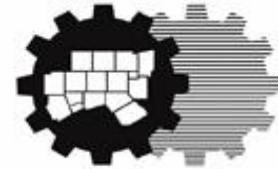




# Sustainable Public Rights-of-Way BMP Guidebook

**DRAFT**



North Central Texas  
Council of Governments

## Tree Matrix

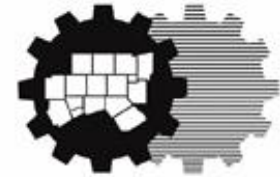
### Canopy Shade Large Trees

Common Name	Scientific Name	Native (N) / Adapted (A)	Average Tree Height (ft)	Minimum Planting Space (sq ft)	Tolerates Poor Drainage	Drought Resistant	Shade Tolerant	Crown Spread (ft)	Max Tree Height (ft)	Average Life Span (yrs)	Evergreen (E) / Deciduous (D)	Drops Limbs, Fruit, Nuts, or Other Debris	Commercial Availability	Maintenance Needs (Red text denotes potentially destructive pest issue)	Listed on a Utility Tree List	Height Growth Rate (Fast approx. >1.2' yr)
Bitternut hickory	<i>Carya cordiformis</i>	A	35	140				30	45	25	D	Yes	<a href="#">Click here to search Plant Ant</a>	Produces hickory nuts, may require cleanup		Fast
Native pecan	<i>Carya illinoensis</i>	N	40	320	Yes			45	60	35	D	Yes	<a href="#">Click here to search Plant Ant</a>	Significant debris drop, produces edible nuts, may require cleanup		Moderate
Black hickory (aka pignut hickory, <i>C. buckleyi</i> )	<i>Carya texana</i>	N	30	140		Yes		30	40	30	D	Yes	<a href="#">Click here to search Plant Ant</a>	Produces hickory nuts, may require cleanup		Moderate
Deodar cedar	<i>Cedrus deodara</i>	A	45	100			Yes	25	50	35	E		<a href="#">Click here to search Plant Ant</a>	Requires shade with space above to grow		Fast
Common persimmon	<i>Diospyros virginiana</i>	N	25	100				25	30	35	D	Yes	<a href="#">Click here to search Plant Ant</a>	Generally able to produce edible fruit, may require cleanup		Moderate
Texas ash (aka <i>F. albicans</i> )	<i>Fraxinus texensis</i>	N	35	190		Yes		35	45	55	D		<a href="#">Click here to search Plant Ant</a>	<b>High risk of loss due to EAB, may require ongoing pesticide treatment</b>		Moderate
Green ash	<i>Fraxinus pennsylvanica</i>	N	35	260	Yes			40	50	50	D		<a href="#">Click here to search Plant Ant</a>	<b>High risk of loss due to EAB, may require ongoing pesticide treatment</b>		Moderate
Honeylocust	<i>Gleditsia triacanthos</i>	N	25	30		Yes		15	35	40	D		<a href="#">Click here to search Plant Ant</a>	May be susceptible to root rot, native and thornless varieties, native may require thorn removal		Moderate
Arizona cypress	<i>Hesperocyparis arizonica</i>	A	35	100		Yes		25	35	30	E		<a href="#">Click here to search Plant Ant</a>	Slow growing, limited ability to raise canopy height		Moderate
Texas walnut	<i>Juglans microarpa</i>	N	30	140				30	40	35	D	Yes	<a href="#">Click here to search Plant Ant</a>	Allelopathic, may require tolerant ground cover, produces nuts, may require cleanup		Moderate
Black walnut	<i>Juglans nigra</i>	N	35	140				30	45	30	D	Yes	<a href="#">Click here to search Plant Ant</a>	Allelopathic, may require tolerant ground cover, produces nuts, may require cleanup		Moderate
Eastern redcedar	<i>Juniperus virginiana</i>	N	25	60		Yes		20	40	25	E		<a href="#">Click here to search Plant Ant</a>	Slow growing, limited ability to raise canopy height, may self-prune in dense planting		Moderate
Goldenrain tree	<i>Koelreuteria paniculata</i>	A	20	60		Yes		20	30	25	D		<a href="#">Click here to search Plant Ant</a>	Not particularly tall, may require frequent pruning as shade tree		Moderate
Sweetgum	<i>Liquidambar styraciflua</i>	A	30	100				25	45	15	D	Yes	<a href="#">Click here to search Plant Ant</a>	Produces gum balls, may require cleanup		Fast



# Sustainable Public Rights-of-Way BMP Guidebook

**DRAFT**



North Central Texas  
Council of Governments

## Tree Matrix

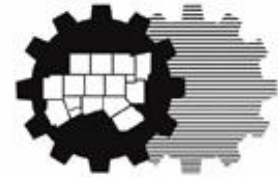
### Canopy Shade Large Trees

Common Name	Scientific Name	Native (N) / Adapted (A)	Average Tree Height (ft)	Minimum Planting Space (sq ft)	Tolerates Poor Drainage	Drought Resistant	Shade Tolerant	Crown Spread (ft)	Max Tree Height (ft)	Average Life Span (yrs)	Evergreen (E) / Deciduous (D)	Drops Limbs, Fruit, Nuts, or Other Debris	Commercial Availability	Maintenance Needs (Red text denotes potentially destructive pest issue)	Listed on a Utility Tree List	Height Growth Rate (Fast approx. >1.2' yr)
Osage orange	<i>Maclura pomifera</i>	N	30	250	Yes	Yes		40	40	70	D	Yes	<a href="#">Click here to search Plant Ant</a>	Slow growing with large fruit on female trees, may require cleanup		Moderate
Southern magnolia	<i>Magnolia grandiflora</i>	A	30	100			Yes	25	35	30	E		<a href="#">Click here to search Plant Ant</a>	Slow growing, limited ability to raise canopy height		Moderate
Afghan pine (aka Mondel pine, <i>P. brutia</i> )	<i>Pinus eldarica</i>	A	30	100		Yes		25	40	25	E		<a href="#">Click here to search Plant Ant</a>	Slow growing, requires pruning to raise canopy height		Fast
Slash pine	<i>Pinus elliotii</i>	A	60	140		Yes		30	90	35	E	Yes	<a href="#">Click here to search Plant Ant</a>	Self pruner, may drop branches, produces cones, may require cleanup		Fast
Aleppo pine	<i>Pinus halepensis</i>	A	50	190				35	55	30	E		<a href="#">Click here to search Plant Ant</a>	Similar to Afghan pine, may require pruning to raise canopy		Fast
Austrian pine	<i>Pinus nigra</i>	A	20	60				20	35	20	E		<a href="#">Click here to search Plant Ant</a>	Slow growing pine, rarely attains full height, may be a visibility issue		Moderate
Italian stone pine	<i>Pinus pinea</i>	A	40	140				30	55	30	E	Yes	<a href="#">Click here to search Plant Ant</a>	Requires limited pruning, produces cones, may require cleanup		Fast
Loblolly pine	<i>Pinus taeda</i>	N	55	140	Yes	Yes		30	80	30	E	Yes	<a href="#">Click here to search Plant Ant</a>	Self pruner, may drop branches, otherwise minimal maintenance		Fast
Japanese black pine	<i>Pinus thunbergii</i>	A	40	30				15	45	30	E		<a href="#">Click here to search Plant Ant</a>	Thin canopy structure requires little maintenance beyond basic pruning		Fast



# Sustainable Public Rights-of-Way BMP Guidebook

**DRAFT**



North Central Texas  
Council of Governments

## Tree Matrix

### Canopy Shade Large Trees

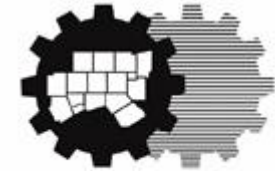
Common Name	Scientific Name	Native (N) / Adapted (A)	Average Tree Height (ft)	Minimum Planting Space (sq ft)	Tolerates Poor Drainage	Drought Resistant	Shade Tolerant	Crown Spread (ft)	Max Tree Height (ft)	Average Life Span (yrs)	Evergreen (E) / Deciduous (D)	Drops Limbs, Fruit, Nuts, or Other Debris	Commercial Availability	Maintenance Needs <i>(Red text denotes potentially destructive pest issue)</i>	Listed on a Utility Tree List	Height Growth Rate (Fast approx. >1.2' yr)
Chinese pistache	<i>Pistacia chinensis</i>	A	30	140				30	40	20	D		<a href="#">Click here to search Plant Ant</a>	Develops vase crown shape unless structurally pruned, may require regular pruning		Fast
American sycamore	<i>Platanus occidentalis</i>	N	45	190				35	50	30	D	Yes	<a href="#">Click here to search Plant Ant</a>	Self pruner, may drop branches if not pruned to remove dead wood		Fast
Mexican sycamore	<i>Platanus occidentalis</i> 'Mexican'	N	45	190				35	50	30	D	Yes	<a href="#">Click here to search Plant Ant</a>	Similar to American sycamore, potentially more drought tolerant		Fast
Sawtooth oak	<i>Quercus acutissima</i>	A	35	190		Yes		35	45	30	D		<a href="#">Click here to search Plant Ant</a>	Non-native oak that may be considered invasive, check local ordinances, produces small acorns		Moderate
Lacey oak	<i>Quercus laceyi</i>	N	20	100		Yes		25	30	35	Semi E		<a href="#">Click here to search Plant Ant</a>	Very slow growing and generally small, difficult to raise canopy height, produces small acorns		Moderate
Bur oak	<i>Quercus macrocarpa</i>	N	40	250	Yes			40	50	40	D	Yes	<a href="#">Click here to search Plant Ant</a>	Poor drought tolerance, may require watering, produces large acorns, may require cleanup		Moderate



# Sustainable Public Rights-of-Way BMP Guidebook

## Tree Matrix

**DRAFT**



North Central Texas  
Council of Governments

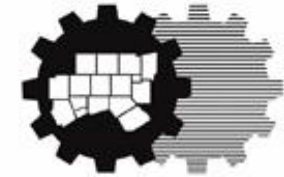
### Canopy Shade Large Trees

Common Name	Scientific Name	Native (N) / Adapted (A)	Average Tree Height (ft)	Minimum Planting Space (sq ft)	Tolerates Poor Drainage	Drought Resistant	Shade Tolerant	Crown Spread (ft)	Max Tree Height (ft)	Average Life Span (yrs)	Evergreen (E) / Deciduous (D)	Drops Limbs, Fruit, Nuts, or Other Debris	Commercial Availability	Maintenance Needs <i>(Red text denotes potentially destructive pest issue)</i>	Listed on a Utility Tree List	Height Growth Rate (Fast approx. >1.2' yr)
Blackjack oak	<i>Quercus marilandica</i>	N	40	100		Yes		25	50	80	D		<a href="#">Click here to search Plant Ant</a>	Retains dead branches in canopy, may require pruning for appearance, produces small acorns		Moderate
Chinkapin oak	<i>Quercus muehlenbergii</i>	N	40	140				30	45	30	D		<a href="#">Click here to search Plant Ant</a>	Requires regular pruning when young to prevent structural issues, produces small acorns		Fast
Willow oak	<i>Quercus phellos</i>	N	45	140	Yes			45	60	25	D		<a href="#">Click here to search Plant Ant</a>	Rapid growth, may require frequent pruning when young, produces small acorns		Fast
Netleaf white oak	<i>Quercus polymorpha</i>	A	35	100		Yes		25	40	25	Semi E		<a href="#">Click here to search Plant Ant</a>	Diameter growth is slow, may require additional trunk support, produces small acorns		Fast
Shumard red oak (aka Texas red oak, <i>Q. texana</i> )	<i>Quercus shumardii</i>	N	45	320	Yes			45	55	30	D	Yes	<a href="#">Click here to search Plant Ant</a>	May not tolerate alkaline or clay soils, produces medium size acorns, may require cleanup		Fast
Bigelow oak (aka bastard oak)	<i>Quercus sinuata var. breviloba</i>	N	35	250		Yes		35	45	35	D		<a href="#">Click here to search Plant Ant</a>	Slow growing, produces small acorns		Moderate
Durrand oak (aka bastard oak)	<i>Quercus sinuata var. sinuata</i>	N	35	250	Yes			45	50	35	D		<a href="#">Click here to search Plant Ant</a>	Slow growing, produces small acorns		Moderate
Post oak	<i>Quercus stellata</i>	N	45	250		Yes		45	55	80	D		<a href="#">Click here to search Plant Ant</a>	Does not tolerate root disturbance, slow growing, difficult to transplant, produces small acorns		Moderate
Live oak	<i>Quercus virginiana</i>	N	45	320	Yes	Yes		45	60	60	E		<a href="#">Click here to search Plant Ant</a>	Requires regular pruning when young to avoid low branching, produces small acorns		Moderate
Black locust	<i>Robinia pseudoacacia</i>	A	30	60				20	40	40	D		<a href="#">Click here to search Plant Ant</a>	<b>Susceptible to root rot in poorly drained soils, may require thorn removal</b>		Moderate
Western sabberry	<i>Sapindus saponaria var. drummondii</i>	N	35	140		Yes		30	40	30	D	Yes	<a href="#">Click here to search Plant Ant</a>	Messy berries, may require cleanup		Moderate



# Sustainable Public Rights-of-Way BMP Guidebook

**DRAFT**



North Central Texas  
Council of Governments

## Tree Matrix

### Canopy Shade Large Trees

Common Name	Scientific Name	Native (N) / Adapted (A)	Average Tree Height (ft)	Minimum Planting Space (sq ft)	Tolerates Poor Drainage	Drought Resistant	Shade Tolerant	Crown Spread (ft)	Max Tree Height (ft)	Average Life Span (yrs)	Evergreen (E) / Deciduous (D)	Drops Limbs, Fruit, Nuts, or Other Debris	Commercial Availability	Maintenance Needs <i>(Red text denotes potentially destructive pest issue)</i>	Listed on a Utility Tree List	Height Growth Rate (Fast approx. >1.2' yr)
Gum bumelia	<i>Sideroxylon lanuginosum</i>	N	30	60	Yes			20	45	25	Semi E		<a href="#">Click here to search Plant Ant</a>	Slight thorns on twigs when young, pruning recommend to elevate canopy		Fast
Pond cypress	<i>Taxodium ascendens</i>	A	45	100	Yes			25	50	35	D		<a href="#">Click here to search Plant Ant</a>	May develop knees in poorly drained soils		Fast
Bald cypress	<i>Taxodium distichum</i>	A	50	100	Yes	Yes		25	55	35	D		<a href="#">Click here to search Plant Ant</a>	May develop knees in poorly drained soils		Fast
Winged elm	<i>Ulmus alata</i>	N	30	60				35	50	20	D		<a href="#">Click here to search Plant Ant</a>	Not as drought tolerant as other elms, may not tolerate high pH		Fast
American elm	<i>Ulmus americana</i>	N	45	390	Yes			50	60	60	D		<a href="#">Click here to search Plant Ant</a>	Requires regular pruning when young to avoid low branching		Moderate
Cedar elm	<i>Ulmus crassifolia</i>	N	40	100	Yes	Yes		30	50	25	D		<a href="#">Click here to search Plant Ant</a>	Requires regular pruning when young to prevent structural issues		Fast
Lacebark elm (aka Chinese elm)	<i>Ulmus parvifolia</i>	A	30	140				30	45	30	D		<a href="#">Click here to search Plant Ant</a>	<i>Susceptible to cotton root rot, may require frequent pruning, not to be confused with Siberian elm</i>		Moderate

Last Updated 10.20.20



# Sustainable Public Rights-of-Way BMP Guidebook Tree Matrix Ornamental Small Trees

DRAFT



Common Name	Scientific Name	Native (N) / Adapted (A)	Average Tree Height (ft)	Minimum Planting Space (sq ft)	Tolerates Poor Drainage	Drought Resistant	Shade Tolerant	Crown Spread (ft)	Max Tree Height (ft)	Average Life Span (yrs)	Evergreen (E) / Deciduous (D)	Drops Limbs, Fruit, Nuts, or Other Debris	Commercial Availability	Maintenance Needs <span style="color: red;">(Red text denotes potentially destructive pest issue)</span>	Listed on a Utility Tree List	Height Growth Rate (Fast approx. >1' yr)
Trident maple	<i>Acer buergerianum</i>	A	20	35				15	25	15	D		<a href="#">Click here to search Plant Ant</a>	Short tree requires regular pruning in pedestrian areas		Fast
Florida maple (aka Caddo maple)	<i>Acer floridanum</i>	A	20	15	Yes		Yes	10	25	20	D		<a href="#">Click here to search Plant Ant</a>	May not tolerate alkaline soil		Fast
Boxelder	<i>Acer negundo</i>	N	20	35	Yes		Yes	15	30	20	D		<a href="#">Click here to search Plant Ant</a>	Leaves may be confused with poison ivy		Fast
Japanese maple	<i>Acer palmatum</i>	A	10	35			Yes	15	15	20	D		<a href="#">Click here to search Plant Ant</a>	Requires heavy shade		Moderate
Red maple	<i>Acer rubrum</i>	A	25	20			Yes	10	30	20	D		<a href="#">Click here to search Plant Ant</a>	Prefers slightly shaded areas, direct sun to trunk may require tree wrap		Fast
Caddo Maple	<i>Acer saccharum</i> 'Caddo'	A	20	60				25	35	25	D		<a href="#">Click here to search Plant Ant</a>	Prefers slightly shaded areas, direct sun to trunk may require tree wrap		Moderate
Texas Buckeye	<i>Aesculus</i> <i>arata/alabra</i>	N	15	35			Yes	15	25	20	D	Yes	<a href="#">Click here to search Plant Ant</a>	Produces hard buckeyes, may require cleanup		Moderate
Red Buckeye	<i>Aesculus pavia</i>	N	10	35				15	20	20	D	Yes	<a href="#">Click here to search Plant Ant</a>	Produces hard buckeyes, may require cleanup		Moderate
False indigo bush	<i>Amorpha fruticosa</i>	N	10	35				15	15	15	D		<a href="#">Click here to search Plant Ant</a>	Bushy, may require regular pruning		Moderate
Eastern Redbud	<i>Cercis canadensis</i>	N	15	35			Yes	15	25	15	D		<a href="#">Click here to search Plant Ant</a>	Prefers slightly shaded areas, direct sun to trunk may require tree wrap		Fast
Desert willow	<i>Chilopsis linearis</i>	A	20	60		Yes		20	30	15	D		<a href="#">Click here to search Plant Ant</a>	Thin canopy, limbs slender and break easily, may require pruning if damaged		Fast
Roughleaf dogwood	<i>Cornus drummondii</i>	N	10	15	Yes		Yes	10	15	25	D		<a href="#">Click here to search Plant Ant</a>	Bushy tree, may require regular pruning		Moderate
Flowering dogwood	<i>Cornus florida</i>	N	15	15			Yes	10	20	25	D		<a href="#">Click here to search Plant Ant</a>	Prefers shade, direct sun may require watering		Moderate
Hawthorne	<i>Crataegus spp.</i>	N	15	35			Yes	15	20	20	D		<a href="#">Click here to search Plant Ant</a>	Prefers full sun		Moderate
Leyland cypress	<i>Cupressocyparis leylandii</i>	A	25	60				20	30	15	E		<a href="#">Click here to search Plant Ant</a>	Poor drought tolerance, may require watering		Moderate
Texas persimmon	<i>Diospyros texana</i>	N	15	15		Yes		10	25	25	Semi E	Yes	<a href="#">Click here to search Plant Ant</a>	Susceptible to root rot in poorly drained soil, produces small fruits, may require cleanup		Moderate
Common fig	<i>Ficus carica</i>	A	15	60			Yes	20	15	25	D	Yes	<a href="#">Click here to search Plant Ant</a>	Generally able to produce edible fruit, may require cleanup		Moderate
Carolina buckthorn	<i>Frangula caroliniana</i>	N	15	15			Yes	10	15	15	D		<a href="#">Click here to search Plant Ant</a>	Prefers but does not require shade, does not have thorns		Fast
Savannah holly	<i>Ilex attenuata</i>	A	20	35				15	25	15	E	Yes	<a href="#">Click here to search Plant Ant</a>	Susceptible to root rot, produces small holly berries, may require cleanup		Fast

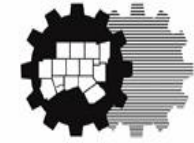


# Sustainable Public Rights-of-Way BMP Guidebook

## Tree Matrix

### Ornamental Small Trees

DRAFT



North Central Texas  
Council of Governments

Common Name	Scientific Name	Native (N) / Adapted (A)	Average Tree Height (ft)	Minimum Planting Space (sq ft)	Tolerates Poor Drainage	Drought Resistant	Shade Tolerant	Crown Spread (ft)	Max Tree Height (ft)	Average Life Span (yrs)	Evergreen (E) / Deciduous (D)	Drops Limbs, Fruit, Nuts, or Other Debris	Commercial Availability	Maintenance Needs <i>(Red text denotes potentially destructive pest issue)</i>	Listed on a Utility Tree List	Height Growth Rate (Fast approx. >1' yr)
Deciduous holly	<i>Ilex decidua</i>	A	15	35	Yes		Yes	15	20	15	D	Yes	<a href="#">Click here to search Plant Ant</a>	Bushy tree, may require regular pruning, produces small berries, may require		Fast
Common crapemyrtle	<i>Lagerstroemia indica</i>	A	20	35	Yes		Yes	15	30	25	D		<a href="#">Click here to search Plant Ant</a>	Prolific sprouter, may require regular pruning, topping not recommended		Moderate
Goldenball leadtree (aka	<i>Leucaena retusa</i>	A	15	60		Yes		20	20	20	D		<a href="#">Click here to search Plant Ant</a>	Thin canopy, limbs slender and break easily, may require		Moderate
Little Gem Magnolia	<i>Magnolia grandiflora</i> 'Little Gem'	A	20	35			Yes	15	25	25	E		<a href="#">Click here to search Plant Ant</a>	Limited ability to raise canopy, visibility may be an issue		Moderate
Saucer magnolia	<i>Magnolia soulangiana</i>	A	20	60			Yes	20	25	25	D		<a href="#">Click here to search Plant Ant</a>	Prefers slightly shaded areas, direct sun to trunk may require tree wrap and watering		Moderate
Fragrant mimosa	<i>Mimosa borealis</i>	N	5	5		Yes		5	10	15	D		<a href="#">Click here to search Plant Ant</a>	Twigs have small thorns similar to a rose, allow space from pedestrians		Moderate
Wax myrtle	<i>Myrica cerifera</i>	N	10	35	Yes			15	15	15	D		<a href="#">Click here to search Plant Ant</a>	Multi-stemmed, may require regular pruning, poor drought tolerance, may require		Moderate
Texas paloverde	<i>Parkinsonia texana</i>	N	20	60		Yes		20	25	20	D		<a href="#">Click here to search Plant Ant</a>	Slender limbs may hang into walkways, may require frequent pruning		Fast
Mexican plum	<i>Prunus mexicana</i>	N	15	35		Yes		15	20	20	D	Yes	<a href="#">Click here to search Plant Ant</a>	Potential sprouter, may require regular pruning, produces		Moderate
Prairie Flameleaf Sumac	<i>Rhus lanceolata</i>	N	5	15		Yes	Yes	10	15	10	D		<a href="#">Click here to search Plant Ant</a>	Needs well-drained soil		Moderate
Texas Mountain Laurel	<i>Sophora secundiflora</i>	N	10	35				15	20	15	D		<a href="#">Click here to search Plant Ant</a>	Bushy tree, may require regular pruning		Moderate
Eve's necklace	<i>Styphnolobium affine</i>	N	20	35	Yes		Yes	15	25	20	D	Yes	<a href="#">Click here to search Plant Ant</a>	Drooping branches, may require frequent pruning, produces seed pods, may		Fast
Mexican buckeye	<i>Ungnadia speciosa</i>	N	15	35		Yes		15	15	25	D	Yes	<a href="#">Click here to search Plant Ant</a>	Bushy tree, may require regular pruning, produces hard		Moderate
Possumhaw viburnum	<i>Viburnum nudum</i>	N	15	35	Yes		Yes	15	15	25	D		<a href="#">Click here to search Plant Ant</a>	Prefers but does not require shade		Moderate
Rusty blackhaw viburnum	<i>Viburnum rufidulum</i>	N	15	35		Yes	Yes	15	15	25	D		<a href="#">Click here to search Plant Ant</a>	Prefers but does not require shade		Moderate
Vitex	<i>Vitex agnus-castus</i>	A	15	35	Yes			15	20	20	D		<a href="#">Click here to search Plant Ant</a>	Bushy tree, may require frequent pruning		Moderate
Hercules' club	<i>Zanthoxylum clava-herculis</i>	N	20	35		Yes	Yes	15	25	25	D		<a href="#">Click here to search Plant Ant</a>	Significant small thorns on trunk when young, may require one-time removal		Moderate

Prepared August 2020 by  
[NCTCOG SPROW Tree Subgroup](#)

Sources:

[USDA Plants Database](#)

[Texas A&M Forest Service](#)

[Texas A&M AgriLife Extension](#)

[City of Arlington Forestry and Beautification Tree Inventory](#)

[City of Fort Worth Trees for Forth Worth Planting Guide](#)

[Plant Ant](#)

[Wildflower.org](#)