Indiana Tree Species Selection Guide

DNR
Indiana Department of Natural Resources
Forestry

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Introduction

Welcome to the Indiana Tree Species Selection Guide, created by the Indiana DNR's Community & Urban Forestry program. This guide was created to help you select the best tree species for your planting location, whether you're a first-time planter or an experienced arborist.

We designed this resource with the average user in mind; that is, we chose categories that can be used by those with minimal knowledge of arboriculture based on mostly visual site conditions. For example, you can easily measure a planting site to determine its width and what size tree would be a good fit. Categories like soil pH and texture, on the other hand, require either an advanced knowledge of the site or soil tests and are therefore not included in this guide.

Indiana's landscape is diverse, and it is a challenging task to make recommendations suitable for the entire state. Some trees will thrive in Portage just as they would in Evansville, while other species are only appropriate in certain regions. Ask local arborists and other practitioners what grows well in your area. We encourage you to use this guide as a starting point and to further research the species you're interested in planting.

Why Native Species?

This guide only includes species native to Indiana. According to the U.S. Forest Service:

> *Native plants are the indigenous terrestrial and aquatic species that have evolved and occur naturally in a particular region, ecosystem, and habitat.*

The concept of nativity can be blurry because it is inherently tied to time and political boundaries. Generally speaking, native species are those that occur in an area as a result of natural processes. For this guide, native species are defined as those present in the United States before European colonization.

Native species have developed over hundreds or thousands of years in a particular region. This means they developed *with* other natives, like insects, animals, plants, and other trees. They have formed complex relationships and rely on each other for food, habitat, and more.

This co-evolvement also means that native species are well-adapted to local environmental conditions. Native trees contribute greatly to their ecosystem while posing little risk of causing harm, making them the most financially and environmentally sustainable planting choice. Some non-native species do require fewer resources, which is understandably attractive to practitioners. However, this characteristic allows non-natives to out-compete natives and in some cases, become invasive. Native trees offer cohesion.

Organisms like plants and algae capture the sun's energy and turn it into food via photosynthesis. In the food web, these organisms form the first trophic level—the foundation of all terrestrial ecosystems.

Benefits to wildlife and pollinators

Consider this: the vast majority of insect herbivores (insects that eat plants) are specialists (Forister et al., Schoonhoven et al.). This means they can only obtain their food from a very narrow spectrum of plant species—usually a single family of plant but often only a single genus. Monarch caterpillars are a prime example of this relationship. They are specialists for plants in the milkweed family; without milkweed, there would be no monarch butterflies.

You might picture birds eating mostly berries and seeds, but 96% of terrestrial birds rear their young on insects (Richie). According to Douglas Tallamy, a professor of entomology and wildlife ecology at the University of Delaware, one clutch of young chickadees requires

6,000 to 9,000 caterpillars to reach maturity ("The Chickadee's Guide"). In a comparison of native and non-native plants used in the ornamental industry, native plants supported 14 to 15 times more species of moth and butterfly larvae than non-native plants (Tallamy and Shropshire).

Why is this important? A study of residential yards demonstrated that non-native plants reduce habitat quality for insectivorous birds. Landscapes dominated by non-native species had lower arthropod abundance, forcing Carolina chickadees to eat less preferred prey, produce fewer offspring, and even forgo reproduction in those sites altogether, leading to lower reproductive success (Narango).

If we stop providing the native trees and plants that feed our native pollinators and insects, we begin to lose those pollinators and insects and in turn, the birds, animals, and plants that rely on them.

We recommend the book *Bringing Nature Home* by Douglas Tallamy for further reading about the benefits of native plants to native wildlife and pollinators.

Impact of invasive and non-native species

An invasive species is one that a) is not native to the ecosystem under consideration, b) was [intentionally or unintentionally] introduced by humans, and c) whose introduction causes or could cause harm to the economy, the environment, or to human health (Iannone et al.).

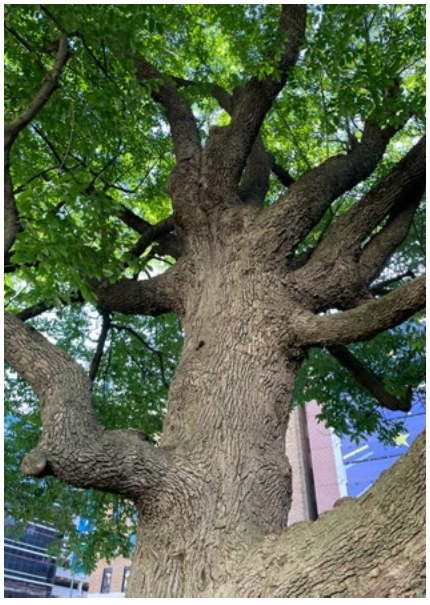
Invasive species reduce biodiversity, alter habitats, and outcompete native species for limited resources. In many cases, they are even capable of causing extinctions of native species. This damage is not limited to parks, nature preserves, or forests. Whether in your landscaping or along city streets, an invasive species is still an invasive species because they will not stay confined to where they are planted. In private and public, for one tree or 500, we must choose native species over invasive species.

Non-native species are those that were introduced to an area by humans, did not evolve there, and do not occur there naturally. They differ from invasive species in that they are not considered harmful to economy, environment, or human health, although that can change over time.

However, the lack of a negative impact does not mean that non-native species are beneficial to the landscape. Consider the oak (*Quercus*) genus: it supports more life forms than any other North American tree genus, including 897 species of caterpillar. There are about 90 species of oak native to North America—20 of which are native to Indiana. In contrast, the gingko tree, which is not native to any part of the continent, only supports five species of caterpillar. One of the reasons non-native and invasive species have become so popular in the horticulture industry is because they have been advertised as "pest-free." We know now that this means they do not serve as a food source for native pollinators and insects.

Because of this potential for non-natives to become invasive and their limited benefit to wildlife and pollinators, CUF does not recommend planting non-native trees (see "Planting for A Changing Climate").

Why no ash or maple?



It's all a matter of diversity. The American elm (*Ulmus americana*) was once one of the most widely planted urban trees in the United States (Eden). The iconic vase-shaped tree grew quickly and provided great shade and cooling with its height and dense canopy. This prolific species, along with other, less commonly planted native elms *(Ulmus* spp.), has been decimated by Dutch elm disease (DED). Because it was ubiquitous along city streets and throughout the urban landscape, the loss of the elm to DED was deeply felt in Indiana and across the country (see "A note on cultivars and varieties" for more information about planting elms).

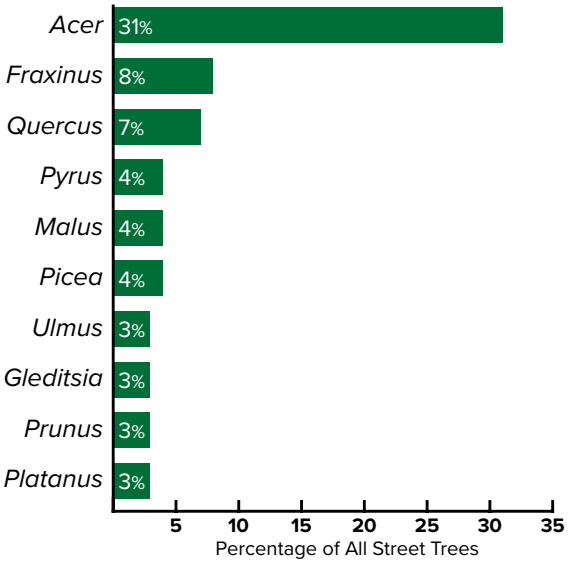
The tree that succeeded the stately elm was the ash (*Fraxinus* spp.), chosen for its high tolerance of urban stressors. Unfortunately, all native ash species are susceptible to emerald ash borer (EAB), and EAB has killed hundreds of millions of ash trees in North America since its instroduction. This destruction is ongoing, as is the recovery response.

Historically, species diversity has not been a priority of urban forestry, and this oversight has been costly. Pests and pathogens are

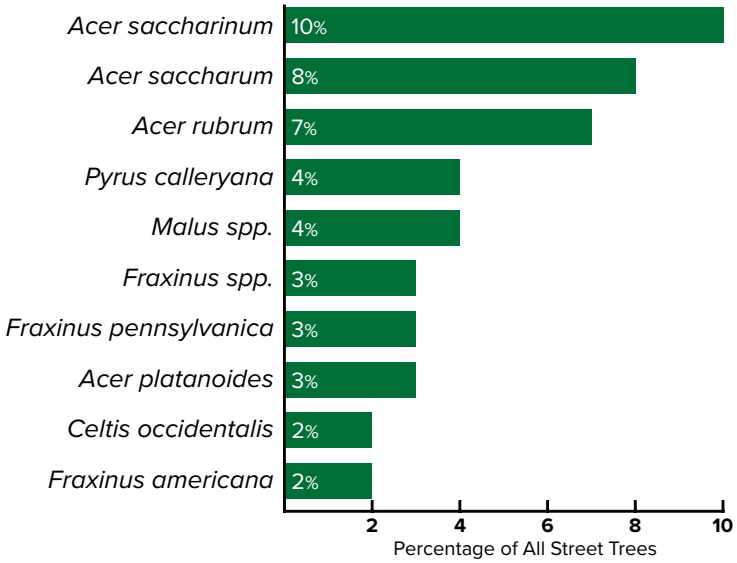
a fact of life in the urban forest, so it is vital that we learn from these experiences of large-scale decline and recognize the impact of relying so heavily on one genus. After the fall of elms and ash trees, Maples (*Acer* spp.) became the next urban trees of choice and are still being overplanted today (Petter). An assessment of Indiana's urban forest in 2008 found that silver maple composed around 18% of street trees across 23 sample communities. Other top species in the sample areas were red maple, sugar maple, and the invasive Norway maple.

An analysis of inventories from 14 communities ranging from 2016 to 2022 shows that around 31% of all street trees were in the *Acer* (Maple) genus, and around 10% of all street trees were just one species—silver maple (*Acer saccharinum*). Many Hoosier communities are in the position of having a canopy that is dominated by maple trees, and there is fear as to what could happen should a threat to this population arise. The Asian longhorned beetle (ALB) is one possible threat, though it has not yet been found in the state ("Asian").

Street Trees by Genus (2016–2022)



Street Trees by Species (2016–2022)



We must take this opportunity to build resilience in our communities by prioritizing diversity in our urban forests. This is one of our best defenses against future invasions and a changing climate.

A note on cultivars and varieties

A variety is a naturally occurring variation within a species and is written like this: *Gleditsia triacanthos* var. *inermis*, which is the thornless variety of honey locust. Varieties are NOT genetically identical, so they are not a concern for low resiliency to pests or disease.

Cultivars are **culti**vated **var**ieties that require human intervention to reproduce a trait. The cultivar name follows the species name in single quotation marks and is not italicized. For example: *Ulmus americana* 'Jefferson'. Some may also include a trademarked (™) name, like *Cercis canadensis* 'JN2' The Rising Sun™.

The vast majority of cultivars are clones, which means the trees are genetically identical. This lack of genetic diversity creates a population with low resiliency to pests or disease. Counterintuitively, some cultivars are created in response to pests and disease. For example, there are a number of American elm cultivars on the market that exhibit varying degrees of resistance to Dutch elm disease. Cultivars tend to come and go as new ones are developed, and just because one is popular doesn't mean it's a good choice. We encourage you to communicate with nurseries and arborists to determine which, if any, are a good fit for your project. Otherwise, we recommend planting straight species whenever possible and caution against heavy reliance on any one cultivar.

Building healthy, resilient urban forests

To create a healthy and resilient urban forest, we must plant a diverse range of native trees. The information within this guide will support the selection of species that will thrive in your community.

Maintenance is another key consideration—who will care for the trees after they're planted? In order to become part of a healthy, resilient urban forest, trees must receive appropriate care and maintenance, especially while they are young.

Sufficient water is critical during the establishment period (typically the first 1-3 years after planting). Regular mulching has a number of benefits for trees of all ages. After a young tree is established, proper pruning can help develop a strong structure and prevent future problems. Different species have different maintenance requirements, and some may demand more resources than others. To ensure that the trees are able to provide benefits for future generations, it is important to plan beyond planting.

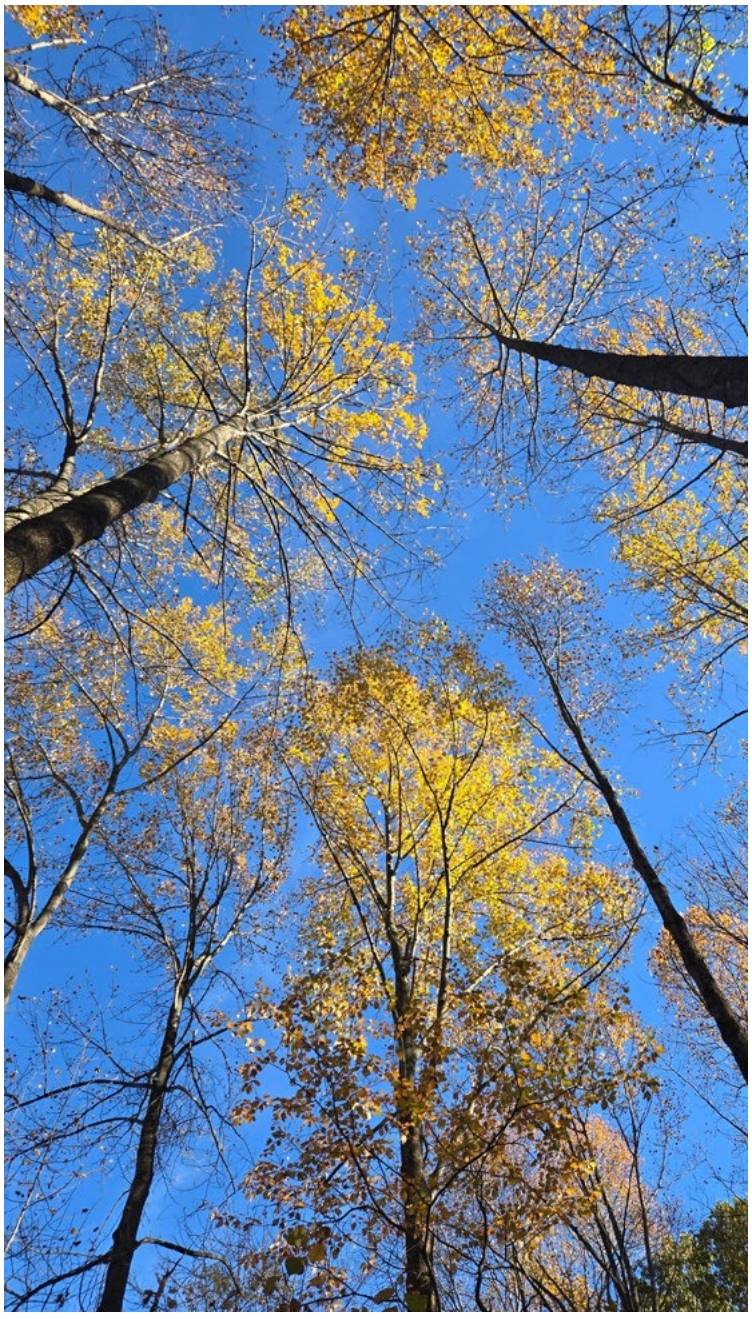
Finally, keep in mind that this guide is meant to be a starting point. Do additional research about the species you'd like to plant. Talk to local practitioners, nurseries, and arborists to learn more about what thrives in your area. It's hard to generalize and make recommendations that apply to an entire state, so this guide is bound to have shortcomings. Take what resonates, leave what doesn't, and reach out to the CUF program with any questions.

Importance of Right Tree, Right Place

"Right Tree, Right Place" refers to the practice of choosing a species that is well-suited for a particular site. This placement dictates how well the tree will grow and how it will be managed over time. Healthy trees provide more benefits, so putting the right tree in the right place is essential for the foundation of a healthy community forest. Trees planted without consideration of site conditions—that is, trees planted in the wrong places—will require more frequent and costly maintenance and can become a liability instead of an asset. The principles of Right Tree, Right Place will help you select an appropriate species for your site by matching the species' environmental requirements with the site's characteristics.

There are many factors that influence species selection. The highest priority is to ensure the tree's survival. A tree that requires full sun is not suited for a shady site, and a tree that prefers dry sites won't do well in an area that floods regularly. Other factors will vary depending on the particular functions you want the tree to fulfill—your purpose for planting. Are you planting for economic benefits, like reducing energy costs? Are you planting for aesthetics, like street beautification? Are you planting for environmental impact, like mitigation of climate change?

Even if a species is native to Indiana, it may not be suited for your particular area. Indiana is composed of ecological regions, or ecoregions. An ecoregion is an area of land (or water) with generally similar environmental conditions—such as climate, geology, and soil—that supports a distinct biological community. Even as urbanization continues to shape the landscape, Indiana is not homogenous; some tree species are widely suitable across the state, while others are only appropriate in a specific part of the state. To understand what thrives in your region, consider consulting local experts and researching the native range of the species you wish to plant.



Finally, you must look up, down, and all around before you plant. Follow local regulations for planting underneath or near powerlines. Generally speaking, the larger the tree will be at maturity, the farther away it should be planted from overhead powerlines. Call Indiana 811 to have underground utilities marked so that you can avoid any potential conflicts. Local ordinances may dictate planting a certain distance from sidewalks, buildings, and other structures.

These are all valuable considerations. Right Tree, Right Place, and Right Purpose will ensure long-term benefits, beauty, and satisfaction. The next section will provide information on growth, planting locations, and tolerances of native Indiana tree species so that you can select an appropriate species for your site.

Tree Species List

Growth Information

SIZE

Size	Mature Height	Minimum Site Width
Small	< 30 ft.	4 ft.
Medium	30-45 ft.	5 ft.
Large	> 45 ft.	6 ft.

Species are sorted into three categories based on their average height at maturity. Bigger trees need more space in all directions, so site size considerations should include site width, soil volume, vertical space, and spacing from buildings and other trees.

GROWTH RATE

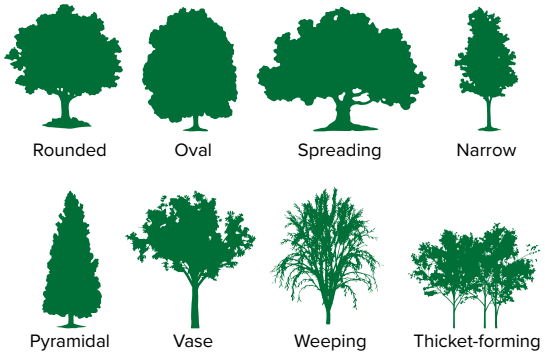
Species are categorized as slow-, moderate-, or fast-growing. Generally, species that grow faster have shorter lifespans and vice versa. Fast-growing species can quickly provide privacy and fill in landscapes rapidly, while slower species produce stronger wood with better defense mechanisms against pests and disease.

EVERGREEN OR DECIDUOUS

Evergreen trees have foliage that remains green and functional throughout the year. Deciduous trees lose their foliage annually. Evergreens offer year-round privacy and wind protection while deciduous trees provide shade and seasonal interest.

FORM

Trees vary in height, width, and branching pattern, and it is important to match form to the site and the intended function. Consider visibility requirements and aesthetics when selecting a species.



Planting Locations

GOOD FOR PARKS

These trees are suitable for large, open spaces that are well-maintained, such as parks, yards, and commercial and industrial campuses. Trees with heavier litter can be used here, as well as those suitable for right-of-way and median plantings.

GOOD FOR STREETS

These species are suitable street trees. Street trees are those located in the public right-of-way (ROW), including:

- Treelawn – the grassy strip between the sidewalk and the street
- Non-treelawn – ROW extends into the front yard where no treelawn is present
- Medians and parkways – grassy strips either in the center of roadways or adjacent to them

These areas vary in width, so make selections in conjunction with the size column. These trees are generally low-litter species, and they have a high tolerance to extreme urban conditions like pollution and compacted soils.

Street trees are also exposed to de-icing salts that are applied to sidewalks and roads. Salt tolerance was factored into this category, but you may want to do additional research about salt spray and saline soil if relevant for your community.

RIPARIAN

These trees are known for thriving along various bodies of water and like to have “wet feet.” Consider planting species from this category in areas that tend to have standing water after heavy rain events.

NATURAL AREAS ONLY

Trees in this category are best suited for unmaintained natural areas, particularly those that do not get mowed. This includes “messy” trees that produce excessive litter (i.e., leaves, fruits, nuts), species with sharp thorns, and trees that are aggressive or prone to weedy growth. Additionally, trees that are difficult to find in nurseries are marked here.

Preference

DRAINAGE

D = Dry
WD = Well-drained
M = Moist
W = Wet

LIGHT

◌ = Full sun
◑ = Partial shade
● = Full shade

Trees Not Recommended

The following native species are currently **not recommended** for planting anywhere in Indiana:

Scientific Name	Common Name	Reasoning
Acer negundo	Boxelder (ash-leaved maple)	overplanted
Acer nigrum	Black maple	overplanted
Acer rubrum	Red maple	overplanted
Acer saccharinum	Silver maple	overplanted
Acer saccharum	Sugar maple	overplanted
Castanea dentata	American chestnut	Chestnut blight
Fraxinus americana	White ash	Emerald ash borer
Fraxinus nigra	Black ash	Emerald ash borer
Fraxinus pennsylvania	Green (red) ash	Emerald ash borer
Fraxinus profunda	Pumpkin ash	Emerald ash borer
Fraxinus quadrangulata	Blue ash	Emerald ash borer
Juglans cinerea	White walnut, Butternut	Butternut canker
Ulmus alata	Winged elm	Dutch elm disease
Ulmus americana	American (white) elm	Dutch elm disease*
Ulmus rubra	Slippery (red) elm	Dutch elm disease
Ulmus thomasii	Rock elm	Dutch elm disease

**Contact CUF with questions about DED-resistant cultivars.*

Tree Species List

		Growth Information				Planting Locations				Preference	
Scientific Name	Common Name(s)	Size	Growth Rate	Evergreen or Deciduous	Form	Natural Areas Only	Good for Parks	Good for Streets	Riparian	Drainage	Light
Aesculus flava (octandra)	**Yellow buckeye**	L	Moderate	D	Oval		✓	✓		WD, M	☼ ◑
Aesculus glabra	**Ohio buckeye**	M	Moderate	D	Rounded		✓	✓	✓	WD, M	☼ ◑
Amelanchier arborea	**Downy serviceberry**	S	Moderate	D	Narrow		✓	✓		WD, M	☼ ◑
Amelanchier laevis	**Allegheny (smooth) serviceberry**	S	Moderate	D	Narrow		✓	✓		WD, M	◑
Asimina triloba	**Pawpaw**	M	Slow	D	Pyramidal		✓		✓	WD, M, W	☼ ◑
Betula alleghaniensis	**Yellow birch**	L	Moderate	D	Rounded		✓			WD, M	☼ ◑ ●
Betula nigra	**River birch**	M	Fast	D	Rounded		✓		✓	WD, M, W	☼
Betula papyrifera	**Paper birch**	L	Fast	D	Rounded		✓			WD, M	☼
Betula populifolia	**Gray birch**	M	Moderate	D	Pyramidal		✓	✓		WD, M	☼
Carpinus caroliniana	**Hornbeam, blue beech, musclewood**	M	Slow	D	Oval		✓	✓		WD, M, W	☼ ●
Carya cordiformis	**Bitternut hickory**	L	Slow	D	Oval		✓			WD, M	☼ ●
Carya glabra	**Pignut hickory**	L	Slow	D	Oval		✓			any	☼ ◑
Carya illinoensis	**Northern pecan**	L	Moderate	D	Oval		✓			WD, M, W	☼
Carya laciniosa	**Shellbark hickory**	L	Moderate	D	Oval		✓		✓	W	☼ ◑
Carya ovalis	**Red hickory**	L	Slow	D	Rounded		✓			WD, M	☼
Carya ovata	**Shagbark hickory**	L	Moderate	D	Oval		✓			WD, M, W	☼ ◑
Carya pallida	**Pale (sand) hickory**	L	Slow	D	Narrow		✓			WD, M	◑
Carya tomentosa	**Mockernut hickory**	L	Slow	D	Oval		✓			WD, M	☼ ◑
Catalpa speciosa	**Northern Catalpa**	L	Fast	D	Oval		✓	✓	✓	WD, M	☼
Celtis laevigata	**Sugarberry**	M	Fast	D	Rounded		✓	✓	✓	WD, M, W	☼ ●
Celtis occidentalis	**Hackberry**	L	Fast	D	Vase		✓	✓	✓	WD, M	☼ ◑
Cercis canadensis	**Eastern redbud**	S	Moderate	D	Rounded		✓	✓	✓	WD, M	☼ ◑
Cladrastis kentukea	**Yellowwood**	M	Moderate	D	Rounded		✓	✓		WD, M	☼
Cornus alternifolia	**Pagoda (alternate-leaved) dogwood**	S	Moderate	D	Spreading		✓			WD, M	☼ ◑
Cornus florida	**Flowering dogwood**	S	Slow	D	Rounded		✓	✓		WD	◑ ●
Crataegus crus-galli	**Cockspur hawthorn**	S	Moderate	D	Thicket-forming		✓			WD, M	☼
Crataegus crus-galli, var. *inermis*	**Cockspur hawthorn 'thornless'**	S	Moderate	D	Rounded		✓	✓		WD, M	☼
Crataegus mollis	**Downy hawthorn**	S	Moderate	D	Spreading		✓			WD, M	◑
Crataegus punctata	**Dotted hawthorn**	S	Moderate	D	Spreading		✓			WD, M	☼
Crataegus viridis	**Green hawthorn**	M	Moderate	D	Spreading		✓	✓		WD, M	☼ ◑
Diospyros virginiana	**Persimmon**	L	Moderate	D	Oval		✓			WD, M, W	☼

KEY

SIZE

S = ≤30ft. mature height, 4ft. minimum site width
M = 30–45ft. mature height, 5ft. minimum site width
L = ≥45ft. mature height, 6ft. minimum site width

DRAINAGE

D = Dry
WD = Well-drained
M = Moist
W = Wet

LIGHT

☼ = Full sun
◑ = Partial shade
● = Full shade

Tree Species List

Scientific Name	Common Name(s)	Growth Information				Planting Locations				Preference	
		Size	Growth Rate	Evergreen or Deciduous	Form	Natural Areas Only	Good for Parks	Good for Streets	Riparian	Drainage	Light
Fagus grandifolia	**American Beech**	L	Slow	D	Rounded		✓			WD, M	☼ ◑
Gleditsia aquatica	**Water locust**	L	Moderate	D	Spreading	✓			✓	W	◑
Gleditsia triacanthos	**Honeylocust**	L	Fast	D	Rounded		✓			WD, M	☼
Gleditsia triacanthos, var. *inermis*	**Honeylocust 'thornless'**	L	Fast	D	Rounded		✓	✓		WD, M	☼
Gynmocladus dioicus	**Kentucky coffeetree**	L	Moderate	D	Oval		✓			M, W	☼
Gynmocladus dioicus 'seedless'	**Kentucky coffeetree 'seedless'**	L	Moderate	D	Oval		✓	✓		WD, M, W	☼
Juglans nigra	**Black walnut**	L	Moderate	D	Rounded		✓		✓	WD, M	☼
Juniperus virginiana	**Eastern red cedar**	L	Moderate	E	Pyramidal		✓	✓		any	☼
Larix laricina	**Tamarack**	L	Fast	D	Pyramidal		✓		✓	W	☼
Liquidambar styraciflua	**Sweetgum**	L	Fast	D	Pyramidal		✓		✓	WD, M, W	☼
Liquidambar styraciflua 'seedless'	**Sweetgum 'seedless'**	L	Fast	D	Pyramidal		✓	✓		WD, M, W	☼
Liriodendron tulipifera	**Tulip tree, tulip poplar, yellow poplar**	L	Fast	D	Oval		✓	✓		WD, M	☼ ◑
Magnolia acuminata	**Cucumber magnolia**	L	Moderate	D	Pyramidal		✓			WD, M	☼ ◑
Magnolia tripetala	**Umbrella magnolia**	S	Moderate	D	Pyramidal		✓			WD, M	☼ ●
Malus coronaria	**Sweet crabapple**	S	Moderate	D	Rounded		✓	✓		WD, M	☼
Malus ioensis	**Prairie crabapple**	S	Moderate	D	Rounded		✓	✓		WD, M	☼ ◑
Morus rubra	**Red mulberry**	L	Moderate	D	Rounded	✓				WD, M	☼ ◑
Nyssa sylvatica	**Black gum, sour gum, tupelo**	L	Moderate	D	Pyramidal		✓	✓	✓	any	☼
Ostrya virginiana	**American hophornbeam, ironwood**	M	Slow	D	Oval		✓	✓		WD, M	☼ ◑
Oxydendrum arboreum	**Sourwood**	M	Slow	D	Pyramidal		✓			WD, M	☼ ◑
Pinus banksiana	**Jack pine**	M	Slow	E	Pyramidal		✓			WD, M	☼
Pinus strobus	**Eastern white pine**	L	Moderate	E	Pyramidal		✓			WD, M, W	☼
Pinus virginiana	**Virginia pine**	M	Slow	E	Pyramidal		✓			D, WD	☼
Platanus occidentalis	**Sycamore**	L	Fast	D	Rounded		✓	✓	✓	WD, M, W	☼ ◑
Populus deltoides	**Eastern cottonwood**	L	Fast	D	Pyramidal	✓			✓	WD, M, W	☼
Populus grandidentata	**Bigtooth aspen**	L	Fast	D	Pyramidal		✓			WD, M	☼
Populus heterophylla	**Swamp cottonwood**	L	Fast	D	Rounded	✓			✓	W	☼
Populus tremuloides	**Quaking aspen**	L	Moderate	D	Pyramidal		✓	✓		WD, M, W	☼ ◑
Prunus americana	**American (wild) plum**	S	Fast	D	Thicket-forming		✓			WD, M	☼ ◑
Prunus hortulana	**Hortulan (wild goose) plum**	S	Moderate	D	Thicket-forming	✓				WD, M	☼ ◑
Prunus nigra	**Canada plum**	S	Moderate	D	Vase		✓			WD, M	☼

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Prunus pensylvanica	**Pin cherry**	S	Fast	D	Thicket-forming	✓				WD, M	☼
Prunus serotina	**Black cherry**	L	Fast	D	Pyramidal		✓			WD, M	☼◑
Quercus alba	**White oak**	L	Slow	D	Rounded		✓	✓		WD, M	☼
Quercus bicolor	**Swamp white oak**	L	Slow	D	Rounded		✓	✓	✓	WD, M	☼
Quercus coccinea	**Scarlet oak**	L	Slow	D	Oval		✓			D, WD	☼
Quercus ellipsoidalis	**Northern pin (Hill's) oak**	L	Moderate	D	Oval		✓	✓		WD, M	☼
Quercus falcata	**Southern red oak**	L	Moderate	D	Rounded		✓	✓	✓	any	☼
Quercus imbricaria	**Shingle oak**	L	Slow	D	Pyramidal		✓	✓		WD, M	☼◑
Quercus lyrata	**Overcup oak**	L	Slow	D	Rounded		✓	✓	✓	M, W	☼
Quercus macrocarpa	**Bur oak**	L	Moderate	D	Rounded		✓	✓		D, WD, M	☼
Quercus marilandica	**Blackjack oak**	M	Slow	D	Rounded	✓				D, WD	☼
Quercus michauxii	**Swamp chestnut oak**	L	Moderate	D	Oval		✓	✓	✓	WD	☼◑
Quercus montana	**Chestnut oak, rock chestnut oak**	L	Slow	D	Rounded		✓	✓		WD, M	☼◑
Quercus muehlenbergii	**Chinquapin oak**	L	Slow	D	Oval		✓	✓		D,WD	☼
Quercus pagoda	**Cherrybark oak**	L	Moderate	D	Rounded		✓	✓		WD, M	☼◑
Quercus palustris	**Pin oak**	L	Fast	D	Oval		✓	✓		WD,W	☼
Quercus phellos	**Willow oak**	L	Fast	D	Oval		✓	✓	✓	WD, M, W	☼◑
Quercus rubra	**Northern red oak**	L	Moderate	D	Rounded		✓	✓		WD, M	☼◑
Quercus shumardii	**Shumard oak**	L	Moderate	D	Pyramidal		✓	✓	✓	WD, M	☼◑
Quercus stellata	**Post oak**	L	Slow	D	Rounded		✓	✓		any	☼
Quercus velutina	**Black oak**	L	Moderate	D	Rounded		✓	✓		D, WD	☼◑
Quercus x deamii	**Deam oak**	L	Slow	D	Pyramidal	✓				D, WD	☼
Robinia pseudoacacia	**Black locust**	M	Fast	D	Oval	✓				WD, M	☼◑
Salix amygdaloides	**Peachleaf willow**	L	Fast	D	Weeping		✓		✓	M, W	☼◑
Salix nigra	**Black willow**	M	Fast	D	Weeping		✓		✓	M, W	☼◑
Sassafras albidum	**Sassafras**	L	Moderate	D	Pyramidal		✓			WD, M	☼◑
Taxodium distichum	**Bald cypress**	L	Slow	D	Pyramidal		✓		✓	W	☼◑
Thuja occidentalis	**Northern (eastern) white cedar, arborvitae**	L	Slow	E	Pyramidal		✓			WD, M	☼
Tilia americana	**American basswood, American linden**	L	Moderate	D	Rounded		✓	✓		WD, M	☼◑
Tsuga canadensis	**Eastern hemlock**	L	Moderate	E	Pyramidal		✓			WD	☼●

KEY

SIZE

S = ≤30ft. mature height, 4ft. minimum site width
M = 30–45ft. mature height, 5ft. minimum site width
L = ≥45ft. mature height, 6ft. minimum site width

DRAINAGE

D = Dry
WD = Well-drained
M = Moist
W = Wet

LIGHT

☼ = Full sun
◑ = Partial shade
● = Full shade

What Makes a Good Street Tree?

Our tree species recommendations include suggestions for planting locations. Street trees are those located in the public right-of-way (ROW), including:

- Tree lawn – the grassy strip between the sidewalk and the street, aka a road verge, a curb strip or nature strip
- Non-tree lawn – ROW extends into the front yard where no tree lawn is present
- Medians and parkways – grassy strips either in the center of roadways or next to them

These areas vary in width, so make selections in conjunction with the size column.

These trees are generally low-litter species, meaning that, relative to other species, the mess created by dropping fruit, nuts, and flowers is minimal. Additionally, they have high tolerances for extreme urban conditions like pollution and compacted soils.

Street trees are also exposed to de-icing salts that are applied to sidewalks and roads. Deciduous trees are generally more salt-tolerant because they shed their leaves annually, allowing them to remove some salts and reduce accumulation. Salt tolerance was factored into this category, but you may want to do additional research about salt spray and saline soil if relevant for your community.

NOTE: Your community may have its own rules for what can be planted in public ROW, and they may or may not align with the recommendations for street trees in this guide. Be sure to consult all relevant resources while making species selections.

Planting for a Changing Climate

Over the next century, Indiana's warming climate and changing precipitation patterns will continue to impact our urban forest. A larger proportion of annual rainfall will occur in the winter months while trees are dormant, and more droughts will occur during the growing season when trees are actively respiring. Urban trees are already subject to myriad stressors, so the future health of our urban canopy will be dependent on our ability to plan (and plant!) for hotter, drier summers and warmer, wetter winters. We may not know exactly how much hotter the next century will be, but we do have models—called emissions scenarios—that show us what the world could be like based on how drastically we are able to reduce our greenhouse gas emissions, if at all.

As the climate changes, trees will be exposed to new stresses and disturbances. While species naturally adapt to changes in climate, this ability will likely struggle to keep pace with the rapid changes projected for the next century. Some species will be better suited for these changes than others.

For guidance, refer to these additional resources:

- Climate Change Vulnerability of Urban Trees: Indianapolis, Indiana: A vulnerability assessment for trees in Indianapolis and surrounding counties.
- Indiana's Future Forests: A Report from the Indiana Climate Change Impacts Assessment: A statewide analysis of future habitat suitability, divided into three regions.

By incorporating climate projections and species adaptability into planting decisions, we can help ensure the long-term health of Indiana's urban forests.

Adaptability is a species' genetic ability to adjust to different environmental conditions. This is not something that happens in a single specimen but rather a process of evolution that occurs over a long period of time.

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