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Beekeeping: Florida Bee Botany[1]

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This publication seeks to list and describe the most important bee plants found in the state of Florida, their approximate distribution and blooming date. With this information, beekeepers should be able to better manage their colonies and/or move them to maximize production. Finding good locations for colonies, based on proximity to good honey flora, is both and art and science; it takes a good deal of care and often several years of experience at one location to determine suitability. In this regard, the beekeeper must learn to become a careful experimenter and observer.

Plants that profusely produce nectar and/or pollen in one location may not in another for a number of reasons including differences soil moisture, pH, profile and fertility. These factors are also affected overall by climatic considerations: rainfall distribution, temperature and relative humidity (see "A Florida Beekeeping Almanac," Cooperative Extension Circular 537 for these details, as well as a calendar of beekeeping events).

Over the last four decades, there has been an overall decrease in honey bee forage throughout the United States. This is due to a number reasons, but especially changing agricultural patterns and increasing urban development. Florida is certainly not immune from these, and it behooves policy makers to consider the possible impact on most Florida bee plants, which are feral in nature, when implementing policy. A specific case in point is gallberry, present in vast blankets within low-lying swampy areas in the past, but continuously declining due to forest management procedures, agriculture and urbanization, all of which seek to drain the land and lower the water table.

Although many plants produce pollen for the bees, it is usually nectar-producing species that are of most interest to beekeepers. Few plants, in fact, anywhere, are capable of secreting the vast amount of nectar honey bees need to produce a honey crop. In Florida, for example, perhaps less than ten species account of over ninety percent of the state's honey crop, and only one, citrus, is cultivated. The most reliable nectar producers are: gallberry, citrus, tupelo, saw palmetto, melaleuca, Brazilian pepper and (cabbage) palm. Fortunately, in most areas minor nectar producers are also found which help support bee populations, although contributing little toward a honey crop. It is important to recognize that large tracts of plants are necessary to produce a good honey crop; it may take a solid acre of plant bloom to make a small surplus for just one colony. Proximity of

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colonies to plants is also important, the nearer the better.

Of more than passing interest is the knowledge that most beekeepers must move their colonies two to three times during the nectar-producing season. Only a few sites in the state support bees on a year-round basis. This accounts for interest on the part of many to plant nectar-secreting crops for honey bees. In the past, this has not been considered economical unless the crop would be used for another purpose (e.g. forage). However, it might pay to experiment on a limited basis with legumes, other cover crops or even feral plants. Finally, two plants included here are considered harmful to bees, and areas where they are abundant should be avoided when they are in bloom.

Major Nectar Plants

Black Mangrove (*Avicennia germinans* (L.) L.) (*A. nitida*) fringes coastal areas from Levy County on the west coast to the keys and up the east coast as far as Volusia County. It is considered one of the state's prime nectar sources, blooms in June and July, and produces surpluses almost every year. The honey is white and prone to granulate quickly after extraction. This nectar source has greatly declined over the years because of intensive urban, shore development.

Brazilian Pepper (*Schinus terebinthifolius*) or **Florida holly** is a medium sized shrub, sometimes growing to tree height along waterways in southern peninsular Florida. It blooms August to October. This is one of Florida's prime nectar producing plants. The honey has a distinct "peppery" taste and is not considered by many to be table grade, but is accepted well locally. This is a very invassive plant and therefore is not recommended.

Cabbage Palm (*Sabal palmetto* (Walt.) Lodd.), sometimes called **cabbage palmetto** is the state tree of Florida and found throughout peninsular Florida and westward along the Gulf coast. Bees usually produce nectar from cabbage palm in June and July, if summer rains do not interfere.

Gallberry (*Ilex glabra* (L.) Gray) is a common understory shrub of the flatwoods. It occurs throughout the state and blooms March to May. It can generally be counted on to produce a fine grade of honey and is one of Florida's prime nectar sources.

Punk Tree or **Cajeput** (*Melaleuca quinquenervia* (Cav.) S. T. Blake) (*M. leucadenron*) is a relative of eucalyptus and native to Australia. It is an "escaped" plant, grows in abundance in southern Florida and is so successful it has become the source of much controversy. The species has been blamed for initiating respiratory problems in the population, crowding out native plant species and "drying up" wet areas (e.g. the Everglades). It may bloom several times a year, assisting the bees during nectar dearth, and produces surpluses in August. The nectar is considered distasteful by some, but a market exists locally for the resultant honey. This is a very invassive plant and therefore is not recommended.

Saw Palmetto (*Serenoa repens*. (Bartr.) Small) is an understory plant of low pinelands and occurs throughout the state. It is also one of Florida's prime nectar sources and has a reputation for producing surplus honey crops. The honey is light green to amber and often has a high moisture content.

White Tupelo (*Nyssa ogeche* Bartr. ex Marsh.), sometimes called **Ogeechee Lime**, is a small to medium tree with a buttressed base, found along the shores of streams and lakes from St. Johns to Levy Counties and west to Holmes County. It blooms May to April and is a prime nectar source in Florida; the resultant honey is often in demand because of its light color and resistance to granulation.

Minor Nectar Plants

Spanish Needles (*Bidens pilosa* L.) is found throughout Florida in disturbed soil. The plants are annual, and numerous flowering heads with white rays and a yellow center are produced throughout the year, except where exposed to frost. It is an excellent nectar producer in late summer.

Seagrape (*Coccoloba uvifera* (L.) L.) is a small, spreading tree, found in the shelter of coastal dunes from Pinellas County on the west, south to the Keys, and north on the east coast of Volusia County. It flowers April to July and is a good nectar producer, but because of insignificant numbers is not a major nectar source.

Flat-topped Goldenrod (*Euthamia minor* (Michx.) Greene) (*Solidago microcephala*) is a common, yellow flowered herb of abandoned fields and waste areas throughout the state. It flowers September to November and may produce a surplus of honey in the central and southern part of Florida. A word of caution: A spiked golden rod often blooming at the same time and seen in conjunction with the flat-topped variety is not a good nectar producer.

Chaste Tree (*Vitex negundo* L.) is native to China and India, but is cultivatible in Florida. It flowers from June to October, making it a good plant during summer when a general nectar dearth exists. However, its numbers are generally small and rarely is it found in dense enough stands to produce surplus honey.

Mexican Clover (*Richardia scabra* L.), also called **pusley**, is a small, white flowered herb found in cultivated areas of the state. It blooms May to September, and the nectar usually serves as overwintering feed for colonies.

Partridge Pea (*Cassia fasciculata* Michx.) is a low herb occurring throughout the state. It flowers June to September and produces nectar only when growing in heavy red clay soil, predominantly in northern Florida. The plant has extrafloral nectaries (i.e. located on the leaf stalk rather than the bloom), and the nectar yield varies from year to year.

Red Maple (*Acer rubrum* L.), sometimes called **swamp maple**, occurs throughout Florida. This tree blooms in January and February and is one of the first sources of nectar and pollen each year. The small, red flowers give way to two-winged fruits. The plant may produce a surplus honey crop in some years, but usually it is consumed by the bees during buildup.

Pepper Vine, (*Ampelopsis arboreas* (L.) Koehne) is a relative of the grape, a woody vine found in moist areas throughout the state. It blooms in spring and early summer and is considered a minor nectar source only.

Prairie Sunflower (*Helianthus agrestis* Pollard) is found only in peninsular Florida, usually from Hendry County near Lake Okeechobee as far north as Volusia County. It blooms August to October, is associated with old fields or swamp edges and produces more nectar in the southern part of its range. It used to be more of a nectar source before much of its habitat was drained for agricultural purposes.

Sourwood (*Oxydendrum arboreum* (L.) DC.) occurs in rich woods in western Florida, east to Madison County. It blooms from June to July, but little honey is surplus is produced; most sourwood honey is produced at higher elevations in the Appalachians of northern Georgia, the Carolinas and Tennessee.

Fetterbush (*Lyonia lucida* (Lam.) Koch) is a low pinelands shrub found from Broward County northward. It blooms in February and April, just prior to gallberry. The resultant honey is said to have a bitter flavor.

Gopher Apple (*Chrysobalanus oblongifolius* Michx.)is a low, creeping shrub associated with dry soils throughout Florida. It blooms May to June and yields a light colored honey, but is not considered a reliable source, contributing mostly to colony maintenance.

Nutall's Thistle (*Cirsium nuttallii* (D.C.) Gray) is a distinctive herb, occuring in peninsular Florida from Broward north to Alachua and Nassau Counties. It blooms May to June. The plant generally does not grow in dense stands, contributes only to colony maintenance, and the resultant honey is mild in flavor.

Florida Pennyroyal (*Piloblephis rigida* (Bartr. ex Benth.) Raf.) (*Pycnothymus rigidus*) is a low growing aromatic plant, occurring in moist pineland from Alachua County southward. It blooms November to April. In the past this was a good nectar producer, but no longer is considered reliable.

Buckwheat tree (*Cliftonia monophylla* (Lam.) Britt.) or **white ti ti**, often called **spring ti ti**, is prolific in western Florida, east to Jefferson County. It blooms in February to April and often produces a surplus honey crop. Beginning beekeepers may confuse its common name with the the summer ti ti (*Cyrilla racemflora* L.), an undesirable plant which causes "purple brood." **Buttonbush** (*Celphalanthus occidentallis* L.) is a small tree, found in west places throughout the state. It blooms March to July and

produces nectar in central and south Florida, but not in quantities necessary for commercial honey production.

Coral Vine (*Antigonon leptopus* Hook. & Arn.) is an ornamental vine, native to tropical America, which often escapes cultivation. It has a prolonged blooming period (all year around) is a member of the buckwheat family and produces a dark colored honey. Where it occurs in dense stands a honey surplus can sometimes be obtained.

Summer Farewell (*Petalostemon caroliniense* (Lam.) Sprague) is a perennial herb with compact heads, occurring in peninsular Florida, north of Highlands County. It blooms September to October and is a source of winter food for colonies.

Trailing Chinquapin (*Castanea alnifolia* Nutt.) is a low shrub, found on moist to dry soils south to Orange County. It blooms March to June, prior to partridge pea, and may give partridge pea honey a bitter flavor.

Willow (*Salix carloniniana* Michx.) is a shrub or tree common in wetlands throughout Florida. It blooms February to March and is responsible for providing pollen and nectar to colonies. It often produces a surplus honey crop in south Florida.

Undesirable Plants

White Ti ti (*Cyrilla racemiflora* L.), often called **summer ti ti**, is a common tree or small shrub, found in swamps and on stream banks from Alachua County northward. It blooms May to July. It usually produces little nectar, but in good years is considered undesirable because the nectar and pollen are responsible for a condition known as "purple brood," which kills the brood, turning it a rich purple color. In areas where summer ti ti abounds and there is a history of such problems (Taylor and Jefferson Counties), beekeepers routinely move their bees away during the blooming season. This plant should not be confused with spring ti ti which is found in the same areas, but is an excellent honey plant.

Yellow Jessamine (*Gelsemium sempervirens* (L.) Ait. f.) is a woody vine, occurring from Highlands County northward. It blooms February to March. It is reported toxic to honey bees and responsible for reducing colony strength in some areas.

Cultivated Plants

Citrus is a major honey plant in Florida, although the quality and quantity of nectar may vary considerably each year. Orange appears to produce more nectar than other varieties of citrus and the resultant honey is distinctive in flavor and aroma. Citrus may bloom as early as February and as late as April (average bloom date is March 15); under ideal conditions, the bloom may last as long as four weeks. A second bloom may occur in June, but it is not as heavy nor as reliable as the one in the spring.

Several other cultivated crop plants show promise as nectar sources in Florida, especially those that produce well in other parts of the United States, but little specifics exist on exact conditions necessary for maximum nectar secretion. What follows is a partial listing of plants that should be investigated by beekeepers with regard to bee visitation, and conditions (e.g. temperature, rainfall) that are necessary for maximum nectar production: avocado, sweet clover (Hubam), clover (crimson, red, white), cowpeas, cucurbits (cucumbers, watermelons, squash, pumpkins, cantaloupes), lespedeza, mangos, snapbeans, birdsfoot trefoil and vetches.

Ornamentals

In both urban and rural areas, planting nectar-yielding ornamentals can provide bees with food resources necessary for colony maintenance. In some cases, these plants may even provide surplus honey. They are listed here along with abbreviated information on propagation and where in Florida they should be planted (N-C-S refers to north, central and south, respectively).

Trees

American Holly, *Ilex opeca*, N-C-S, is an excellent nectar source blooming in early spring. It can be collected from woods and/or propagated by cuttings.

American Redbud, *Cercis canadensis*, N-C, is a small tree that can be transplanted or propagated from seed. It blooms in the spring of the year.

Carolina Laurelcherry, *Prunus caroliniana*, N-C-S is an evergreen shade tree which can be grown from seed or collected in the woods.

Chinese Holly, *Ilex cornuta*, N-C, is a dark-green tree desirable for its color and berry production. It is propagated by cuttings or seed.

Chinese Tallowtree, *Sapium sebiferum*, N-C-S, is a fine shade tree which can be propagated by seed or cuttings.

Florida Holly, *Ilex cumulicola*, N-C-S, is a small holly, which can be propagated from the woods or by cuttings.

Tuliptree, *Liriodendron tulipfera*, N-C, is a fast-growing tree that is a major nectar source from the piedmont of Georgia northward. It can be collected from woods and is generally most abundant along water courses.

Southern Magnolia, *Magnolia grandiflora*, N-C, is a slow-growing evergreen shade tree. It can be collected from woods for transplanting, but recovers slowly.

Cassava, *Manihot carthuginesis*, N-C-S is a small seed tree, generally propagated by seed.

Sweetbay Magnolia, *Magnolia virginiana*, N-C-S, is a similar tree to Southern Magnolia described above.

Shrubs and Small Trees

Glossy Abelia, *Abelia grandiflora*, N, is good for base plantings, hedges and borders, which can be propagated by cuttings and withstands partial shade.

Privets and Ligustrums, *Ligustrum* spp., N-C-S, is another plant used in hedges and borders. It can be propagated by seed or cuttings.

Scarlet Dombeya, **Assonia**, **Rose-boquet**, *Dombeya wallichi*, C-S, is a fast-growing small tree, propagated by seeding or layering.

Yaupon, *Ilex vomitoria*, N-C, is a base or screen plant, propagated by seed or cuttings, but difficult to transplant.

Sweet Aeacia, **Mesquite**, **Popinae**, **Opopanax**, **Huisacke**, *Aeacia farnesiana*, C-S, is a thorny, bushy shrub, generally found along the coast. It is propagated by seed.

Common Mesquite, *Prosopis chilensis*, is a bushy shrub planted along Florida's east coast as a nectar source. It is propagated by seed.

References

Because Florida conditions are so diverse as a result of much of the state being subtropical, it is not practical to list all possible plants that might contribute to the welfare of the honey bee. The following list of references will aid the beekeeper who wishes to study in more depth nectar and pollen resources of Florida.

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