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Attracting Native Bees to Your Florida Landscape[1]

Rachel E. Mallinger, Wayne Hobbs, Anne Yasalonis, and Gary Knox[2]

Introduction

Florida is home to approximately 315 species of native wild bees. These bees rely on flowers for survival; their diets consist exclusively of pollen and nectar harvested from flowers. Recently reported declines in some bee species have heightened awareness of bee conservation across the United States and motivated efforts to increase floral resources for bees (Biesmeijer et al. 2006; Colla and Packer 2008; Ricketts et al. 2008; Potts et al. 2010; Burkle et al. 2013). Gardeners and land managers can aid in conservation efforts by planting flowers for bees in home or community gardens.

Bee-Friendly Plants

Generally, the best plants for bees will be those that have abundant and accessible pollen and nectar. Avoid pollen-free plant varieties (e.g., some sunflowers and lilies) because they will not provide pollen, which is the essential food source for bees. Additionally, choose plants with flat flowers or short to medium-length flower tubes (corollas), and limit plants with long flower tubes such as honeysuckle (Figure 1). Many native wild bees have relatively short proboscises, or tongues, and may not be able to access nectar from flowers with long tubes; however, flowers with long floral tubes can attract other pollinators with long tongues or beaks such as butterflies, moths, and hummingbirds.



Figure 1. From left to right are examples of plants with relatively flat flowers, short-medium length flower tubes, and long flower tubes (from left to right: rosinweed Silphium sp., blue sage Salvia azurea, and firespike Odontonema cuspidatum).
Credit: R. Mallinger and UF/IFAS

Increasing the number of flowering plant species in your garden can increase the abundance and diversity of bees attracted to the garden (Kearns and Oliveras 2009; Pardee and Philpott 2014; Blauuw and Isaacs 2014). Aim for at least ten flowering plant species selected to complement one another (Williams et al. 2015; Mader et al. 2011). Specifically, design your garden to have three or more different plants blooming at any given time during the growing season, which is year-round in southern Florida, and March through November in northern areas of the state. Because bees often prefer dense floral displays, arranging flowering plants in clumps with multiple individuals per species will increase the attractiveness of the garden to bees (Blaauw and Isaacs 2014; Williams et al. 2015; Mallinger et al. 2019).

Additionally, bees prefer white, yellow, or blue-purple flowers (Figure 2). Orange, pink, or red flowers are not as attractive to bees (but may be attractive to other pollinators). Finally, native plants are generally best for native bees (Isaacs et al. 2009; Morandin and Kremen 2012; Pardee and Philpott 2014). While bees may collect nectar from a variety of native and non-native plants, some specialist native bees require pollen from certain native plants in order to develop optimally. Non-native plants may provide abundant nectar for bees during times, or in places, with minimal native floral resources and can be useful in combination with native plants to increase resource availability.



Figure 2. Flower colors that are highly attractive to native wild bees include yellow, white, and blue-purple (from left to right: blanketflower Gaillardia sp., blueberry Vaccinium sp., and mimosa Mimosa sp.).
Credit: Weaver and R. Mallinger, UF/IFAS

Designing and Managing a Garden for Native Bees

You can provide flowers for native bees by simply incorporating bee-friendly plants into your existing landscape, or you can create a special space for them in your yard by incorporating some easy design ideas (Figure 3). Create a landscape design for any garden space that you plan to make changes to, no matter how big or small. The faculty, staff, and Master Gardener Volunteers at the UF/IFAS Extension Office in your county can assist you with basic garden design concepts and may even offer classes on landscape design. Some additional elements to incorporate into your pollinator garden include:

1. Install plants of varying heights to increase visual appeal of the garden space, being sure to pay attention to the average height and width of the mature plant/tree.
2. Limit weed barriers including fabric and plastic sheets or dense wood and straw mulches. If you do use heavy weed barriers, keep some amount of area near the bee garden free of these barriers. Many native bees nest below the ground in tunnels or cavities like abandoned rodent nests and need bare or lightly covered soil. If you see a small mound of dirt with an entrance/exit hole on top, you may have a friendly resident!
3. Add a bee nest box for the native bees that build their nests above ground (http://gardeningsolutions.ifas.ufl.edu/design/gardening-with-wildlife/pollinator-hotels/ and https://www.dropbox.com/sh/gx7lae6qx7j23ev/AAAF-3qgh0_hV3z-gs2l-0lua/Creating%20a%20Pollinator%20Hotel.pdf?dl=0).
4. Avoid pesticide use in and around your garden, especially on plants that are blooming. It is best to avoid all chemicals on plants during their bloom period, including fungicides and organic pesticides because they may harm bees that visit the flowers. If you do use pesticides during the flowering period, apply them in the evening hours, and always follow pesticide label instructions.
5. When purchasing seeds or transplants, it is best to buy ones that have not been treated with systemic insecticides such as neonicotinoids because these systemic chemicals can persist in the plant and may be present in the pollen and nectar.

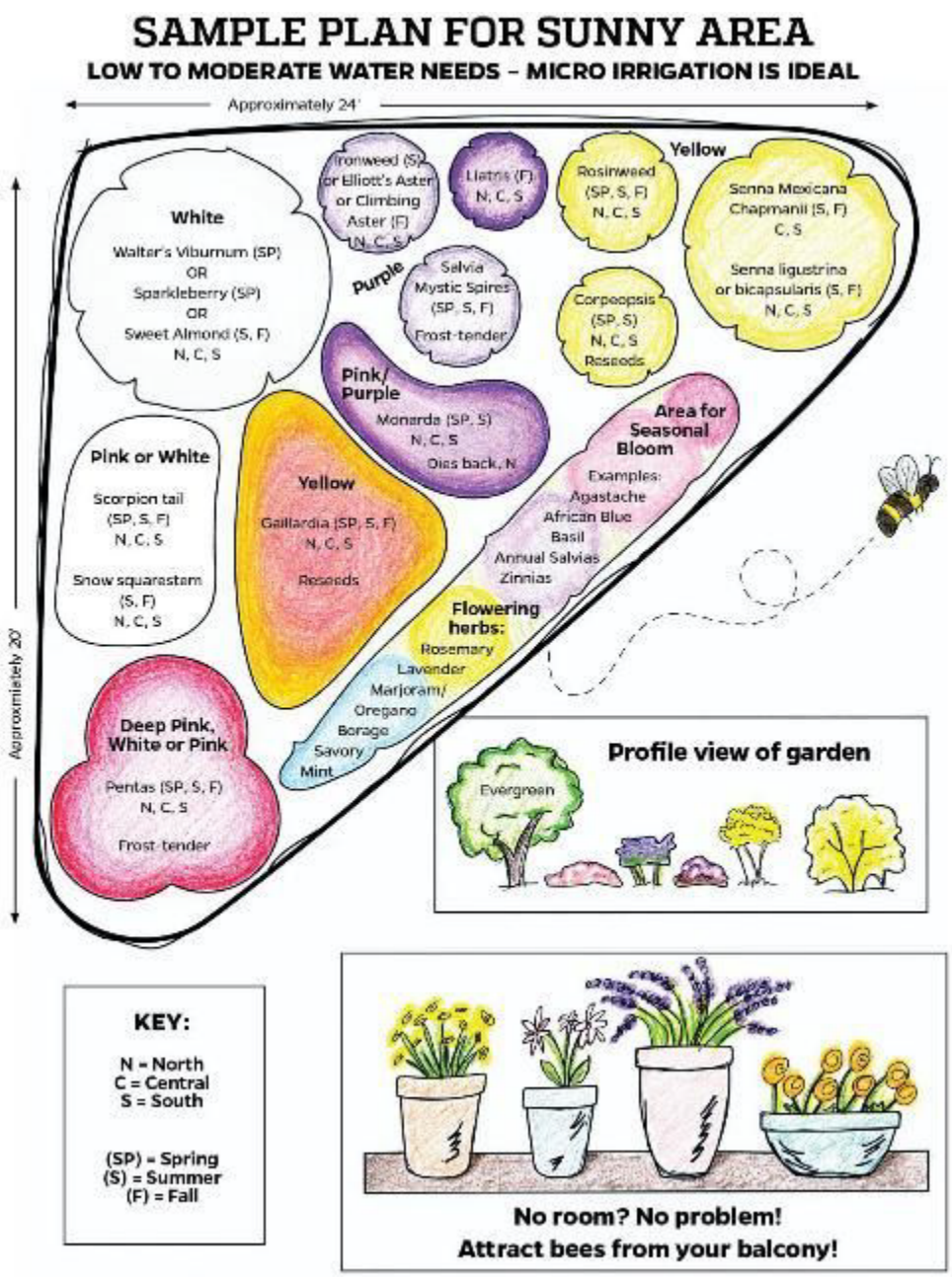


Figure 3. Example of a landscape designed to support native wild bees and other pollinators. The plants included provide attractive colors (white, yellow, and blue-purple) and ample pollen and nectar and can be grown throughout most of Florida. For each plant, information on bloom time, growing region, frost sensitivity, and flower color, is included.

Plant Recommendations for Florida

Below are lists of plants that we recommend for native bees in northern, central, and southern Florida. These plants have floral traits expected to attract native bees, including attractive flower color, size, and shape. They also contain abundant nectar and/or pollen. While most of the suggested plants are native, some bee-attracting non-native plants are also included. This list should be used as a starting point, though it is not exhaustive. When evaluating plants for native bees, you can use the above criteria to consider plants not on this list. When choosing plants for your area, keep in mind the soil, moisture, and light requirements of the plants (https://ffl.ifas.ufl.edu/pdf/FYN_Plant_Selection_Guide_2015.pdf). Most bee-attracting plants grow in full sun, though some will thrive in partial shade.

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Table 1. Woody plants.

Scientific name	Common name	Bloom Period				Flower color	Region			Native (Y = yes, N = no)	Florida hardiness zone
		Winter	Spring	Summer	Fall		North	Central	South		
Acacia vachella	Sweet acacia	X	X	X	X	Yellow	-	X	X	Y	9–11
Acer rubrum	Red maple	X	X	-	-	Red-pink	X	X	X	Y	8–10
Adonidia merrillii	Christmas palm	X (south FL)	-	-	-	White	-	-	X	N	10–11
Aloysia virgata	Sweet almond	-	-	X	X	White	X	X	X	N	8–11
Symphyotrichu-m carolinianum	Climbing aster	-	-	-	X	White-purple	X	X	X	Y	8–10b
Bursera simaruba	Gumbo limbo	-	X	-	-	Yellow-green	-	-	X	Y	10b–11
Callicarpa americana	Beautyberry	-	X	X	X	Lavender-pink	X	X	X	Y	8–11
Callistemon spp.	Bottlebrush	X	X	X	X	Red	X	X	X	N	8b–11
Cercis canadensis	Eastern redbud	X	X	-	-	Pink-purple	X	X	-	Y	8–9a
Chionanthus virginicus	Fringetree	-	X	-	-	White	X	X	-	Y	8–9
Chrysobalanus icaco	Cocoplum	X	X	X	X	White	-	-	X	Y	10–11
Citharexylum spinosum	Fiddlewood	X	X	X	X	White	-	-	X	Y	10–11
Clethra alnifolia	Sweet pepperbush	-	-	X	-	White	X	X	-	Y	8–9
Coccoloba diversifolia	Pigeon plum	-	X	X	-	White	-	-	X	Y	10a–11
Coccoloba uvifera	Seagrape	-	X	-	-	White	-	X	X	Y	9–11
Cornus foemina	Swamp dogwood	-	X	-	-	White	X	X	X	Y	8–10
Duranta erecta	Golden dewdrop	X (south FL)	X	X	X	Purple	-	X	X	N	9b–11
Forestiera segregata	Florida privet	X	X	-	-	Yellow	X	X	X	Y	8b–11

Scientific name	Common name	Bloom Period				Flower color	Region			Native (Y = yes, N = no)	Florida hardiness zone
		Winter	Spring	Summer	Fall		North	Central	South		
Gamolepis chrysanthemo-ides	Bush daisy	X (south FL)	X	X	X	Yellow	X	X	X	N	8b–11
Halesia carolina	Carolina silverbell	-	X	-	-	White	X	-	-	Y	8
Hibiscus spp.	Hibiscus	-	X	X	X	Variable	X	X	X	Some	8–11
Ilex glabra	Inkberry	X	X	-	-	White	X	X	X	Y	8–10
Ilex spp.	Holly	X	X	-	-	White	X	X	X	Some	8–11
Jacaranda mimosifolia	Jacaranda	-	X	X	-	Purple	-	X	X	N	9b–11
Lysiloma latisiliquum	Wild tamarind	-	X	X	-	White-pink	-	-	X	Y	10b–11
Myrcianthes fragrans	Twinberry (Simpson's stopper)	X	X	X	X	White	-	X	X	Y	9b–11
Prunus angustifolia	Chickasaw plum	-	X	-	-	White	X	X	-	Y	8–9b
Psychotria nervosa	Wild coffee	-	X	X	-	White	-	-	X	Y	10b–11
Sabal palmetto	Cabbage palm	-	-	X	-	White	X	X	X	Y	8b–11
Senna ligustrina	Privet senna	-	-	X	X	Yellow		X	X	Y	9–11
Senna mexicana var. *chapmanii*	Chapman's senna	X	X	X	X	Yellow	-	-	X	Y	10–11
Serenoa repens	Saw palmetto	-	X	-	-	White-yellow	X	X	X	Y	8–11
Simarouba glauca	Paradise tree	-	X	X	-	Yellow	-	-	X	Y	10b–11
Sophora tomentosa	Necklace pod	X	X	X	X	Yellow	-	-	X	Y	10–11
Vaccinium arboreum	Sparkleberry	-	X	-	-	White	X	X	X	Y	8–10b
Viburnum obovatum	Walter's viburnum	-	X	-	-	White	X	X	X	Y	8-10
Vitex agnus-castus	Chaste tree	-	-	X	-	Purple	X	X	X	N	8-11
Wisteria frutescens	American wisteria	-	X	X	-	Purple	X	X	-	Y	8–9

Table 2. Herbaceous plants.

Scientific name	Common name	Bloom Period				Flower color	Region			Native (Y = yes, N = no)	Florida hardiness zone
		Winter	Spring	Summer	Fall		North	Central	South		
Borago officinalis	Borage	-	-	X (peak bloom)	-	Purple	X	X	X	N	8–11
Bulbine frutescens	Bulbine	-	X	X	-	Yellow-orange	-	X	X	N	9–11
Chamaecrista fasciculata	Partridge pea	X (south FL)	X (south FL)	X	X	Yellow	X	X	X	Y	8–10
Conradina spp.	False rosemary	X	X	X	X	Blue	X	X	-	Y	8–9
Coreopsis leavenworthii	Leavenworth's coreopsis	-	X	X	X	Yellow	X	X	X	Y	8–11
Evolvulus glomeratus	Blue daze	X	X	X	X	Blue	-	X	X	N	9–11
Flaveria linearis	Yellow top	X	X	X	X	Yellow	-	-	X	Y	10–11
Gaillardia pulchella	Blanketflower	-	-	X	-	Red-yellow	X	X	X	Y	8–11
Glandularia maritima	Beach verbena	X	X	X	X	Purple	-	-	X	Y	10–11
Glandularia tampensis	Tampa verbena	X	X	X	X	Purple	-	X	X	Y	9–10b
Helianthus angustifolius	Swamp (narrowleaf) sunflower	-	-	-	X	Yellow	X	X	X	Y	8b–11
Helianthus debilis	Dune (beach) sunflower	X (south FL)	X	X	X	Yellow	X	X	X	Y	8b–11
Heliotropium angiospermum	Scorpion tail	X	X	X	X	White	X	X	X	Y	8–11
Liatris spp.	Blazing star	-	-	X	X	Purple	X	X	X	Some	8–10b
Melanthera nivea	Snow squarestem	-	-	X	X	White	X	X	X	Y	8–11
Mimosa strigillosa	Powderpuff (sunshine mimosa)	-	X	X	X	Pink-purple	X	X	X	Y	8–11
Monarda punctata	Spotted bee balm (dotted horsemint)	-	-	X	X	Purple	X	X	X	Y	8–10a
Ocimum kilimandscharic-um x basilicum	African blue basil	-	-	X (peak bloom)	-	Purple	X	X	X	N	8–11

Scientific name	Common name	Bloom Period				Flower color	Region			Native (Y = yes, N = no)	Florida hardiness zone
		Winter	Spring	Summer	Fall		North	Central	South		
Origanum spp.	Marjoram (oregano)	-	-	X (peak bloom)	-	Purple	X	X	X	N	8–11
Pentas lanceolata	Pentas	X (south FL)	X	X	X	Variable	X	X	X	N	8b–11
Pityopsis graminifolia	Silver-leaved aster	-	-	-	X	Yellow	X	X	X	Y	8–11
Rudbeckia hirta	Black-eyed susan	-	-	X	X	Yellow	X	X	X	Y	8–11
Salvia spp.	Salvia (sage)	X (south FL)	X	X	X	Variable	X	X	X	Some	8–11
Silphium asteriscus	Starry (bigleaf) rosinweed	-	X	X	X	Yellow	X	X	X	Y	8–10b
Sisyrinchium angustifolium	Blue-eyed grass	-	X	-	-	Blue	X	X	X	Y	8–11
Solidago sempervirens	Seaside goldenrod	-	X (south FL)	X	X	Yellow	X	X	X	Y	8–11a
Stachytarpheta jamaicensis	Blue porterweed	X (south FL)	X	X	X	Purple	-	X	X	Y	9–11
Symphyotrichum elliottii	Elliot's aster	-	-	-	X	Lavender	X	X	X	Y	8–11a
Zinnia spp.	Zinnias	X (south FL)	X	X	X	Variable	X	X	X	N	8–11

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[2] Gary Knox, nursery crops Extension specialist and professor emeritus, Department of Environmental Horticulture, UF/IFAS North Florida Research and Education Center; Rachel E. Mallinger, associate professor, pollinator ecology and conservation, Department of Entomology and Nematology; Wayne H. Hobbs, Extension agent II, M.S., environmental horticulture, UF/IFAS Extension Clay County; Anne E. Yasalonis, Extension agent III, M.S., residential horticulture, UF/IFAS Extension Polk County; UF/IFAS Extension, Gainesville, FL 32611.

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