



United States Department of Agriculture

Natural Resources Conservation Service  
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# Pollinator Friendly Trees for the Western Coastal Plain of East Texas and Louisiana

## Plant Materials Technical Note

### Background

Pollination is an important biological process. As pollinating animals and insects travel from one plant to another, they transfer pollen, which begins the cycle of seed and fruit production in flowers. Pollinators include vertebrates such as birds, bats, and small mammals along with invertebrates including flies, beetles, butterflies, moths, native bees and European honeybees. Insect pollinated fruits and vegetables diversify human diets and provide vitamins and minerals. More than one hundred different crop plants, like apples and strawberries, need pollinators for production.



Pollinating insects require a diverse habitat, including native perennial trees, which provides food, protection, and shelter. In a study conducted in North Carolina, trees were the main floral resource for bees in suburban and natural forest settings (Carper et al. 2014). Some native trees such as willow bloom early in the spring and provide food for bumble bee queens, mining bees, and mason bees. Trees provide shelter, nesting and overwintering areas for pollinators. Adult butterflies such as the tortoiseshells (*Nymphalis*) and anglewings (*Polygonia*) overwinter in rock piles, leaf litter, and tree cavities (Mader et al. 2011).

### Purpose

The purpose of this technical note is to provide information about developing pollinator habitat and incorporating adapted pollinator friendly trees into these plantings. The tree species listed in the technical note are adapted to the Western Gulf Coastal Plain, southeastern Oklahoma, and southwestern Arkansas.

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## Developing Pollinator Habitat

### Existing Habitat

Sometimes the most appropriate way to develop pollinator habitat is to use the existing plants and trees. First, complete an inventory and identify the plants that are being used by pollinators. Ideally, there would be groups of plants that bloom from early spring until fall. Landscape features such as rock piles and brush piles are desirable to pollinators for overwintering. If the site is suitable habitat, leave the area alone and manage it.

### Providing New Habitat

Planning ahead is essential when establishing a new planting. The land manager has to consider planting location, site maintenance, available budget and labor. Afterwards, site selection is the next step. Important factors for site selection include sun exposure (full, partial or shaded), slope aspect, and soil conditions such as fertility, pH, drainage, salinity, and compaction. For instance, Tulip tree (*Liriodendron tulipifera*) would not grow well in a wet area because it prefers a well-drained soil. After choosing a site, begin preparation with a combination of herbicide and tillage treatments. Proper site treatment before planting can eliminate or minimize potential weed problems.

After site treatment, decide which plant species will be included in the planting. Generally, pollinators are more attracted to native plant species than introduced ornamentals. Use native plant species with a variety of bloom colors, bloom times (spring, summer, and fall), shapes, and heights that are adapted to the site conditions. One recommendation is have at least three plant species that bloom in each season included in the planting list.

*For more detailed information about providing pollinator habitat, refer to the book Attracting Native Pollinators by Eric Mader et al. (Xerces Society). For procedure to transplant trees, refer to the NRCS Field Office Technical Guide (Texas) – Tree/Shrub Establishment Conservation Practice Specifications Code 612.*

### Managing Pollinator Habitat

During the growing season leave the habitat area undisturbed so pollinators can fully benefit from pollen, nectar, and cover resources. Conduct mowing and prescribed burning when plants are dormant. Set up a three to five year rotation where only a percentage (30% for example) of the site is treated each year.

### Pollinator Friendly Trees Table

Pollinators are attracted to habitat with wide plant diversity (grasses, legumes, forbs, and trees) and resources which meet their needs throughout the year. Including trees in a pollinator planting increases habitat plant diversity and allows shade tolerant plant species to grow around them in an otherwise open, full sun environment. They provide a perennial source of food and shelter for pollinator species. Early blooming trees, such as willow, provide support for emerging bees. The purpose of the pollinator friendly trees table at the back of this technical note is to provide a useful reference for NRCS Field Office personnel and landowners and managers when planning or enhancing pollinator habitat. Table information includes common and scientific name, bloom period and color, soils information, if the tree species is used by bees (native, honey, or bumble), butterfly and moth use as a larval host or food/nectar source, additional pollinators, commercial availability, and comments pertaining to wildlife and/or human use.

Pollinator	Friendly	Trees					Bees		Butterflies and Moths				
Plant	Species	Bloom Period	Bloom Color	Location	Soil pH range	Native	Honey	Bumble	Larval Host	Food, Nectar Source	Pollinators	Commercially Available	Comments
Southern Magnolia	<i>Magnolia grandiflora</i>	April to June	white	Moist soils	5.5-6.5				Tulip Tree Beauty Moth		Beetles and some bees	Yes	Seeds eaten by squirrels, birds, turkeys and quail
Bigleaf magnolia	<i>Magnolia macrophylla</i>	Early summer	white	Moist soils but well drained, ravines	5.0-8.0				Tulip Tree Beauty Moth		Beetles and some bees	Yes	Seeds eaten by squirrels, birds, turkey, and quail
Sweet bay	<i>Magnolia virginiana</i>	June to September	white	lowlands	<6.8				Sweetbay silkmoth		Beetles and some bees		Seeds eaten by squirrels, birds, turkey, and quail
American basswood	<i>Tilia americana</i>	Early to mid-summer	yellow	Lower slopes, river bottoms	6.8 – 7.2	x	x		Four-horned Sphinx moth, Waved Sphinx moth, Imperial Moth		Bees, butterflies		Good browse for deer, fruits eaten by birds and small mammals, prolific nectar producer
Buckwheat tree	<i>Cliftonia monophylla</i>	April to May	white, pink	Swamp edge	< 7.0						Bees		Flowers are valuable for honey.
Black cherry	<i>Prunus serotina</i>	May to July	white	Bottomlands to uplands	6.8 – 7.2	x	x	x	Eastern Tiger Swallowtail, Cherry Gail Azure, Viceroy, Columbia Silkmoth	New England Buckmoth	Bees, butterflies		Fruits are eaten by birds and mammals
Eastern redbud	<i>Cercis canadensis</i> var. <i>canadensis</i>	Early spring	pink	uplands	5.0 – 8.0	x		x	Henry's Elfin		Long-tongued bees	Yes	Seeds eaten by animals
Shadblow or common serviceberry	<i>Amelanchier arborea</i>	Early spring	white	Moist well-drained soils	< 6.8	x					Insect pollinated		Edible fruit for humans, birds, and wildlife

Cont'd													
Plant	Species	Bloom Period	Bloom Color	Location	Soil pH Range	Native	Bees		Butterflies and Moths	Food, Nectar Source	Pollinators	Commercially Available	Comments
							Honey	Bumble	Larval Host				
Water tupelo	<i>Nyssa aquatica</i>	March to April	green	wetlands	< 7.0		x				Bees and wind	Yes	Fruits are highly desirable by wildlife.
Black tupelo	<i>Nyssa sylvatica</i>	April to June	greenish white	Wetlands-swamp and flat ground to uplands	5.0 – 7.4						Bees and wind	Yes	Fruit eaten by birds and animals, good tree for honey
Sourwood	<i>Oxydendrum arboreum</i>	June to August	white	uplands	< 6.8		x				Bees and insects	Yes	Good tree for honey
Common sassafras	<i>Sassafras albidum</i>	March to April	yellow, green, brown	Moist, well-drained soils	< 6.8				Spicebush butterfly, Tiger Swallowtail, Pale Swallowtail	Spicebush Swallowtail, Promethea silkmoth			Seeds eaten by birds, deer browse the leaves
Tulip tree	<i>Liriodendron tulipifera</i>	April to June	yellow, green, brown	Well-drained soils	< 6.8		x		Tulip tree silkmoth, Eastern Tiger Swallowtail, Promethea silkmoth		Flies, beetles, bees	Yes	Valued as a honey tree
Common chokecherry	<i>Prunus virginiana</i>	April to July	white	uplands	6.8 – 7.2	x				California Hairstreak	Insects		Used for jellies and jams. Caution-Parts of the plant are poisonous and it is not good in pastures. Seeds are eaten by birds.
Hortulan plum	<i>Prunus hortulana</i>	Spring	white	uplands							Insects		Fruit eaten by wildlife
Chickasaw plum	<i>Prunus angustifolia</i>	March to May	white	Bottomlands to uplands	< 7.0	x				Red Spotted Purple	Insects and attractive to butterflies	Yes	Fruit eaten by wildlife and may be used for jams

Cont'd													
							Bees		Butterflies and Moths				
Plant	Species	Bloom Period	Bloom Color	Location	Soil pH Range	Native	Honey	Bumble	Larval Host	Food, Nectar Source	Pollinators	Commercially available	Comments
American holly	<i>Ilex opaca</i>	April to June	white, green	Swamps to bottomlands to uplands	5.0 – 7.4		x		Henry's Elfin		Bees, butterflies		Seeds eaten by birds and small mammals
American black elderberry	<i>Sambucus nigra</i> L. ssp. <i>canadensis</i>	June to August	white	bottomland	6.8 – 7.2	x					Bees, butterflies	Yes	Excellent for wildlife.
Eastern mayhaw	<i>Crataegus aestivales</i>	Early spring	white	Bottomland	6.0 – 6.5				Waved Sphinx moth, Texarkana Underwing moth, Orba Underwing moth		Bees, butterflies	yes	Excellent for wildlife. Humans can eat the fruit.
Western mayhaw	<i>Crataegus opaca</i>	Early spring	white	Bottomland	6.0 – 6.5	x			Waved Sphinx moth, Texarkana Underwing moth, Orba Underwing moth		Bees, butterflies	yes	Excellent for wildlife. Humans can eat the fruit.
Common buttonbush	<i>Cephalanthus occidentalis</i>	June to September	white, pink	wetland	6.8 – 7.2	x	x	x			Attracts butterflies	yes	Very beneficial pollinator plant. Waterfowl eat the seeds.
Persimmon	<i>Diospyros virginiana</i>	Late spring/early summer	yellow, green	Bottomland	5.0 – 8.0		x		Luna moth, Royal Walnut moth		Bees, birds	yes	Very beneficial for wildlife. Humans can eat the fruit.
Dogwood	<i>Cornus florida</i>	Early spring	white, pink	Upland	< 6.8	x			Spring Azure, Dogwood Thyatrid moth		Beetles, insects, birds	yes	Beneficial for wildlife. Turkeys eat the seeds as do other birds and mammals.

Cont'd													
							Bees		Butterflies and Moths				
Plant	Species	Bloom Period	Bloom Color	Location	Soil pH Range	Native	Honey	Bumble	Larval Host	Food, Nectar Source	Pollinators	Commercially Available	Comments
Swamp Dogwood	<i>Cornus foemina</i>	Early spring	white	Bottomland	< 6.8				Summer Azure		Beetles, insects, birds	yes	Beneficial for wildlife. Turkeys eat the seeds as do other birds and mammals.
Rough leaf dogwood	<i>Cornus drummondii</i>	April to June	white/near white	Swamps, marshes, lake and streambanks	5.6-7.8	x	x			Butterflies, insects	Butterflies	yes	Value to native bees. Fruit eaten by many birds.
Southern crabapple	<i>Malus angustifolia</i>	Spring	pink	Upland	< 6.8	x	x	x			Bees, butterflies	Yes	Very beneficial for wildlife. Humans can eat the fruit.
American beautyberry	<i>Callicarpa americana</i>	Late spring/early summer	white, pink	Upland	5.0 – 8.0						Butterflies, birds	yes	Good for wildlife. Produces lots of seeds.
Catalpa	<i>Catalpa bignonioides</i>	May to June	white	Upland	5.5 – 7.0		x	x			Moths	yes	Good for wildlife.
Sugarberry	<i>Celtis laevigata</i>	Early spring	green	Bottomland	6.0 – 6.8				Hackberry Emperor			yes	Good for wildlife.
Black willow	<i>Salix nigra</i>	Early spring	yellow	Wetland	5.0 – 8.0	x	x	x	Mourning Cloak, Viceroy, Red-spotted Purple, Tiger Swallowtail		Bees	yes	Excellent for pollinators.
Black locust	<i>Robinia pseudoacacia</i>	May to June	white	Upland	6.8 – 7.2	x	x		Silver-spotted Skipper		Bees		Very attractive for pollinators. Birds and animals eat the seeds.
Honey locust	<i>Gleditsia triacanthos</i>	Late spring/early summer	yellow	Bottomland	6.8 – 7.2				Silver-spotted Skipper, Bicolored and Bisected honey locust moths	Silver-spotted Skipper	Bees		Very attractive for pollinators. Birds and animals eat the seeds.

Cont'd													
							Bees		Butterflies and Moths				
Plant	Species	Bloom Period	Bloom Color	Location	Soil pH Range	Native	Honey	Bumble	Larval Host	Food, Nectar Source	Pollinators	Commercially Available	Comments
Downy serviceberry	<i>Amelanchier arborea</i> var. <i>austromontana</i>	Early spring	white	Upland	< 6.8						Bees		Good pollinator tree. Birds love the seeds.
Pawpaw	<i>Asimina triloba</i>	February to May	White, red, yellow, purple	Upland	5.0 – 7.4				Zebra Swallowtail, Pawpaw sphinx		Flies, beetles	yes	Good wildlife tree.
Green ash	<i>Fraxinus pennsylvanica</i>	April to June	green, purple, brown		5.0 – 8.0				Eastern Tiger Swallowtail, Orange Sulphur, Giant Sulphur, Mourning Cloak				
Hercules-club	<i>Zanthoxylum clava-herculis</i>	March to April	white/near white	Gulf coastal plain, moist soil	6.0-7.5	x			Giant Swallowtail	Adult butterflies	Butterflies	yes	Host plant for Giant Swallowtail eggs and feed larva. Fruit eaten by birds.

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