



Trees and Shrubs for Bees



Trees and shrubs are an important source of honeybee forage. In city and suburban locations around Philadelphia, tree planting helps to boost what's available for the bees, over and above what else might bloom in yards and gardens. Carefully tended for a few years, trees will give back for decades. Specific trees can provide early pollen, boost the nectar flow, and offset the 'dearth' in late summer going into fall.

Across the country, habitat losses are understood to be one of the most important factors damaging the health and well-being of honey bees. Other insects, including America's native pollinators, are likewise affected. In agricultural and rural semi-wooded countryside, conflicts develop over land use. Scruffy 'wild' areas are degraded and lost. These habitat losses rip at the web of life, and for us in the city, in a historically forested area, a renewed emphasis on trees and shrubs is an important part of the solution.

In Philadelphia and other counties in the region, we're halfway through a decade-long campaign to 'Plant One Million' new trees. The list of benefits is long. One goal is to have 30% tree canopy in every neighborhood. Philadelphia has a list of approved Street Trees and a TreePhilly program that gives away trees for people to plant in yards and other off-street properties. Similar projects are happening outside the city. The Pennsylvania Horticultural Society, host of the Philadelphia Flower Show, promotes and supports these efforts, and trains hundreds of Tree Tenders to plant and care for trees. Community organizations, schools, and other groups — even our sports teams — are engaged.

Beekeepers can help. Our interest in improving the forage for our bees fits nicely with civic efforts to replant the urban and suburban environment. We can partner with existing organizations. We know that, as part of the tree canopy, many of the new trees will provide forage for honey bees, as well as provide habitat for other wildlife and beautify our landscape.

By Kirk Wattles, 3rd rev. Spring 2017
for the Philadelphia Beekeepers Guild

These trees and shrubs are rated as good •, better ♪, and best ♫, roughly graded on the pollen and nectar forage they provide at a given time of year and as compared to other sources. What they actually provide will vary depending on soil conditions, the weather in a given year, etc. These lists are not complete, though they include many of the best for our region. Other species, not listed here, are probably better than nothing. Invasive species are not listed. Native species, important for the habitat in general, are rated a little higher.

Before you plant, it's important to find out more about the specific tree or shrub — the soil conditions it may require, the size it may grow to, etc. References and Online Resources can give you more information. A more complete list of species and links to other resources are posted on the Philadelphia Beekeepers Guild website.

Larger trees, mostly

MAPLE (*ACER* SPP.)

Maples bloom early in the year, providing valuable pollen and nectar when the bees are "brooding up."

♪ Red Maple (*Acer rubrum*) Å, β March-April, 40-60'

♫ Sugar Maple (*Acer saccharum*) Å, β April, 60-75' Ò

• Box Elder, Ash-leaved Maple (*Acer negundo*) β April, 30-50'

A tree in the Maple genus which is mainly wind-pollinated, Box Elder has pollen which is nutrient-dense for bees and other pollinator insects. Some consider it weedy and aggressive.

BUCKEYE (*AESCULUS* SPP.)

♪ Ohio Buckeye (*Aesculus glabra*) ◇, β June, 30-50'

Also: Yellow buckeye (*A. flava*, Å, β June, 40-60'); Horsechestnut (*A. hippocastanum*, Å ø, β May, 30-50').

• Bottlebrush Buckeye (*Aesculus parviflora*) β Jul, 8-10'

A shrub in the same genus.

Key

♫ – One of the best!
 ♪ – Excellent for bees
 • – Good bee-friendly tree/shrub
 Å – Approved street tree (lg)
 å – Approved street tree (sm)
 ⚓ – TreePhilly 2017 giveaway
 ⚡ – Howard Nursery, PA Game C.

◇ – Not native to our region
 ø – Not native to North America
 ☼ – Does well in partial shade
 ≈ – Does better in moist soil
 § – Can be used in a hedge
 Ò – Edibles provided
 β – Bloom time

Larger trees, mostly (cont'd)

- Northern Catalpa (*Catalpa speciosa*) ♀, β May-June, 40-60'
Native to Ohio Valley and Appalachia, and established much more widely. Southern catalpa (*Catalpa bignonioides*, ♀, β June 30-40') is from further south. Both are bee-friendly and do well in our area.
- Yellowwood (*Cladrastis kentukea*) ♂ ♀, β June, 30-50'
Heavy blossoms produce a strong flow, about 2-3 times a decade.
- Persimmon (*Diospyros virginiana*) β June, 40-60' ♂
Readily grown from seed; in the vicinity of an adult tree, look for start-up seedlings that can be dug up and transplanted.
- Honey Locust (*Gleditsia triacanthos*) ♂, β May, 30-70'
Named for the supposedly sweet taste and smell of seed pods and foliage, which can be fodder for livestock. For the bees, it's good for pollen, not much nectar. Some cultivars are thornless.
- ♂ Goldenrain tree (*Koelreuteria paniculata*) ♂, β July, 30-40'
A 'Fastigiata' cultivar is approved for narrow streets.
- ♀ Tulip Poplar (*Liriodendron tulipifera*) ♂, β May-June, 80-100+'
Nectar oozes from the petals in orange cup-shaped flowers, 50' or higher from the ground. This tree is often a dominant species in forested upland parts of Philadelphia and its western suburbs, in areas that were historically a hickory-oak mix. This tree is approved for wider streets and parks, and a 'Fastigiatum' cultivar is approved for narrow streets.
- ♂ Maackia (*Maackia amurensis*) ♂, β September, 30-50'
From north-eastern Asia, this super bee-friendly tree is approved for frequent street planting. It blooms in September, when the bees build up honey reserves for overwintering.

MAGNOLIA (*MAGNOLIA* spp.)

- Southern magnolia (*Magnolia grandiflora*) ♀, β April, 20-80'
The classic magnolia tree. It does alright in northern climes but "realistically the great trees are in the South" – Dirr.
- ♂ Umbrella tree (*Magnolia tripetala*) β June, 15-40'
- Sweetbay Magnolia (*Magnolia virginiana*) ♂ ≈, β June, 10-20'
- ♂ Black Gum (*Nyssa sylvatica*) ♂ ♀, β May-June, 50-80'
For more than two centuries, hollow sections of Black Gum logs were used in America for beehives called 'Bee Gums.' They were replaced in the late 1800s by box-shaped, moveable-frame 'Langstroth' hives. Prolific nectar, which on its own would make a darker grade honey.
- ♂ Black Locust (*Robinia pseudoacacia*) ♂ ♀, β May, 30-60'
In some years the Black Locust can be a bountiful nectar producer. It survives in difficult settings and may sometimes spread aggressively.

♂ Japanese Pagoda Tree (*Sophora japonica*) ♂, β August, 50-75'
"An excellent source of pollen and nectar in late summer" – Lindtner.

♀ Bee Bee Tree (*Tetradium daniellii*) ♂, β July, 25-40'
The "Bee Bee Tree," also called Korean Evodia, has an enthusiastic following among beekeepers. It provides pollen and nectar in substantial quantities at a time in the year when forage is otherwise rather scarce. However, Pennsylvania's DCNR has it on the invasive species 'Watch List,' a step away from an official declaration.

LINDEN, AKA BASSWOOD, LIME TREE (*TILIA* spp.)

- ♀ American Linden (*Tilia americana*) ♂, β June, 60-80'
A champion honey tree, smells great when in bloom. Its range extends from Philadelphia northwards. With climate warming in coming decades, the Linden may lose its habitable niche here.
- ♂ Little Leaf Linden (*Tilia cordata*) ♂, β May-June, 60-70'
Blooms earlier than the American Linden; both in the same area will stretch out the flow.
- ♂ Silver Linden (*Tilia tomentosa*) ♂, β June-July, 50-70'
It is more heat and drought tolerant than other *Tilia* species, once established.

Smaller trees, mostly

- Allegheny Serviceberry (*Amelanchier laevis*) ♂, β March-April, 15-25'
Amelanchier x grandiflora, ♂, a street tree approved for frequent planting under power lines, is a cross between *A. laevis* (one of the more edible of this genus) and *A. arborea*, ♂.
- ♂ Devil's Walking Stick (*Aralia spinosa*) ♀ ♂, β August-September, 10-20'
Not to be confused with Japanese Aralia (*Aralia elata*, ♂), an invasive already well entrenched in parts of Philadelphia. Both are good sources of forage at a slack time of year.
- ♂ Eastern Redbud (*Cercis canadensis*) ♂ ≈ ♂, β March-April, 20-30'
Redbud flowers look a bit like cherry blossoms, and are edible as garnishes and in salads.
- Cornelian-cherry Dogwood (*Cornus mas*) ♂ ♀ ♂, β March, 15-20'
One of the earliest small trees to bloom in the spring, providing both pollen and nectar. Can be pruned as a hedge. Other dogwoods may provide forage for bees, though not as well-timed for when the bees really need it. Red-stem Dogwood (*Cornus sericea* ♂ ≈, β May, 15-25') is a bee-friendly native dogwood for wetland areas.
- American Smoketree (*Cotinus obovatus*) ♂, β May, 10-20'
Prefers dry terrain. In the Anacardiaceae family with Sumacs.

Smaller trees, mostly (cont'd)

HAWTHORN (*CRATAEGUS* SPP.)

All hawthorns contribute to the honeyflow in the May-June peak of the season. The flowers are reputed to smell awful, so some people avoid planting them near the house. Generally the hawthorns are small trees, but some (*Crataegus mollis* and *C. monogyna*) grow to 40' or so. Seven hawthorn species are approved for planting on the streets under powerlines: *C. crus-galli* §, *C. flava*, *C. laevigata*, *C. phaenopyrum*, *C. punctata*, *C. veridis*, and *C. x lavallei*.

- Thicket Hawthorn (*Crataegus intricata*) ☼ §, β April-May, 8-10'
Shade tolerant and can be pruned. A hedgerow of hawthorns can equal one good bee-friendly tree.
- ‡ Washington Hawthorn (*C. phaenopyrum*) ⚡ ✕ ⋄ §, β June, 25-30'

Franklinia (*Franklinia alatamaha*) β July, 10-20'

William Bartram named this "rare and elegant flowering shrub" to honor his father's great friend Benjamin Franklin. Extinct in the wild, it is available in horticultural circles and celebrated in Philadelphia. And it's a strong bee-forage plant, with both pollen and nectar.

- American Witchhazel (*Hamamelis virginiana*) ⚡ , β November, 20-30'
Blooms late in the fall. Ozark Witchhazel (*Hamamelis vernalis*, ⋄, β March, 10-15') blooms early in the spring. Neither provides the quantities of pollen and nectar that might be expected at another time of year, but that they provide anything is a beekeepers' marvel and a midwinter treat for the bees on warmer days.

HOLLY & RELATED (*ILEX* SPP.)

American Holly is a proper 'tree'-sized tree. The others listed here are smaller. All these here are native species. All are abundant sources of bee forage, and also provide berries for birds and other wildlife in the winter. Holly is dioecious and males are needed for the female Hollies to have berries.

- ‡ Possum Haw (*Ilex decidua*) ☼, β April-May, 10-25'
- ‡ Inkberry, Gallberry (*Ilex glabra*) ☼ ≈ §, β May-June, 5-10'
The 'Compacta' variety can be pruned as a hedge – Whitehead.
- ‡ American Holly (*Ilex opaca*) ☼ §, β June, 40-50'
- ‡ Winterberry (*Ilex verticillata*) ✕ ☼ §, β May-June, 6-10'
Heavy pollen and nectar flow, shade tolerant though better with some sun, can be pruned and hedged.

APPLE (*MALUS* SPP.)

- ‡ Southern Crabapple (*Malus angustifolia*) β April-May, 15-25'
- ‡ Robinson Crabapple (*Malus* 'Robinson') ⚡ , β April-May, 20-30'
- ‡ Sweet Crabapple (*Malus coronaria*) ✕ ⋄, β April-May, 20-30'
- ‡ Apple (*Malus domestica*) ⚡ ⋄ ⋄, β May, 30-40'
This is the regular eating apple, introduced from Eurasia, and a good bee-friendly tree. TreePhilly often has 1+ varieties.

‡ Sourwood (*Oxydendrum arboreum*) ⚡ ≈, β July, 25-30'

Highly regarded by beekeepers in the southern Appalachians, the Sourwood is being tried here. It does best in a rich, acidic soil. "Many people regard it as the finest honey produced in America" - Pellett.

PIT-TYPE FRUIT TREES (*PRUNUS* SPP.)

This tree family includes cherries, apricots, plums, and chokecherries. Many of our most familiar fruit are exotic to this continent, but several native *Prunus* species are particularly bee-friendly.

- ‡ American Plum (*Prunus americana*) ✕ ⋄, β March-April, 15-25'
- Sweet Cherry (*Prunus avium*) ⚡ ⋄ ⋄, β April, 15-30'
Other cherries (P. 'Okame' and P. sargentii) are also good.
- Black Cherry (*Prunus serotina*) β April-May 50-60'
A widely distributed American native, growing considerably taller than the other *Prunus* species.
- ‡ Chokecherry (*Prunus virginiana*) ⚡, β April-May, 20-30'

SUMAC (*RHUS* SPP.)

Sumac bloom times vary during the year, depending on the species. Height also varies. Dioecious. Several produce ample forage in the late summer.

- Fragrant Sumac (*Rhus aromatica*) ☼ §, β April-May, 2-5'
"Stubbornly informal," tough and adaptable – Whitehead.
- ‡ Shining Sumac (*Rhus copallinum*) β August, 20-30'
- ‡ Red Sumac (*Rhus glabra*) β July, 10-15'
- ‡ Staghorn Sumac (*Rhus typhina*) ⚡ , β June, 15-25'

WILLOW (*SALIX* SPP.)

Willows bloom early in the year, and species seem to waver between insect and wind pollinated. Over millions of years, many have coevolved with pollinator species to provide nectar and more digestible pollen.

- ‡ Pussy Willow (*Salix discolor*) ≈, β March-April, 20-25'
The Pussy willow and its European cousin the Goat Willow (*Salix caprea* ⋄ ≈, β March, 15-25') bloom early in the spring.
- Black Willow (*Salix nigra*) ≈, β April-May, 10-60'
- Elderberry (*Sambucus canadensis*) ⋄, β July, 8-12'
Not a huge forage source but provides some pollen; berries can be used for food and drink products, and medicinally.
- Mountain Ash (*Sorbus americana*) ⋄, β May-June, 10-30'
Sour berries can be used in jellies and medicinally. The so-called Mountain Ash is not in the genus of Ash trees (*Fraxinus* spp.) which is being decimated by the Emerald Ash Borer.
- Japanese Snowbell (*Styrax japonica*) ⋄, β May-June, 10-25'

Shrubs and vines

With shrubs and some of the small trees above, consider spread as well as height. 'Dave's Garden' and other websites may have this info.

- Black Chokeberry (*Aronia melanocarpa*) ⚔, β May, 3-6'
- Trumpet Vine (*Campsis radicans*) β August, 30-40' vine
- ‡ New Jersey Tea bush (*Ceanothus americanus*) β June, 3-4'
- ‡ Buttonbush (*Cephalanthus occidentalis*) ≈, β August, 3-6'
Ball-shaped flower, lots of nectar for native pollinators and honey bees.
- Japanese Quince (*Chaenomeles japonica*) ∅ ∅, β April, 3-5'
An exotic species, provides forage early in the spring. The quince fruit, stronger tasting than commercial varieties, can be candied.
- ‡ Summersweet (*Clethra alnifolia*) ≈ ⚔ §, β July, 4-8'
Needs loose, fertile soil. Can be hedged.
- ‡ Oakleaf Hydrangea (*Hydrangea quercifolia*) ⚔, β May, 4-6'
- ‡ Boston Ivy (*Parthenocissus tricuspidata*) ∅ ⚔, β July, 20-30' vine
- ‡ Goosberry (*Ribes grossularia*) ∅ ∅, β April, 3-5'
Alpine Currant (*Ribes alpinum*, ∅ ⚔ § ∅, β April, 3-4') can be hedged.
- ‡ Blackberry, Raspberry (*Rubus* spp.) ∅ ∅, β May, 3-7'
Both *R. fruticosus* and *R. idaeus* are good bee forage.
The native Allegheny blackberry (*Rubus allegheniensis*, ∅, β May, 3-6') is also bee-friendly.
- ‡ Snowberry (*Symphoricarpos albus*) β July, 3-6'
- ‡ Highbush Blueberry (*Vaccinium corymbosum*) ∅, β May, 5-10'
Also, Lowbush blueberry (*Vaccinium angustifolium*, ∅, 6"-2').

Pollen & Propolis

Some trees are basically wind-pollinated, including Oaks, Ginkgoes, Birches, Hickories, Mulberries, and evergreens such as Pine and Spruce. These trees often flower early in the spring, at or before leaf out. The leaves would inhibit the passage of pollen from one tree to another. For many of these trees, male flowers are 'catkins' and female flowers are inconspicuous and odorless. Grains of pollen are generally small, hard, and low in protein. Most of these trees are nearly useless to insect foragers seeking nectar and digestible pollen.

BIRCH FAMILY (*ALNUS*, *BETULA*, *CARPINUS*, *CORYLUS* AND *OSTRYA* SPP.)

This family of wind-pollinated trees includes approved street trees such as the Grey Birch (*Betula populifolia*, ⚔), the Hornbeam (*Carpinus caroliniana*), and the Hophornbeam (*Ostrya virginiana*, ⚔). They have no nectar, and generally the bees won't find the pollen very appetizing, depending on the time of year and whether there are better alternatives.

- Green Alder (*Alnus viridis*) β March, 8-10'
Early in the spring, bees do collect pollen from this tree, which grows

near streams and in wet soils. Speckled Alder (*Alnus incana* ssp. *rugosa*, β March, 8-15') also provides early pollen.

- ‡ American Hazelnut (*Corylus americana*) ⚔ ∅, β February, 15-20'
Two other hazelnuts, both non-native, *C. avellana*. and *C. colurna*, also provide a fair bit of pollen early in the year.

ELM FAMILY (INCLUDING *CELTIS* AND *ULMUS* SPP.)

Another set of wind-pollinated trees includes trees in the *Celtis* and *Ulmus* genera. Few provide nectar and digestible pollen for bees and other pollinator species. Three approved street trees are in this family: Sugar Hackberry (*Celtis laevigata*), Common Hackberry (*C. occidentalis*), and American elm (*Ulmus americana*).

POPLARS (*POPULUS* SPP.)

Poplars, including Aspens and Cottonwoods, generally provide little sustenance for bees. (The so-called Tulip Poplar, in the Magnolia family, is named 'poplar' because the wood and the stature of the tree is similar.)

- Eastern Cottonwood (*Populus deltoides*) 75-100+'
An important source of propolis, from the resinous sap of the buds, used by the bees medicinally and as caulk.

SYCAMORES (*PLATANUS* SPP.)

Commonly planted on Philadelphia streets, the London Planetree (*Platanus x acerifolia*) provides almost nothing for the bees.



Key

‡	One of the best!	∅	Not native to our region
‡	Excellent for bees	∅	Not native to North America
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Ⓐ	Approved street tree (lg)	≈	Does better in moist soil
Ⓐ	Approved street tree (sm)	§	Can be used in a hedge
⚔	TreePhilly 2017 giveaway	∅	Edibles provided
⚔	Howard Nursery, PA Game C.	β	Bloom time

Local Organizations

- Philadelphia Beekeepers Guild, Bees and Trees
(phillybeekeepers.org/bees-and-trees)
- Pennsylvania Horticultural Society, Tree Tenders
(phsonline.org/programs/tree-tenders)
- Philadelphia Department of Parks & Recreation, TreePhilly
(www.phila.gov/parksandrecreation) (treephilly.org)
- Philadelphia Orchard Project
(www.phillyorchards.org)
- Pennsylvania Game Commission, Howard Nursery
(www.pgc.pa.gov/InformationResources/GetInvolved/HowardNursery/)

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Jeffrey Whitehead, *The Hedge Book*. Storey, 1991.

Online Resources

- Lady Bird Johnson Wildflower Center, Native Plant Database
(www.wildflower.org/plants)
- Dave's Garden, Guides: Plant Files
(davesgarden.com/guides/pf)
- Pennsylvania DCNR, Bureau of Forestry, Invasive Plants
(www.dcnr.state.pa.us/forestry/plants/invasiveplants)
- USDA Natural Resources Conservation Service, Plants Database
(plants.usda.gov)
- Xerces Society, Pollinator Habitat Installation Guides, (422, Penna)
(www.xerces.org/pollinator-conservation/agriculture)

