinating, Few disease problems. Delicious.
Coffeetree (<i>Gymnocladus dioica</i>)	70x30	Irregular	4	Yes	*	Sunny to partial shade	Low	Yes	*Female coffeetrees are pollinator “friendly.” Typical prairie tree. Best male cultivars (they lack seed pods) are ‘Stately Manor,’ Espresso™, Prairie Titan™, True North™.
Cork Tree (<i>Phellodendron amurense</i>)	50x50	Rounded	4	Yes	Yes	Sunny to	Mod	No	Very site adaptable, pollution-tolerant tree, but can become invasive, even the male cultivated varieties. Best (male) cultivars:

						partial shade			Eye Stopper™, His Majesty™, Superfection™, 'Macho,' Shademaster®
Cottonwood, Eastern (<i>Populus deltoides</i>)	75x75	Oval	3b	Yes	Yes	Sunny to partial shade	Mod	Yes	If you don't like the cottonwood "cotton," plant male selections. Do not plant in boulevards less than 12' wide. The variety 'Siouxland' is a widely available, male cultivar.
Pagoda Dogwood (<i>Cornus alternifolia</i>)	15x15	Spreading	3b	No	Yes	Sunny to Mod shade	Mod	Yes	Very susceptible to golden canker. Before purchasing at a nursery, examine it carefully for symptoms of canker. Look it up on the internet to view the telltale symptoms. Beautiful white flowers in spring, burgundy autumn foliage.
Elm, American, (<i>Ulmus americana</i>)	75x75	Vase	3	Yes	Yes	Sunny to partial shade	Low	Yes	The species is very vulnerable to Dutch elm disease (DED). Select from cold-hardy, DED resistant varieties: Prairie Expedition® (zone 3) and St. Croix™ (zone 3); 'New Harmony,' 'Valley Forge,' 'Princeton,' (all zone 4). Do not plant elms within 60' of each other. Do not plant more than you can maintain since they often require annual pruning for the first 15 years. Do not interpret "DED resistant" to "DED immune." If you want a tree immune to DED, plant any species but an elm.
Elm, Asiatic (<i>Ulmus</i> species, hybrids, varieties)									Asiatic elms have very good resistance to DED, and generally require much less maintenance to develop into structurally sound landscape trees.
Accolade™ (<i>U. japonica x wilsoniana</i> 'Morton'), and Triumph™ (<i>U. 'Morton Glossy'</i>) Asiatic elms	40x40	Irregular	4	Yes	Yes	Sunny to partial shade	High	No	Very similar trees; Triumph has glossier leaves.
'Discovery' Asiatic elm (<i>U. davidiana var Japonica</i> 'Discovery')	30x30	Rounded	3	Yes	Yes	Sunny to partial shade	High	No	Excellent tree for under power lines.
Northern Empress® Japanese elm (<i>U. davidiana var japonica</i> 'Burgundy Glow')	35x25	Oval	3b	Yes	Yes	Sunny to partial shade	High	No	An elm with burgundy fall color! Excellent tree for small spaces.
Elm, Siberian (<i>U. pumila</i>)									Invasive and can harbor DED for several years before it dies.
Ginkgo (<i>Ginkgo biloba</i> varieties)	50x40	Oval	4	Yes	Yes	Sunny to partial shade	Low	No	Technically not a hardwood tree, but it's not a true conifer or a deciduous tree. Belongs in its own category but included in the deciduous tree list here. Use male varieties to keep your phone from ringing off the hook: 'Autumn Gold,' Princeton Sentry®
Hackberry, Common (<i>Celtis occidentalis</i>)	70x70	Irregular	3	Yes	Yes	Sunny to	Mod	Yes	Hackberries require regular structural pruning for the first 15 years. Recommended cultivar: 'Delta,' reliably zone 3.

						partial shade			
Hawthorn, Cockspur (<i>Crataegus crus-galli</i>)	25x25	Spreading	4	No	Yes	Full	Mod	Yes	There are several other native hawthorns...don't use them due to disease pressure. Recommended cultivar: thornless Crusader™.
Toba and Snowbird hawthorn (<i>Crataegus x mordenensis</i> 'Toba', and 'Snowbird')	20x20	Spreading	3b-4a	No	Yes	Full	Mod	Yes	Both have double-white flowers. Snowbird has glossier leaves and is slightly cold hardier.
Hickory (<i>Carya</i> species)									All hickories are excellent wildlife (and hungry people) trees, courtesy of their edible nuts.
Bitternut hickory (<i>Carya cordiformis</i>)	50x50	Irregular	4	No	No	Sunny to partial shade	Low	Yes	Bitternut hickory is susceptible to a fungal canker that can kill it. Plant in moderation.
Shagbark hickory (<i>Carya ovata</i>)	50x25	Irregular	4	No	No	Sunny to partial shade	Low	Yes	Excellent tree for planting in narrow boulevards since its trunk flare at ground line is very diminutive.
Honeylocust, thornless (<i>Gleditsia triacanthos forma inermis</i>) Northern Acclaim®	40x30	Oval	3	Yes	No	Full	Low	Yes	The only honeylocust hardy to zone 3. One of the best urban trees in Minnesota.
Imperial™ Honeylocust	40x30	Oval	4	Yes	No	Full	Low	Yes	
Street Keeper™	40x20	Upright	4	Yes	No	Full	Low	Yes	
Hop Tree (<i>Ptelea trifoliata</i>)	15x15	Irregular	4b	Yes	Yes	Sunny to mod shade	Low	Yes	One of the most site versatile small trees. Native to river banks and low lands to grassy, open areas. Wafer-like fruit that persists.
Ironwood (<i>Ostrya virginiana</i>)	45x20	oval	3	Somewhat	Yes	Sunny to mod shade	Low	Yes	A common understory tree in Minnesota, but does well in full sun where it grows shorter and squatter. Persistent fruit that looks like a paper lantern.
Lilac, tree form (<i>Syringa</i> species and varieties)	20x20	Oval	3/4	Yes	Yes	Full	Low	No	Both species have lovely flowers in early summer, Pekin lilacs slightly more yellow than the white 'Ivory Silk.'
Japanese Tree Lilac (<i>S. reticulata</i> varieties)	20x20	Oval	4	Yes	Yes	Full	Low	No	<i>S. reticulata</i> 'Ivory Silk' is hardy to zone 4. Do not plant the plain species or Ivory Silk near natural areas since they can become invasive in certain situations. Snowdance™, the variety of <i>S. reticulata</i> that is sterile, is a better variety to plant since it is not invasive and has a heavier flowering habit.
Peking Tree Lilac (<i>S. pekinensis</i> varieties)	20x20	Oval	3	Yes	Yes	Full	Low	No	<i>S. pekinensis</i> 'Zhang Zhiming' Beijing Gold®, <i>S. pekinensis</i> 'SunDak' Copper Curls®, and Great Wall™ are varieties of Peking tree lilac and are cold hardy to zone 3 and are superior to other tree lilacs.

Linden, Littleleaf (<i>Tilia cordata</i>)	35x35	Pyramidal	3	No	Yes	Full	Mod	No	Best cultivars: Shamrock™, 'Morden,' 'Greenspire,' Norlin™. Do not plant lindens in narrow (less than 10 feet wide) boulevards.
Locust, Black (<i>Robinia pseudotacacia</i>)								Yes	This native species is very aggressive, so do not plant near unmaintained, natural areas. The variety 'Purple Robe' is hardy to zone 3, slightly smaller than the species, not aggressive, and has a lovely lavender panicle of flowers.
Maackia, Amur (<i>Maackia amurensis</i>)	25x20	Vase	3	No	Yes	Full	Low	No	Don't let the funny name discourage you from planting this tree. A legume, it thrives on nutrient poor soils. Silvery-blue foliage as it opens in the spring, white summer flowers. Probably the coolest tree bark in your landscape. Best varieties are Summertime™ and MaacNificent™
Magnolia, Cucumbertree (<i>Magnolia acuminata</i>)	50x30	Oval	4	No	Yes	Full	Low	Yes	There are a number of magnolias that you could experiment with in sheltered areas such as Start Magnolia, or 'Merrill' Magnolia, but try the cucumbertree magnolia first. Large, white, spring flower. Fruit looks like a cucumber, but doesn't taste like it.
Maple (<i>Acer</i> species and varieties)									The most over-planted tree species in Minnesota. Plant in moderation and don't add to chances that Minnesota will suffer another tree loss epidemic as we did with elm and ash.
Amur maple (<i>Acer ginnala</i>)									Do not plant this invasive species.
Boxelder maple (<i>A. negundo</i>)	35x35	Oval	2	Somewhat	Yes	Full	Mod	Yes	Stop turning your nose up at this tree. It's a survivor. What's the lifespan of a boxelder? No one knows. It takes some regular pruning when young, but can be developed into a good, site hardy tree. Best variety is 'Baron' which happens to be seedless.
Freeman maple (<i>A. x freemanii</i>)	50x35	Oval	3	No	Yes	Sunny to partial shade	High	Yes	Freeman maples are selections of natural red x silver maple hybrids. They need annual pruning for the first 15 years to ensure a well-built tree. Recommended varieties: Matador™, 'Marmo,' Sienna Glen®, Firefall®, 'Regal Celebration' (the most cold hardy).
Mountain maple (<i>A. spicatum</i>)	20x20	Irregular	2	No	Yes	Sunny to mod shade	Low	Yes	Mountain maple is very sun sensitive. Its autumn color is orange to bright red.
Norway maple (<i>A. platanoides</i>)								No	Invasive. Do not plant especially near natural areas.
Red maple (<i>A. rubrum</i>)	50x50	Oval	3a	No	Yes	Sunny to partial shade	Mod	Yes	Excellent autumn color. Recommended varieties: 'Autumn Spire,' 'Prairie Rouge,' 'Red Rocket,' 'Northwood.'
Silver maple (<i>A. saccharinum</i>)	50x50	Rounded	3	No	Yes	Sunny to partial shade	Mod	Yes	Again, a much-maligned species due to its natural tendency to get huge and weakly-branched. There's a solution to this problem; select one of these varieties: 'Silver Queen,' Silver Cloud®, both are rock-solid, better built, and more compact than the species.

Sugar maple (<i>A. saccharum</i>)	45x45	Rounded	2-4	No	Yes	Sunny to mod shade	Low	Yes	Orange, reds, and yellows in the autumn. These are forest trees. Don't plant in hostile boulevards or parking lots. Recommended varieties: Inferno®(zone 2), 'Northern Flare' (zone 3), Fall Fiesta® (zone 4)
Mountain-ash (<i>Sorbus</i> species)									These are relatively short-lived species, highly valued for wildlife (red-orange fruit is a pome), red or yellow autumn color, white flowers in the spring, tolerance to deicing salt. Mountain-ash are not ash trees, therefore cannot contract emerald ash borer. All are vulnerable to bronze birch borer if drought stressed, and fireblight.
American Mountain-ash (<i>S. americana</i>)	20x20	Rounded	2	Yes	Yes	Full	Mod	Yes	Small tree with lovely fruit but relatively short lived.
European Mountain-ash (<i>S. aucuparia</i>)	25x20	Rounded	3	Yes	Yes	Full	Low	No	The Rowantree is one of the mountain-ash that most looks like a tree for the landscape. Yellow in autumn. Recommended variety: Cardinal Royale®.
Korean Mountain-ash (<i>S. alnifolia</i>)	35x20	Oval	4	Somewhat	Yes	Full	Low	No	An excellent lawn specimen. Autumn foliage is yellow. Hard to find bigger trees in nurseries, so a mail-ordered sapling may be the only choice.
Showy Mountain-ash (<i>S. decora</i>)	20x15	Rounded	2	Yes	Yes	Full	Mod	Yes	Kind of a scruffy little tree, but grows just about anywhere.
Oak (<i>Quercus</i> species, hybrids, and varieties)									Largely upland or prairie trees. Valued for their lumber and mast (acorns) that support a lot of wildlife. Oak foliage supports scores of insects, which end up feeding birds and other beneficial animals. All oaks vulnerable to oak wilt, especially red and northern pin oak.
Bicolor oak (<i>Q. bicolor</i>)	50x50	Oval	4b	Yes	Yes	Sunny to partial shade	Low	Yes	Does well in soils with pH 7.5 or less, and plenty of moisture. Other (unfortunate) common name is swamp white oak.
Bur oak (<i>Q. macrocarpa</i>)	50x50	Rounded	2	Yes	Yes	Sunny to partial shade	Low	Yes	One of our most site and construction tolerant trees. It only grows slow if you don't water or fertilize it.
Schuette's Oak (<i>Q. x schuettei</i>)	50x40	Oval	4	Unknown	Yes	Sunny to partial shade	Low	Yes	Schuette's oak is very tolerant of high pH soils.
Northern pin oak (<i>Q. ellipsoidalis</i>)	60x60	Oval	3b	Yes	Yes	Sunny to partial shade	Low	Yes	An excellent urban landscape tree. Majestic Skies™ is an improved variety of Northern Pin Oak, with deeply cut sinuses and a more erect growth habit.

Red oak (<i>Q. rubra</i>)	75x75	Oval	3a	Yes	Yes	Sunny to partial shade	Low	Yes	Prone to decay so of all the oaks, the least desirable for urban landscapes.
White oak (<i>Q. alba</i>)	50x50	Oval	4a	Yes	Yes	Sunny to partial shade	Low	Yes	Hard to find at nurseries. Not to be confused with bur oak. Not a good boulevard tree.
Hybrid oaks (<i>Q. x</i>)	25-50 x8-25	Varies	2-4	Yes	Yes	Sunny to partial shade	Low	Varied	Recommended varieties: 'Admiration' (zone 2), Urban Pinnacle® (zone 3, 50x35'), Heritage® (zone 4), Prairie Stature® (zone 3b), Regal Prince® (zone 4, 35x18'), Schuette's (zone 4, 50x40').
Olive, Russian (<i>Elaeagnus angustifolia</i>)									Very invasive. Don't plant it where it can escape, which is nowhere since birds eat the fruit and deposit the seeds.
Pear, Ussurian (<i>Pyrus ussuriensis</i>)	35x25	Rounded	3	Unknown	Yes	Full	Low	No	One problem is the messy fruit drop. Values are beautiful white flowers in spring, gorgeous autumn foliage. Recommended varieties: 'Mountain Frost' (35x25), 'Prairie Gem' (25x25), 'Navigator' (35x25).
Plum (<i>Prunus</i> species, hybrids, varieties)	15x10	Varies	2-3	Unknown	Yes	Full	Low	Varied	Species and varieties: American plum (<i>P. americana</i>), our native, zone 3 wildlife plum, 10x10; 'Muckle' plum (<i>P. x nigrella</i>), 15x10', beautiful cherry pink flowers in spring, fruitless, zone 2; 'Prairie Red,' a variety of American plum with better and larger fruit, 15x15.
Prickly-ash (<i>Zanthoxylum americanum</i>)								Yes	Horrid little native tree; aggressive, and covered with very sharp and abundant "prickles," another word for extra sharp needles that will shred clothing.
Redbud, Eastern , Minnesota strain (<i>Cercis canadensis</i>)	20x20	Irregular	4	Unknown	Yes	Sunny to mod shade	Low	Yes	Versatile small tree as an understory or full sun landscape. Lavender flowers in spring before leaves emerge. Legume, so does well on nutrient poor soils.
Rubber Tree, Hardy (<i>Eucommia ulmoides</i>)	45x35	Irregular	4b	Unknown	Yes	Full	Low	No	This isn't like the rubber tree in your dentist's office. Looks like an elm but doesn't get Dutch elm disease. Very drought resistant. Recommended variety: Emerald Pointe™, which is seedless so it negates the fear of invasiveness.
Russian olive (<i>Elaeagnus angustifolia</i>)									Do not plant due to its invasiveness.
Serviceberry (<i>Amelanchier</i> species and varieties)	Varied	Varies	3-4	Yes	Yes	Sunny to mod shade	Low	Yes	<i>Amelanchier canadensis</i> is hardy to zone 3, 10x6. Best variety is Autumn Brilliance®, 20x15, zone 4. <i>Amelanchier laevis</i> , is hardy to zone 4, 25x15. Recommended variety is 'Snowcloud,' 28x20, zone 4. All serviceberries have white flowers in spring before leaves emerge, edible fruit, and red to burgundy autumn foliage. Excellent wildlife trees. Excellent boulevard trees where low utility lines pose a restriction.

Sumac, Smooth and Staghorn (<i>Rhus glabra</i> and <i>R typhina</i>)	15x15	Arching	3	Yes	Yes	Full	Low	Yes	Very deicing salt and droughty soil tolerant. Can make tea from fruit. Short-lived, small trees. Very susceptible to rabbit and deer girdling. Can move into unmaintained areas and slowly take over.
Viburnum, Nannyberry (<i>Viburnum lentago</i>)	15x10	Oval	2	No	Yes	Sunny to partial shade	Low	Yes	Yes, it's a shrub, but it can be trained to a single-stemmed, small tree. Lovely white flowers in spring, dark blue fruit in autumn, burgundy-red autumn foliage. Excellent wildlife plant.
Wahoo, Eastern (<i>Euonymus atropurpureus</i>)	20x20	Oval	4a	Somewhat	Yes	Sunny to partial shade	Low	Yes	Plant it just so you can say its common name. Native, small tree for certain spaces.
Walnut, Black and White (<i>Juglans nigra</i> and <i>J. cinerea</i>)	50x50	Irregular	4/3	No	No	Sunny to partial shade	Low	Yes	If you still think nothing grows near a black walnut, take a walk through a riparian woods. Walnuts play well with other tree and shrub species. Excellent wildlife trees. White walnut (aka butternut) is shorter-lived due to walnut canker disease. Black walnut hardy to zone 4, white walnut hardy to zone 3.
Willow (<i>Salix</i> species)	Varied	Irregular	2-3	Somewhat	Yes	Sunny to partial shade	Mod	Yes	Peachleaf willow (<i>S. amygdaloides</i>) and black willow (<i>S. nigra</i>) are the largest at 50x35, both zone 3. Bebb willow (<i>S. bebbiana</i>) and Pussy willow (<i>S. discolor</i>) are basically big shrubs (20x20), hardy to zone 2. Prairie Reflection® Laurel willow (<i>S. pentandra</i>) a zone 3 willow that does better than others in alkaline soils. Willows are included in this list because they thrive in wet soils, and are excellent pollinator trees.
Witchhazel, Common (<i>Hamamelis virginiana</i>)	15x15	Irregular	4b	No	Yes	Sunny to mod shade	Low	Yes	Beautiful yellow flowers in mid to late autumn. Small understory tree.
Yellowwod (<i>Cladrastis kentukea</i>)	30x30	Vase	4	No	Yes	Sunny to partial shade	High	Yes	A novelty tree for special, protected sites. Requires regular pruning in early years to prevent wind and ice loading damage. Lovely yellow autumn color.

Coniferous (softwood) Trees									
Common/Scientific Name	Size	Shape	Zone	Salt Spray	Pollinator	Light	Wind/Ice	Native	Notes
Cedar, Atlantic White <i>(Chamaecyparis thyoides)</i>	40x20	Pyramidal	4	No		Full	Mod	Yes	A novelty evergreen tree to try. Looks similar to an arborvitae.
Cedar, Eastern Red (<i>Juniperus virginiana</i>)	30x15	Pyramidal	3	Yes		Full	Low	Yes	The boxelder of the evergreen world. Excellent wildlife habitat. Many improved landscape varieties available in nurseries.
Cedar, Northern White (<i>Thuja occidentalis</i>)	45x30	Pyramidal	2	No		Full	Mod	Yes	The favorite food of deer in Minnesota. Very versatile, disease and insect-free evergreen tree. Many varieties ranging from 3 foot shrubs to large trees available in nurseries. Unfortunately, its most common name is arborvitae.
Fir (<i>Abies species</i>)									
Balsam Fir (<i>Abies balsamea</i>)	50x25	Pyramidal	2	No		Sunny to mod shade	Low	Yes	Keep balsam fir out of intense wind landscapes. One of the most shade tolerant evergreens. Its needles have the fragrance of what we expect of the winter holidays.
White/Concolor (<i>Abies concolor</i>)	50x25	Pyramidal	3	Somewhat		Sunny to partial shade	Low	Yes	Looks like a blue spruce except healthier, more tolerant of drought, softer needles.
Hemlock, Canadian (<i>Tsuga canadensis</i>)	40x40	Pyramidal	3	No		Sunny to mod shade	Low	Yes	One of the few evergreen trees that thrives in shady landscapes. Keep protected from southern sun and windy locations.
Larch (<i>Larix species</i>)	50x35	Irregular	2	Yes		Full	Low	Varied	Larch, aka tamarack, was once the most commonly found tree in Minnesota. It is a deciduous conifer, meaning that it looks like an evergreen until autumn when it loses its needles. It grows well in wet landscapes as well as normal ones. It must have full sun to remain healthy. There are three larches that can be used in zone 2 (<i>L. laricina</i> (American larch), <i>L. decidua</i> (European larch), and <i>L. sibirica</i> (Siberian larch)). All turn golden yellow in the autumn.
Pine (<i>Pinus species</i>)									
Austrian pine (<i>Pinus nigra</i>)									Prone to several fungal diseases. Looks worse as it gets older, which is too bad since it has very good salt spray tolerance.
Jack pine (<i>P. banksiana</i>)	40x20	Irregular	2	Yes		Full	Low	Yes	More of a scrub pine that is very site tolerant. Its form is described as "architecturally interesting."
Limber pine (<i>P. flexilis</i>)	25x35	Oval	2	Yes		Full	Low	Yes	Tidy, smaller pine tree.
Red pine (<i>P. resinosa</i>)	75x35	Oval	2	Yes		Full	Low	Yes	State tree, aka Norway pine. Beautiful bark.

Swiss stone pine (<i>P. cembra</i>)	30x15	Pyramidal	2b-3	Yes		Full	Low	No	Excellent smaller pine with rare insect/disease problems. Recommended variety: Prairie Statesman®, an outstanding specimen in form and color: emerald green needles with silvery-blue overtone.
White pine (<i>P. strobus</i>)	75x75	Oval	3	No		Full	Low	Yes	The most delicate looking of the pines. Susceptible to white pine blister rust. The variety Patton's Silver Splendor™ is resistant to the disease.
Spruce (<i>Picea</i> species)									
Black spruce (<i>Picea mariana</i>)	15x45	Pyramidal	2	Unknown		Full	Low	Yes	Relegated to very wet sites where other evergreens don't grow.
Colorado spruce (<i>P. pungens</i>)	50x25	Pyramidal	2	Yes		Full	Low	Yes	Overplanted. Prone to foliar diseases. If you like the blue color of Colorado spruce, consider a white fir. Good windbreak tree, but relatively short-lived in MN. Leave lots of space between spruces and it will reduce the frequency of foliar diseases.
Black Hills white spruce (<i>P. glauca densata</i>)	50x25	Pyramidal	2	Yes		Full	Low	Yes	The most popular spruce (along with Colorado spruce) planted in Minnesota.
Engelmann spruce (<i>P. engelmanni</i>)	60x20	Pyramidal	2	Yes		Full	High	Yes	Another very narrow spruce for tight spots.
Norway spruce (<i>P. abies</i>).	75x50	Pyramidal	3	Yes		Full	High	No	Maybe the best spruce for Minnesota. Hardy and few disease problems.
Serbian spruce (<i>P. omorika</i>)	50x20	Pyramidal	4	Unknown		Full	Low	No	Bluish color to underside of needles. Much smaller "skirt" than other spruces which makes it a better choice for narrow planting sites.
White spruce (<i>P. glauca</i>)	50x35	Pyramidal	2	Yes		Full	Low	Yes	Give it lots of air movement in the landscape and it will stay healthy.
Upright Japanese Yew (<i>Taxus cuspidata</i> 'Capitata')	20x15	Pyramidal	4	No		Sunny to mod shade	Mod	To Japan	Popular evergreen tree for residential and commercial landscapes. Can be sheared to any shape. Does not tolerate wet soils.

Published July, 2021.

The Authors:

Gary Johnson, Professor Emeritus of urban and community forestry, University of Minnesota, Department of Forest Resources.

Emily Golden Hanson, former research assistant in urban and community forestry, University of Minnesota, Department of Forest Resources.

Ryan P. Hogan, former research assistant in urban and community forestry, University of Minnesota, Department of Forest Resources.

Eric North, assistant professor of urban and community forestry, University of Minnesota, Department of Forest Resources.

Funding for this project was provided in part by the University of Minnesota, Department of Forest Resources, the Urban Forestry Outreach and Research lab at the University of Minnesota, the U.S. Forest Service Eastern Region, and the Minnesota Department of Natural Resources Division of Forestry.

In accordance with Federal law and U.S. Department of Agriculture (USDA) civil rights regulations and policies, this institution is prohibited from discriminating on the basis of race, color, national origin, sex, age, disability, and reprisal or retaliation for prior civil rights activity. (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means of communication for program information (e.g., Braille, large print, audiotape, American Sign Language, etc.) should contact the responsible State or local Agency that administers the program or USDA's TARGET Center at (202) 720-2600 (voice and TTY) or contact USDA through the Federal Relay Service at (800) 877-8339. Additionally, program information is also available in languages other than English. To file a complaint alleging discrimination, complete the USDA Program Discrimination Complaint Form, AD-3027, found online at http://www.ascr.usda.gov/complaint_filing_cust.html, or at any USDA office or write a letter addressed to USDA and provided in the letter all of the information requested in the form. To request a copy of the complaint form, call (866) 632-9992. Submit your completed form or letter to USDA by: (1) mail: U.S. Department of Agriculture, Office of the Assistant Secretary for Civil Rights, 1400 Independence Avenue, SW, Washington, D.C. 20250-9410; (2) fax: (202) 690-7442; or (3) email: program.intake@usda.gov. This University of Minnesota is an equal opportunity provider.