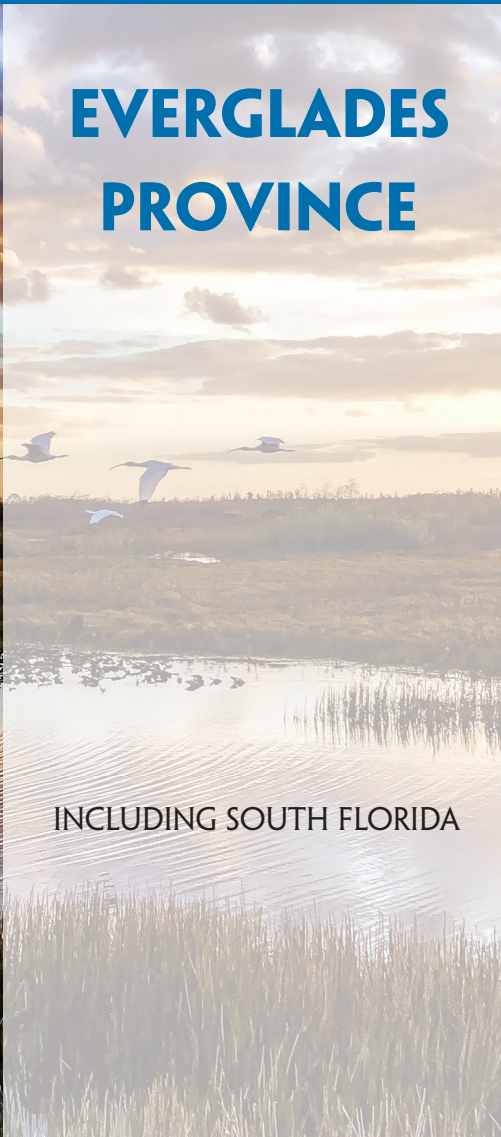




SELECTING PLANTS FOR POLLINATORS



A GUIDE FOR GARDENERS, FARMERS, AND LAND MANAGERS IN THE



EVERGLADES PROVINCE

INCLUDING SOUTH FLORIDA



**POLLINATOR
PARTNERSHIP**

Protect their lives. Preserve ours.

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This is one of several guides for different regions of North America. We welcome your feedback to assist us in making the future guides useful. Please contact us at feedback@pollinator.org

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A NAPPC AND POLLINATOR PARTNERSHIP PUBLICATION

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in support of the North American Pollinator Protection Campaign (NAPPC-nappc.org).



WHY SUPPORT POLLINATORS?

IN THEIR 1996 BOOK, *THE FORGOTTEN POLLINATORS*, Buchmann and Nabhan estimated that animal pollinators are needed for the reproduction of 90% of flowering plants and one third of human food crops. Each of us depends on these industrious pollinators in a practical way to provide us with the wide range of foods we eat. In addition, pollinators are part of the intricate web that supports the biological diversity in natural ecosystems that helps sustain our quality of life.

Abundant and healthy populations of pollinators can improve fruit set and quality, and increase fruit size. In farming situations this increases production per hectare. In the wild, biodiversity increases and wildlife food sources increase. Sugarcane, citrus, tomatoes, watermelons, peppers, cotton, peanuts, snap beans, and potatoes are some of the crop types grown in the Everglades ecoregion that rely on honey bees and native bees for pollination. Honey bees pollinate more than \$1 billion worth of crops in the United States each year.

Unfortunately, the numbers of many native pollinators are declining. They are threatened by habitat loss, disease, climate change, and the excessive and inappropriate use of pesticides. As a result research and conservation actions supporting native pollinators are increasingly active. Honey bee colony losses have significantly impacted beekeepers. Parasites, disease, pesticide use, insufficient nutrition, and transportation practices all impact honey bee health, and this in turn can impact the commercial pollination services honey bees provide. The efforts to understand the threats to commercial bees should help us understand other pollinators and their roles in the environment as well.

It is imperative that we take immediate steps to help pollinator populations thrive. The beauty of the situation is that by supporting pollinators' need for habitat, we support our own needs for food and support diversity in the natural world.

Thank you for taking time to consult this guide. By adding plants to your landscape that provide food and shelter for pollinators throughout their active seasons and by adopting pollinator friendly landscape practices, you can make a difference to both the pollinators and the people that rely on them.

“**FARMING FEEDS
THE WORLD, AND
WE MUST REMEMBER
THAT POLLINATORS
ARE A CRITICAL
LINK IN OUR FOOD
SYSTEMS.**”

– PAUL GROWALD,
CO-FOUNDER,
POLLINATOR PARTNERSHIP



Kelly Bills
Executive Director
Pollinator Partnership



THIS REGIONAL GUIDE IS JUST ONE in a series of plant selection tools designed to provide you with information on how to plant local native plants for pollinators. Each of us can have a positive impact by providing the essential habitat requirements for pollinators including food, water, shelter, and enough space to raise their young.

Pollinators travel through the landscape without regard to property ownership or provincial boundaries. We've chosen to use the ecoregional classification system and to underscore the connections between climate and vegetation types that affect the diversity of pollinators in the environment.

The United States ecoregions are based on the highest resolution level

of Bailey's ecosystem classification. The Bailey's ecosystem classification at the province level is a description of vegetation or other natural land covers within domains with similar climates. This guide addresses pollinator-friendly land management practices in what is known as the Everglades ecoregion.

The seasonal cycle of sun and shade within the forests has created a changing pattern of bloom time for food plants and shelter needs for foraging, nesting, and migrating pollinators. Farms and residential areas provide a diverse range of soil types in both sunny and shady areas. With this diversity of locations many different species of plants may be used to improve pollinator habitats where they are lacking.

Long before there were homes and farms in the Everglades ecoregion, natural vegetation provided essential opportunities for wildlife, including pollinators. Farmers, land managers, and gardeners in this region have a wide palette of plants to use in the landscape. In choosing plants, aim to create habitat for pollinators that allow adequate food, shelter, and water sources. Most pollinators have very small home ranges. You will make a difference by understanding the vegetation patterns on the farm, forest, or neighbor's yard adjacent to your property. With this information in hand, your planting choices will better support the pollinators' need for food and shelter as they move through the landscape.

UNDERSTANDING THE EVERGLADES PROVINCE

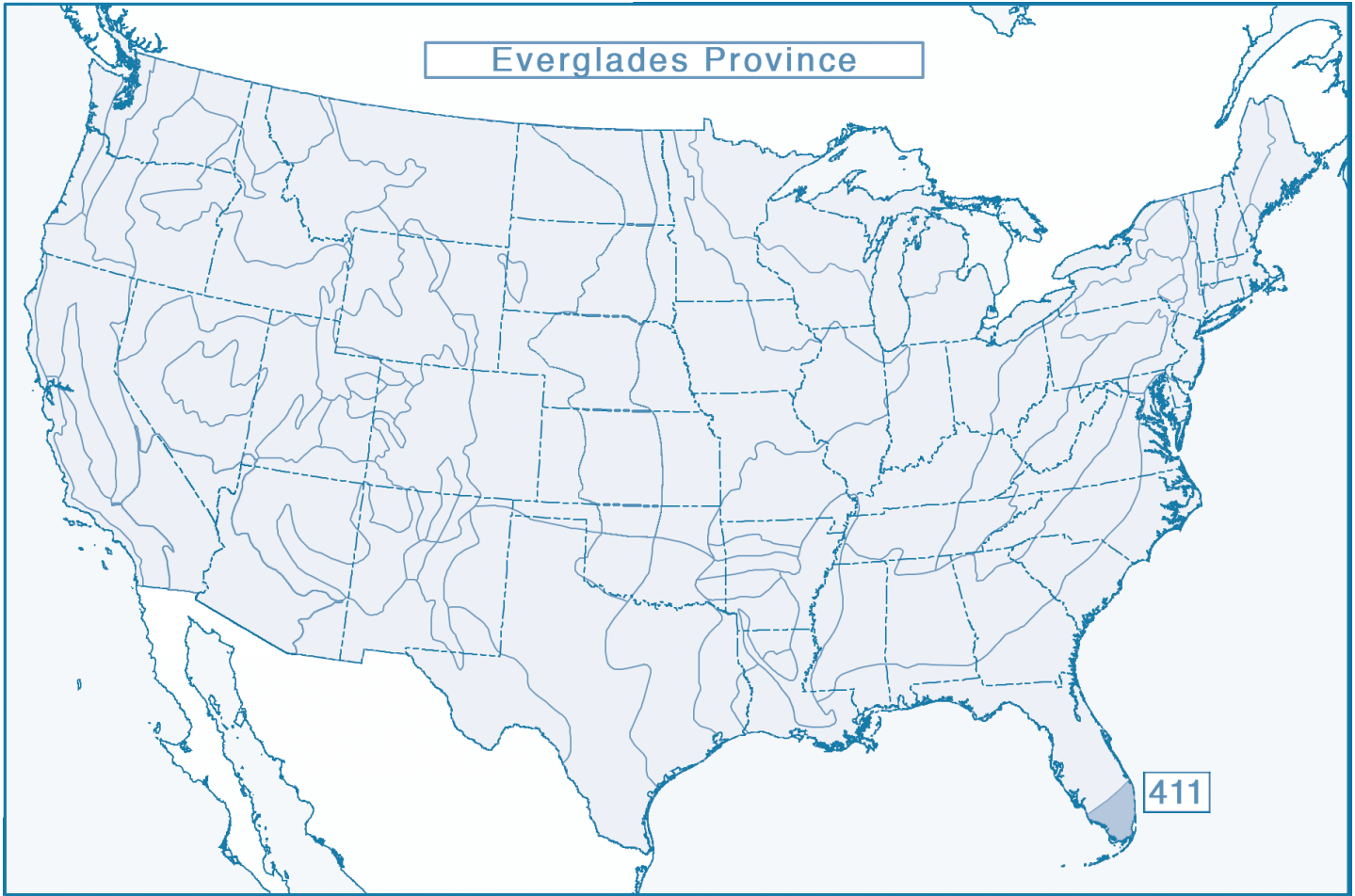


Photo courtesy of Larry Perez

- ✿ The Everglades ecoregion is located in southern Florida. The topography and hydrology allow for expansive marshlands. The fertile soil and warm climate allow for long growing seasons, and the region is often farmed.
- ✿ Not sure about which region you live or work in? Go to pollinator.org and click on **Ecoregion Locator** for help.
- ✿ 7,800 square miles in Southern Florida including the Keys.
- ✿ The topography includes low coastal plains, swamps, marshes, and moist hardwood forest.
- ✿ Elevations ranging from sea level up to 80 ft.
- ✿ The average temperature ranges from 72-77° F remaining frost-free for the majority of the year.
- ✿ Annual year round precipitation is between 50-64 inches.
- ✿ The mild climate patterns and rich soil have led to agricultural and urban development.

CHARACTERISTICS

- ✿ Dominant land cover is coastal plain containing swamps and marshes.
- ✿ Hardwood forests cover 1/5 of the everglades, and can contain cypress, mangrove, redbay, and mahogany trees.
- ✿ Much of the east and west coasts has undergone agricultural and urban development.



Everglades Province includes the counties of:

- Broward,
- Collier,
- Hendry,
- Lee
- Miami-Dade,
- Monroe,
- Palm Beach

“ADDING NATIVE PLANTINGS IN RIPARIAN AREAS TO IMPROVE POLLINATOR HABITAT MAKES SENSE IN ADVANCING OUR FAMILY FARM’S CONSERVATION AND ECONOMIC OBJECTIVES, ENHANCING BENEFICIAL WILDLIFE AND IMPROVING POLLINATION IN OUR ORCHARD AND GARDEN.”

– LEE MCDANIEL,
FARMER AND PRESIDENT,
NATIONAL ASSOCIATION OF CONSERVATION DISTRICTS

MEET THE POLLINATORS



WHO ARE THE POLLINATORS?

BEES

Bees are the best documented pollinators in the natural and agricultural landscapes of the Everglades ecoregion. A wide range of plants in the Aster and Citrus families are just a few plants that benefit from bee pollinators.

Most of us are familiar with the colonies of honey bees that have been the workhorses of agricultural pollination for years in the United States. They were imported from Europe almost 400 years ago and continue to be managed for honey production and pollination services. There are over 300 species of bees native to Florida. Most of these bee species live a solitary life; a minority are social and form colonies or nest in aggregations.

Native bees visit and pollinate many crops; in many cases they are better at transferring pollen than honey bees. Our native bees can be encouraged to do more to support agricultural endeavors if their needs for nesting habitat are met and if suitable sources of nectar, pollen, and water are provided. Bees come in a variety of body shapes and sizes, and even have tongues of different lengths. Native bees visit the widest range of flowers and crops of any pollinator group.

Bumble bees (*Bombus* spp.) form small colonies, usually underground making use of old rodent burrows or dense thatches. They are generalists, feeding on a wide range of plant types from May to September and are important pollinators of

tomatoes and blueberries. Sweat bees (family Halictidae) are medium to small-sized, slender bees that commonly nest underground. Various species are solitary while others form loose colonies, nesting side-by-side. Other common solitary bees include carpenter bees (*Xylocopa virginica*), which nest by chewing into wood; mining bees (*Andrena* spp.), which nest underground and are common in the spring; leaf-cutter bees (*Megachile* spp.), which prefer dead trees or branches for their nest sites; and mason bees (*Osmia* spp.), which utilize cavities they find in stems and dead wood that they fill with mud.

BUTTERFLIES

Butterflies prefer open and sunny areas such as meadows and along woodland edges that provide bright flowers, water sources, and specific host plants for their caterpillars. Gardeners have been attracting butterflies to their gardens for some time. To encourage butterflies place flowering plants where they have full sun and are protected from the wind. They usually look for flowers that provide a good landing platform. Butterflies need open areas (e.g., bare earth, large stones) where they can bask, and moist soil from which they wick needed minerals. Butterflies eat rotten fruit and even dung, so don't clean up all the messes in your garden! By providing a safe place to eat and nest, gardeners can also support the pollination role that butterflies play in the landscape. In the Everglades ecoregion it is common to see the Giant Swallowtail (*Papilio cresphontes*), Cloudless Sulphur (*Phoebis*), Cassius Blue (*Leptotes cassius*), and Monarch (*Danaus plexippus*).



Photo courtesy of Tim Dunne

Ruby-throated Hummingbird.

Pipevine Swallowtail



Photo courtesy of Alan Schmierer



MOTHS

Moths are most easily distinguished from butterflies by their antennae. Butterfly antennae are simple with a swelling at the end. Moth antennae differ from simple to featherlike, but never have a swelling at the tip. Butterfly bodies are not very hairy, while moth bodies are quite hairy and much more stout. In addition, butterflies typically are active during the day; moths at night. They are attracted to flowers that are strongly sweet smelling, open in late afternoon or night, and are typically white or pale colored.

BEETLES

There are more than 4,600 species of beetles in Florida, with 559 species confirmed to be native. Many of them can be found easily by looking inside flower heads. Gardeners have yet to intentionally draw beetles to their gardens, possibly because beetle watching isn't as inspiring as butterfly or bird watching. Yet beetles do play a role in pollination. Some have a bad reputation because they can leave a mess behind, damaging plant parts as they eat pollen. Beetle pollinated plants tend to be large, strong scented flowers and have the anthers and stigma exposed. Beetles are known to pollinate magnolia, paw paws, and yellow pond lilies.

FLIES

It may be hard to imagine why one would want to attract flies to the garden. However, flies are one of the most diverse group of pollinators. They include colourful flower flies and hover flies (*Syrphidae*), active bee flies

(*Bombyliidae*), and tiny midges

that visit many plant species. Like bees, flies are hairy and can easily transport pollen from flower to flower. Flies primarily pollinate small flowers that bloom under shade and in seasonally moist habitats, but are also economically important as pollinators for a range of annual and bulbous ornamental flowers. Plants pollinated by flies include the American pawpaw (*Asimina triloba*), skunk cabbage (*Symplocarpus foetidus*), goldenrod (*Solidago* spp.), and members of the carrot family.

BIRDS

Hummingbirds are the primary birds that play a role in pollination in North America. Their long beaks and tongues draw nectar from tubular flowers. Pollen is carried on both their beaks and feathers. Regions closer to the tropics, with warmer climates, boast the largest number of hummingbird species and the greatest number of native plants to support their need for food. The Ruby-throated Hummingbird (*archilochus colubris*) is the most common species in Florida. Hummingbirds can see the color red; bees cannot. Many tropical flowers grown as annuals in the Everglades ecoregion, along with native woodland edge plants, attract hummingbirds.

BATS

Though the bat species native to Florida are not pollinators, accidental species from more tropical regions can sometimes be

found feeding on fruit, nectar, and pollen. The head shape and long tongues of nectar bats allows them to delve into flower blossoms and extract both pollen and nectar; pollen covers their hairy bodies and is transfer as they move from plant to plant.

SPECIES AT RISK

Species at Risk include endangered species, such as the Miami Blue butterfly, as well as threatened and special concern species. Some pollinator species, such as the Rockland Meske's skipper have already been extirpated from Florida. Other species are of conservation concern because of their rarity in Florida, but their formal conservation status has yet to be determined.

Miami Blue butterfly

- The Miami Blue is a small species of butterfly with an average wingspan of 1 inch.
- A single colony was found on Mainland Florida in 1999 after not being seen for 7 years. Currently there is only one known population remaining in Key West National Wildlife Refuge.
- Captive breeding programs are in place to help bolster population.
- Threats to Miami Blue butterfly populations are due to habitat loss and invasive species. In 1992 Hurricane Andrew almost caused the species to go extinct.



WHICH FLOWERS DO THE POLLINATORS PREFER?

NOT ALL POLLINATORS ARE found in each province, and some are more important in different parts of the United States. Use this page as a resource to understand the plants and pollinators where you live.

Plants can be grouped together based on the similar characteristics of their flowers. These floral characteristics can be useful to predict the type of pollination method or animal that is most effective for that group of plants. This association between floral characteristics and pollination method is called a pollination syndrome.

The interactions of animal pollinators and plants have influenced the evolution of both groups of organisms. A mutualistic relationship between the pollinator and the plant species helps the pollinator find necessary pollen and nectar sources and helps the plant reproduce by ensuring that pollen is carried from one flower to another.

Plant Trait	Pollinator		
	Bees	Beetles	Birds
Color	Bright white, yellow, blue, or UV	Dull white or green	Scarlet, orange, red or white
Nectar Guides	Present	Absent	Absent
Odor	Fresh, mild, pleasant	None to strongly fruity or fetid	None
Nectar	Usually present	Sometimes present; not hidden	Ample; deeply hidden
Pollen	Limited; often sticky and scented	Ample	Modest
Flower Shape	Shallow; have landing platform; tubular	Large bowl-like, Magnolia	Large funnel like; cups, strong perch support

This chart and more information on pollinator syndromes can be found at:



AND THE POLLINATORS THEY ATTRACT

Pollinator

Plant Trait	Butterflies	Flies	Moths	Wind
Color	Bright, including red and purple	Pale and dull to dark brown or purple; flecked with translucent patches	Pale and dull red, purple, pink or white	Dull green, brown, or colorless; petals absent or reduced
Nectar Guides	Present	Absent	Absent	Absent
Odor	Faint but fresh	Putrid	Strong sweet; emitted at night	None
Nectar	Ample; deeply hidden	Usually absent	Ample; deeply hidden	None
Pollen	Limited	Modest in amount	Limited	Abundant; small, smooth, and not sticky
Flower Shape	Narrow tube with spur; wide landing pad	Shallow; funnel like or complex and trap-like	Regular; tubular without a lip	Regular; small and stigmas exerted

<http://fs.fed.us/wildflowers/pollinators/syndromes.shtml>



DEVELOPING LANDSCAPE PLANTINGS THAT PROVIDE POLLINATOR HABITAT

WHETHER YOU ARE A FARMER of many acres, land manager of a large tract of land, or a gardener with a small lot, you can increase the number of pollinators in your area by making conscious choices to include plants that provide essential habitat for bees, butterflies, moths, beetles, hummingbirds and other pollinators.

FOOD:

Flowers provide nectar (high in sugar and necessary amino acids) and pollen (high in protein) to pollinators.

Fermenting fallen fruits also provide food for bees, beetles and butterflies. Specific plants, known as host plants, are eaten by the larvae of pollinators such as butterflies.

- Plant in groups to increase pollination efficiency. If a pollinator can visit the same type of flower over and over, it doesn't have to relearn how to enter the flower and can transfer pollen to the same species, instead of squandering the pollen on unreceptive flowers.
- Plant with bloom season in mind, providing food from early spring to late fall. (see Bloom Periods pp.16-19)
- Plant a diversity of plants to support a variety of pollinators. Flowers of different color, fragrance, and season of bloom on plants of different heights will attract different pollinator species and provide pollen and nectar throughout the seasons.
- Many herbs and annuals, although not native, are very good for pollinators. Mint, oregano, garlic, chives, parsley and lavender are

just a few herbs that can be planted. Old fashioned zinnias, cosmos, and single sunflowers support bees and butterflies. Non-native crops, herbs, and ornamental flowers should only be planted in gardens.

- Recognize weeds that might be a good source of food. For example, dandelions provide nectar in the early spring before other flowers open. Milkweed is a host for the Monarch butterfly.
- Learn and utilize Integrated Pest Management (IPM) practices to address pest concerns. Minimize or eliminate the use of pesticides.

SHELTER:

Pollinators need protection from severe weather and from predators as well as sites for nesting and roosting.

- Incorporate different canopy layers in the landscape by planting trees, shrubs, and different-sized perennial plants.
- Leave dead snags for nesting sites of bees, and other dead plants and leaf litter for shelter.
- Avoid applying thick layers of mulch that are hard to dig through.
- Build bee boxes to encourage solitary, non-aggressive bees to nest on your property.
- Ground nesting bees are also attracted to lawns and short grass areas, especially if there is a south facing slope.
- Leave some areas of soil uncovered to provide ground nesting insects easy access to underground tunnels.
- Group plantings so that pollinators can move safely through the landscape protected from predators.

- Include plants that are needed by butterflies during their larval development.

WATER:

A clean, reliable source of water is essential to pollinators.

- Natural and human-made water features such as running water, pools, ponds, and small containers of water provide drinking and bathing opportunities for pollinators.
- Ensure the water sources have a shallow or sloping side so the pollinators can easily approach the water without drowning.

Your current landscape probably includes many of these elements.

Observe wildlife activity in your farm fields, woodlands, and gardens to determine what actions you can take to encourage other pollinators to feed and nest. Evaluate the placement of individual plants and water sources and use your knowledge of specific pollinator needs to guide your choice and placement of additional plants and other habitat elements. Minor changes by many individuals can positively impact the pollinator populations in your area. Watch for - and enjoy - the changes in your landscape!

- **CAUTION LAND MANAGERS:** Remember that pesticides are largely toxic to pollinators. Extreme caution is warranted if you choose to use any pesticide. Strategically apply pesticides only for problematic target species.



FARMS

Watermelon, lima bean, carrot, squash are a few of the food crops in the Everglades Province that will benefit from strong native bee populations that boost pollination efficiency. Incorporate different plants throughout the farm that provide food for native populations when targeted crops are not in flower.

Farmers have many opportunities to incorporate pollinator-friendly land management practices on their land which will benefit the farmer in achieving his or her production goals:

- Minimize the use of pesticides to reduce the impact on native pollinators. Spray when bees aren't active (just before dawn) and choose targeted ingredients.

- Consider using Integrated Pest Management (IPM) strategies to control pests. Use insecticides that cause the least harm to non-target organisms and only use when pests reach economic thresholds.
- Be conscientious of the fact that different bees forage at different times of day. *Peponapis pruinosa*, the squash bee, is active from dawn until noon. In the case of squash production, the best time to spray is in the evening rather than the early morning.
- Carefully consider the use of herbicides. Some weeds can provide needed food for pollinators.
- Minimize tillage to protect ground nesting pollinators.
- Consider creating designated permanently untilled areas for ground nesting bees along internal farm laneways.

- Ensure water sources are scattered throughout the landscape.
- Choose a variety of native plants to act as windbreaks, riparian buffers, and field borders throughout the farm.
- Plant unused areas of the farm with temporary cover crops that can provide food or with a variety of trees, shrubs, and flowers that provide both food and shelter for pollinators.
- Check with your local Natural Resources Conservation Service (NRCS) office to see what technical support might be available to assist you in your effort to provide nectar, pollen, and larval food sources for pollinators on your farm.





Public lands are maintained for specific reasons ranging from high impact recreation to conservation. In the Everglades, marshland and mangroves have been altered to allow for roads, energy infrastructure, buildings, open lawn areas, boat ramps, and vistas. These other lands can provide benefits to pollinator when managed correctly. Pollinators are encouraged by timed mowing, opening tree canopies, and planting of native flowers. Less disturbed natural areas can be augmented with plantings of native plant species. Existing plantings around buildings and parking areas should be evaluated to determine if pollinator-friendly plants can be substituted or added to attract and support pollinators. Public land managers have a unique opportunity to use their plantings as an education tool to help others

understand the importance of pollinators in the environment through signs, brochures, and public programs.

In an effort to increase populations of pollinators the land manager can:

- Inventory and become knowledgeable of local pollinators.
- Provide connectivity between vegetation areas by creating corridors of perennials, shrubs, and trees that provide pollinators shelter and food as they move through the landscape.
- Maintain a minimum of lawn areas that support recreational needs.
- Restrict the use of insecticides and herbicides.
- Provide water sources in large open areas.
- Maintain natural meadows and openings that provide habitats for sun-loving wildflowers and grasses.
- Remove invasive species.



HOME LANDSCAPES

Gardeners have a wide array of plants to use in their gardens. Native plants, plants introduced from years of plant exploration from around the world, and plants developed by professional and amateur breeders can be found in garden centers, in catalogs, and on web-sites. Use your knowledge of pollinator needs and the plant list in this document to guide your choices.

- Choose a variety of plants that will provide nectar and pollen throughout the growing season.
- Resist the urge to have a totally manicured lawn and garden. Leave bare ground for ground nesting bees. Leave areas of dead wood and leaf litter for other insects.
- Find local resources to help you in your efforts. Contact your local garden club or, county extension agent, or native plant society. Visit your regional botanic gardens and arboreta.

The scale of your plantings will vary but it is important to remember that you are trying to provide connectivity to the landscape adjacent to your property. Don't just look within your property boundaries. If your neighbor's property provides an essential element, such as water, which can be utilized by pollinators visiting your land, you may be able to devote more space to habitat elements that are missing nearby. It is best to use native plants which have evolved to support the needs of specific native pollinators. Some pollinators, however, are generalists and visit many different plants, both native and non-native. Be sure that any non-native plants you choose to use are not invasive. Remember that specialized cultivars sometimes aren't used by pollinators. Flowers that have been drastically altered, such as cultivars with double petals or completely different color than the wild species, often prevent pollinators from finding and feeding on the flowers. In addition, some cultivars don't contain the same nectar and pollen resources that attract pollinators to the wild types.

- **CAUTION:** Take time to evaluate the source of your plant material. You want to ensure you get plants that are healthy and correctly identified. Your local garden club can help you make informed decisions when searching for plants.



PLANTS THAT ATTRACT POLLINATORS IN THE EVERGLADES PROVINCE

The following chart lists plants that attract pollinators. It is not exhaustive, but provides guidance on where to start. Annuals, herbs, weeds, and cover crops provide food and shelter for pollinators, too.

Botanical Name	Common Name	Height	Flower Color	Flower Season	Sun	Soil	Pollinators	Larval Host
Trees and Shrubs								
<i>Acanthocereus tetragonus</i>	Barbwire cactus	6-8'	white	Jul-Sept	shade	moist	moths, butterflies	x
<i>Acer rubrum</i>	Red maple	30-60'	Red	Mar-Apr	sun	wet to moist	bees	x
<i>Amyris elemifera</i>	Common torchwod	10-15'	White	Year Round	sun to partial shade	moist	bees, butterflies, birds	x
<i>Annona glabra</i>	pond-apple	20-40'	Yellow	Apr-Jun	sun to partial shade	wet to moist	beetles	x
<i>Ardisia escallonioides</i>	Marlberry	10-15'	white, pink	Jan-Feb	sun to partial shade	moist	bees	x
<i>Baccharis halimifolia</i>	Salt bush	5-10'	white	Aug-Oct	sun	moist to wet	butterflies, bees, moths	x
<i>Borrchia frutescens</i>	Sea-oxeye daisy	3-6'	yellow	July-August	sun	moist	butterflies	x
<i>Bourreria cassinifolia</i>	Pineland strongbark	5-7'	white	Jan-June	sun to partial shade	moist	butterflies, hummingbirds, birds	
<i>Bourreria succulenta</i>	Bahama strongbark	10-28'	white	Year Round	sun to partial shade	moist	butterflies, hummingbirds, birds	
<i>Bursera simaruba</i>	Gumbo-limbo	70-100'	green	Jan-Apr	sun	moist	bees, other insects	x
<i>Callicarpa americana</i>	Beautyberry	3-6'	white, pink	May-Jul	partial shade	moist	butterflies	
<i>Casasia clusifolia</i>	Sevenyear-apple	10-36'	white, pink	Mar-Jun	partial shade	moist	butterflies	x
<i>Chiococca alba</i>	Snowberry	6-10'	white, yellow	Feb-Sep	partial shade to shade	moist	butterflies, moths	x
<i>Chrysobalanus icaco</i>	Coco-plum	10-36'	white, green	Feb-Sept	partial shade	moist (seasonally inundated)	bees, butterflies, beetles, wasps	x
<i>Citharexylum spinosum</i>	Florida fiddlewood	15-25'	white	Year Round	sun to partial shade	moist	bees	x
<i>Croton cascarilla (Croton linearis)</i>	Pineland croton	1-3'	white	Year Round	sun	moist	butterflies	x
<i>Coccoloba diversifolia</i>	Pigeonplum	30-40'	green, white	Jun-Sept	sun to partial shade	moist	bees, butterflies	x
<i>Coccoloba uvifera</i>	Seagrape	10-36'	white	Mar-Oct	sun	moist	bees	x
<i>Coccothrinax argentata</i>	silver thatch palm	3-8'	white, yellow	Year Round	sun to partial shade	moist	butterflies	x
<i>Conocarpus erectus</i>	Buttonwood	36-72'	white	Year Round	sun	wet	butterflies, moths	x
<i>Cynophalla flexuosa</i>	Limber caper	10-20'	white, pink	Mar-Sept	sun	moist	bat	x
<i>Erythrina herbacea</i>	Coralbean	6-10'	red	May-Jul	sun to partial shade	dry	hummingbirds	x
<i>Eugenia axillaris</i>	White Stopper	10-20'	White	Jun-Sept	partial shade	moist	moths, bees	



Botanical Name	Common Name	Height	Flower Color	Flower Season	Sun	Soil	Pollinators	Larval Host
<i>Eugenia foetida</i>	Spanish Stopper	10-15'	white	Jun-Sept	sun to partial shade	moist	bees	x
<i>Exothea paniculata</i>	Inkwood	25-35'	white	Mar-Jun	sun to partial shade	moist	insects	x
<i>Ficus aurea</i>	Strangler fig	40-60'	N/A	Year Round	sun	moist	wasps	x
<i>Ficus citrifolia</i>	Short-leaf fig	30-40'	N/A	Year Round	sun	moist	wasps	x
<i>Forestiera segregata</i>	Florida privet	8-15'	yellow, green	Jun-Jul	sun	moist	bees	x
<i>Hamelia patens</i> var. <i>patens</i>	Firebush	9-12'	red	Year Round	sun	moist	bees, butterflies, hummingbirds, wasps, moths	x
<i>Hibiscus coccineus</i>	Scarlet Hibiscus	3'	red	Jul-Aug	sun	wet	butterflies	x
<i>Hibiscus grandiflorus</i>	Swamp rose-mallow	4-6'	pink/white	Jul-Aug	sun	moist to wet	flies, hummingbirds	x
<i>Hypericum hypericoides</i>	St. Andrew's cross	2-3'	yellow	Jun-Sept	sun to partial shade	moist to wet	bees	x
<i>Ilex cassine</i>	Dahoon holly	10-30'	white	Mar-Jun	sun to partial shade	moist to wet	bees	x
<i>Ilex glabra</i>	Inkberry	4-6'	white	May-Jun	sun to partial shade	moist to wet	bees, flies	x
<i>Lantana involucrata</i>	Butterfly sage	1-3"	White, pink	Year Round	sun to shade	dry	butterflies, moths, ants, bees	x
<i>Licania michauxii</i>	Gopher-apple	1-5'	white	Feb-Sept	sun to partial shade	moist to dry	butterflies, bees	x
<i>Lysiloma latisiliquum</i>	False tamarind	30-35'	White, green	Apr-Sept	sun to partial shade	dry to moist	butterflies, moths	x
<i>Lycium carolinianum</i>	Christmasberry	6-8'	purple	Apr-Oct	sun to partial shade	wet to moist	bees, butterflies	x
<i>Magnolia virginiana</i>	Sweetbay magnolia	10-30'	white	Apr-Jul	sun to partial shade	wet	moths, beetles	x
<i>Morus rubra</i>	Red mulberry	30-40'	white	Mar-Jun	sun	moist to wet	bees, butterflies	
<i>Myrica cerifera</i>	Wax myrtle	10-15'	white	Mar-Jun	sun to partial shade	moist to wet	butterflies	x
<i>Nectandra coriacea</i>	Lancewood	20-30'	white	Mar-Jun	sun to partial shade	moist	bees, birds	x
<i>Persea borbonia</i>	Red Bay	20-40'	white	May-June	sun to shade	moist	bees	x
<i>Persea palustris</i>	Swamp Bay	15-25'	green	May-June	sun	seasonally wet	butterflies, bees	x
<i>Piscidia piscipula</i>	Florida fishpoison tree	25-35'	white, pink	Mar-Jun	sun	moist	butterflies, bees	x

CONTINUED ON PAGE 18

PLANTS THAT ATTRACT POLLINATORS IN THE EVERGLADES PROVINCE

Botanical Name	Common Name	Height	Flower Color	Flower Season	Sun	Soil	Pollinators	Larval Host
<i>Pithecellobium keyense</i>	Florida Keys blackbead	10-15'	white, orange, pink	Mar-Sept	sun	moist	butterflies	x
<i>Psychotria nervosa</i>	Wild coffee	3-6'	white	Mar-Sept	sun to partial shade	moist	butterflies	x
<i>Quadrella cynophallophora</i>	Jamaica caper-tree	6-10'	white, pink	Apr-Jan	sun to partial shade	moist	insects	x
<i>Randia aculeata</i>	White indigoberry	6-8'	white	Year Round	sun to partial shade	moist	butterflies	x
<i>Sabal palmetto</i>	Cabbage palm	10-40'	white	Mar-Sept	sun to shade	moist to seasonally wet or dry	butterflies, bees	x
<i>Salix caroliniana</i>	Coastal plain willow	15-30'	green, yellow	Mar-Apr	sun to shade	wet to moist	bees	x
<i>Sambucus nigra</i> subsp. <i>Canadensis</i>	American elder	20-40'	white	May-Jul	partial shade	wet	bees	x
<i>Sapindus saponaria</i>	Winglead soapberry	15-30'	white	May-Jun	sun to shade	moist	bees	x
<i>Senna ligustrina</i>	Privet senna	4-8'	yellow	Year Round	sun to partial shade	moist	bee, butterflies	x
<i>Serenoa repens</i>	Saw palmetto	3-6'	white	Jun-Sept	sun to shade	moist to dry or seasonally wet	butterflies	x
<i>Sideroxylon salicifolium</i>	White bully	20-30'	white, green	Mar-Jun	sun	moist	butterflies	x
<i>Suriana maritima</i>	Baycedar	6-10'	yellow	Jun-Jul	sun	moist	butterflies	x
<i>Vachellia farnesiana</i> var. <i>farnesiana</i>	Sweet Acacia	8-12'	yellow	Nov-Apr	sun	moist to dry	butterflies	x
<i>Zami intergrifolia</i>	Coontie	2-3'	brown, green	Jul-Aug	sun to shade	moist	butterflies, beetles	x
<i>Zanthoxylum fagara</i>	Wild-lime	12-36'	yellow, green	Jan-Jun	partial shade	dry	insects	x

Forbs

<i>Ageratina jucunda</i>	Hammock snakeroot	1-3'	white	Oct-Dec	sun to partial shade	moist	butterflies, bees, hummingbirds	x
<i>Alternanthera flavescens</i>	Yellow joyweed	3-12"	white	Mar-Sept	sun to partial shade	moist	butterflies	x
<i>Asclepias incarnata</i>	swamp milkweed	3-5"	pink, white	Jun-Oct	sun to partial shade	wet to moist	butterflies, bees, hummingbirds	x
<i>Bacopa monnieri</i>	Water hyssop	2-4"	white, pink	May-Oct	sun	wet to moist	bees	x
<i>Canna flaccida</i>	Goldne canna	4-6'	yellow	May-Aug	sun to partial shade	wet to moist	bees, bats, hummingbirds	x
<i>Chamaecrista fasciculata</i>	Partridge pea	1-3'	yellow	Jun-Oct	sun	moist	bees, butterflies	x



Botanical Name	Common Name	Height	Flower Color	Flower Season	Sun	Soil	Pollinators	Larval Host
<i>Clematis baldwinii</i>	Pine-hyacinth	6-18"	purple, pink	Year Round	sun	moist	Bees, wasp, flies, hummingbirds	x
<i>Conoclinium coelestinum</i>	Blue mistflower	1-2'	Blue, pink	July-Oct	sun to partial shade	moist to wet	butterflies, bees	x
<i>Coreopsis leavenworthii</i>	Leavenworth's tickseed	1-3'	yellow	May-Jul	sun	wet to moist	Butterflies	x
<i>Crinum americanum</i>	Swamp lily	15-24"	white	Jun-Aug	sun to partial shade	wet to moist	butterflies, bees, wasps, beetles, other insects	x
<i>Dicliptera sexangularis</i>	Carolina ponysfoot	1-4'	red	Feb-Nov	sun to partial shade	moist	butterflies	x
<i>Dyschoriste angusta</i>	Rockloan twinflower	4-8"	blue, purple	Year Round	sun	moist	butterflies	x
<i>Erigeron querifolius</i>	Oakleaf fleabane	3-9"	white, purple, yellow	Mar-Jun	sun	moist to wet	butterflies, bees, moths	x
<i>Ernodea littoralis</i>	Golden creeper	1-3'	white, pink	Year Round	Sun	moist to seasonally wet	skippers, hummingbirds	x
<i>Flaveria linearis</i>	Narrowleaf yellowtops	1-2'	yellow	Year Round	sun	dry to normal	butterflies, bees	
<i>Gaillardia pulchella</i>	Firewheel	1-2'	red, yellow, brown	May-Aug	sun to partial shade	dry	butterflies, bees	x
<i>Glandularia maritima</i>	Beach verbena	3-12"	rose, purple	Year Round	sun	moist	butterflies	x
<i>Helenium pinnatifidum</i>	Savanna sneezeweed	8-40"	yellow	Apr-May	sun to partial shade	moist to wet	bees, butterflies	x
<i>Helianthus debilis</i>	East coast dune sunflower	1-2'	yellow	Year Round	sun	moist	bees, butterflies, moths	x
<i>Heliotropium angiospermum</i>	Scorpionstail	1-3'	White	Year Round	sun to partial shade	moist	butterflies	x
<i>Heliotropium curassavicum</i>	Seaside heliotrope	3-12"	white	Mar-Nov	sun	moist to wet	butterflies, bees	x
<i>Heliotropium polyphyllum</i>	Pineland Heliotrope	3-6"	yellow, white	Year Round	sun	moist	butterflies	x
<i>Hymenocallis latifolia</i>	Mangrove spiderlily	2-3'	White	May-Sept	sun to partial shade	moist	moths	x
<i>Hyptis alata</i>	Clustered bushmint	2-4'	white	May-Nov	sun	wet to moist	bees, butterflies	x
<i>Kosteletzkya pentacarpos</i>	Virginia saltmarsh mallow	2-6'	pink	Jun-Oct	sun	wet to moist	butterflies, hummingbirds	x
<i>Liatris gracilis</i>	Slender gayfeather	2-36"	purple	Jul-Nov	sun	moist	butterflies, moths, bees, hummingbirds	x
<i>Liatris spicata</i>	Blazing star	2-36"	purple	Jul-Nov	sun	moist to wet	butterflies, moths, bees, hummingbirds	x
<i>Ludwigia repens</i>	Creeping primrosewillow	1-3"	yellow	Jul-Sept	sun to partial shade	wet to moist	wasps, bees	x

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PLANTS THAT ATTRACT POLLINATORS IN THE EVERGLADES PROVINCE



Botanical Name	Common Name	Height	Flower Color	Flower Season	Sun	Soil	Pollinators	Larval Host
<i>Lythrum alatum</i> var. <i>lanceolatum</i>	Winged loosestrife	3-4'	purple	Jun-Sept	sun	wet	bees, butterflies	x
<i>Melanthera nivea</i>	Snow Squarestem	1-4'	white	Year Round	sun	moist	butterflies, bees, wasps	
<i>Mimosa strigillosa</i>	Sunshine mimosa	1-3"	pink	Mar-Aug	sun	moist to dry	butterflies, bees	x
<i>Phyla nodiflora</i>	Frogfruit	1-3"	white	May-Oct	sun to partial shade	dry to normal	butterflies	x
<i>Physalis walteri</i>	Walter's groundcherry	6-12"	yellow	May-Sept	sun	moist to dry	bee	x
<i>Phytolacca americana</i>	American Pokeweed	4-8'	pink, white	Jul-Oct	sun	moist	butterflies, bees	x
<i>Pityopsis graminifolia</i>	Narrow-leaved silkgrass	8-15"	yellow	Sept-Apr	sun to partial shade	dry	bees, butterflies	
<i>Piriqueta cistoides</i> subsp. <i>caroliniana</i>	Pitted stripeeed	4-8"	yellow	Year Round	sun	moist to wet	bees	x
<i>Pluchea baccharis</i>	Rosy camphoweed	1-3'	pink	Jun-Jul	sun	wet to moist	Butterflies, bees	x
<i>Polygonum hydropiperoides</i>	Swamp smartweed	1-2'	white	Jun-Oct	sun	wet	bees, wasps, flies, beetles	x
<i>Pontederia cordata</i> var. <i>cordata</i>	Pickerelweed	1-3'	white, blue, purple	Jun-Aug	sun to partial shade	moist to wet	bees, butterflies	x
<i>Portulaca pilosa</i>	Pink purslane	< 1'	red, pink, purple	Jun-Oct	sun to partial shade	dry to moist	bees	x
<i>Ruellia caroliniensis</i>	Carolina wild petunia	1-3'	purple	Jun-Aug	partial shade	moist	butterflies	x
<i>Ruellia succulenta</i>	Thickleaf wild petunia	4-8"	blue	Year Round	sun	moist	bees, butterflies	x
<i>Sagittaria lancifolia</i>	Lance-leaved arrowhead	1-3'	white	Jun-Aug	sun	wet	bees, flies, beetles, butterflies	x
<i>Sesuvium portulacastrum</i>	Perennial sea-purslane	< 1'	pink	Year Round	sun	wet to moist	bees, flies, butterflies	
<i>Sisyrinchium angustifolium</i>	Pointed blue-eyed grass	1-1.5'	blue	Mar-Jul	sun to partial shade	moist to wet	bees, flies	x
<i>Solidago fistulosa</i>	Pinebarren goldenrod	3-4'	yellow	Aug-Oct	shade	seasonally wet to moist	bees, butterflies	x
<i>Solidago leavenworthii</i>	Giant goldenrod	3-4'	yellow	Nov-Dec	sun to partial shade	moist	bees, beetles	
<i>Solidago odora</i> var. <i>chapmanii</i>	Chapman's goldenrod	2-5'	yellow	Jul-Oct	sun	moist	bees	x
<i>Solidago sempervirens</i>	seaside goldenrod	3-9'	yellow	Oct-Nov	sun	moist	butterflies, bees	x



Botanical Name	Common Name	Height	Flower Color	Flower Season	Sun	Soil	Pollinators	Larval Host
<i>Solidago stricta</i>	Narrow-leaved goldenrod	3-9"	yellow	Aug-Nov	sun	seasonally wet to moist	bees, butterflies	
<i>Stachytarpheta jamaicensis</i>	Blue porterweed	3'	Blue	Year Round	sun to partial shade	dry	bees, butterflies, moths, beetles, hummingbirds	x
<i>Symphotrichum dumosum</i>	Rice button aster	2-4'	white	Aug-Oct	sun to partial shade	moist to wet	bees, butterflies	x
<i>Thalia geniculata</i>	Alligatorflag	3-6'	purple	May-Jun	sun	wet	bees	x
<i>Tiedemannia filiformis</i>	Water dropwort	2-3'	white	Jun-Sept	sun	wet to moist	bees, butterflies	x
<i>Trichostema dichotomum</i>	Forked bluecurls	12-18"	blue, purple	Aug-Oct	partial shade to shade	dry	bees	x
<i>Vernonia blodgettii</i>	Florida ironweed	1-3'	pink	Year Round	sun	seasonally wet to moist	bees, butterflies, beetles	x
<i>Yucca aloifolia</i>	Spanish Bayonet	6-12'	white	Jun-Jul	sun	dry	moths, butterflies	x
Vines								
<i>Apios americana</i>	Groundnut	< 1'	red, pink, purple	Jul-Sept	shade	moist to wet	butterflies, bees	x
<i>Centrosema virginianum</i>	Spurred butterfly pea	6-12'	pink, blue, Purple	Jul-Aug	partial shade	dry to moist	butterflies, wasps, bees	x
<i>Ipomoea microdactyla</i>	Wild potato morning glory	5'	red	Apr-Nov	sun to partial shade	moist	bees, butterflies, hummingbirds	
<i>Ipomoea pes-caprae</i>	Beach morning glory	10-75'	pink, purple, red	Year Round	sun to partial shade	dry	bees, butterflies, moths, flies, beetles, wasps, ants	
<i>Galactia volubilis</i>	Downy milkpea	3'	pink	Jul-Sept	sun to partial shade	moist	butterflies	x
<i>Morinda royoc</i>	Yellowroot	3-10'	white	Year Round	sun to partial shade	moist	butterflies	x
<i>Passiflora incarnata</i>	Purple passionflower	3-10'	purple	Apr-Sept	sun to partial shade	moist	butterflies, bees	x
<i>Passiflora suberosa</i>	Corkstem passionflower	6-8'	green	Apr-Sept	sun to partial shade	moist	butterflies, bees	x
<i>Pentalinon luteum</i>	Hammock viperstail	10'	yellow	Apr-Oct	sun	moist	moths	x
<i>Symphotrichum carolinianum</i>	Climbing aster	10'	blue	Sept-Dec	sun	wet to moist	butterflies, bees	
<i>Vitis roundifolia</i>	Muscadine grape	72-100'	yellow, green	Apr-May	partial shade	moist	bees	x

HABITAT HINTS

FOR THE EVERGLADES PROVINCE

BEE-POLLINATED GARDEN FLOWERS AND CROPS

	Bumble	Digger	Lg Carpenter	Sm Carpenter	Squash/ Gourd	Leafcutter	Mason	Sweat	Plasterer	Yellow- faced	Andrenid
FLOWERS											
Catalpa			x								
Catnip	x	x					x				
Clover		x									x
Columbine	x										
Cow parsley										x	
Goldenrod	x	x				x		x			
Impatiens	x										
Irises	x		x								
Lavender	x	x	x			x					
Milkwort								x			
Morning glory				x							
Penstemon	x	x					x				
Phacelia	x	x		x		x	x	x	x		x
Potentilla										x	
Rose	x		x				x	x		x	
Salvia	x	x	x			x	x				
Saxifrages								x		x	
Sorrel				x							
Sunflowers	x	x	x	x		x		x	x		x
Violet								x			x
Wild Mustard		x							x		
Willow catkins									x		x
CROPS											
Apple							x				
Blueberry	x	x									x
Cherry							x				x
Eggplant	x		x					x			
Gooseberry	x										x
Legumes	x	x				x		x			
Water melon	x							x			
Squash/ Pumpkins/ Gourds			x		x						
Tomatoes	x	x	x					x			
Thyme	x	x					x	x		x	



HABITAT AND NESTING REQUIREMENTS:

Honey Bees:

Honey bees are colonial cavity nesters. Occasionally in the spring and summer you might encounter a swarm of honey bees on the move to a new home. The majority of honey bees are managed by beekeepers in hives. Beekeepers with commercial operations can have bee yards with tens to hundreds of hives commonly in agricultural, rural and some natural habitats. In urban and garden settings it is common to see a single or a handful of honey bee hives – usually wooden boxes painted white or other light colors. Give honey bees space and don't approach their hive. Even beekeepers minimize the amount of time they spend working bees. Honey bees have different feeding needs than native bees. Their colony can last multiple years and they feed on flowers from the beginning of spring bloom to the fall. Honey bees visit crops when they are in bloom and forage on a diversity of wildflowers as well. Honey bees also need plants that produce a large amount of nectar to make honey. Clovers, lavenders, mints, and sages are great nectar sources. Honey bees also like to feed off of the pollen of trees and shrubs such as maples, willows, and roses. Fields of goldenrod are an excellent pollen source.

Bumble Bees:

Bumble bees nest in cavities such as abandoned mouse nests, other rodent burrows, upside down flower pots, under boards, and other human-made cavities. Colonies are founded by a queen in the spring. The number of workers in a colony can grow to upward of 400 at the peak of summer bloom. Bumble bee colonies die out in the fall after producing new queens. New queens mate and then overwinter, hiding underground, in cracks, or small crevices. Bumble bees are usually active during the morning hours and forage at colder temperatures than honey bees, even flying in light rain.

Large carpenter bees:

Large carpenter bees chew nests into dead wood, poplar, cottonwood or willow trunks and limbs. They also make nests in structural timbers including redwood and cedar. Depending on the species, there may be one or two brood cycles per year. These bees can be active all day even in the hottest and coolest weather.

Digger bees:

Digger bees can be found nesting in sandy, compacted soils, and along stream banksides. These bees are usually active in the morning hours, but can be seen at other times of the day as well. To attract these bees have some areas of exposed soil in your garden and avoid applying thick layers of mulch that are hard to dig through.

Small carpenter bees:

Small carpenter bees chew into pithy stems, including roses and blackberry canes, where they make their nests. These bees are more active in the morning but can be found at other times.

Squash and Gourd bees:

Squash and gourd bees prefer to nest in sandy soil but also may nest in gardens (where pumpkins, squash and gourds are grown). These bees are early risers and can be found in pumpkin patches before dawn. Males often sleep in wilted squash flowers.

Leaf-cutting bees:

Leaf-cutting bees nest in pre-existing circular tunnels of various diameters in dead wood created by emerging beetles. Some also nest in the ground. Leafcutter bees line and cap their nests with leaves or flower petals. These bees can be seen foraging throughout the day even in very hot weather.

Mason bees:

Mason bees use pre-existing tunnels of various diameters in dead wood made by emerging beetles, or human-made nesting substrates such as drilled wood blocks or cardboard tubes. These bees get their name from the fact that they cap their nests with mud. Mason bees are generally more active in the morning hours.

Sweat bees:

Sweat bees need bare ground in sunny areas not covered by vegetation for nesting. Some will nest in small pre-existing holes, much like leaf-cutting or mason bees. Like most bees, sweat bees forage for pollen earlier in the morning and then for nectar later in the day. To help these bees nest, keep some parts of your garden exposed and avoid applying thick layers of mulch that are hard to dig through.

Plasterer or cellophane bees:

Plasterer or cellophane bees get their name from the unique, clear waterproof lining they make around their nest. Similar to sweat bees they prefer bare ground, stream banks or slopes. These bees can be active in the morning or later in the day.

Yellow-faced bees:

Yellow-faced bees are tiny, hairless bees that make their nesting by chewing into small dead stems. These bees are more active during morning hours.

Mining bees:

Mining bees prefer sunny, bare ground, and sand soil. They are also known to nest under leaf litter or in the soil along banksides and cliffs. Mining bees are active in the spring and most commonly seen on flowers during the morning when pollen and nectar resources are abundant.

BECOME FAMILIAR WITH POLLINATORS IN YOUR LANDSCAPE.

- ✿ Watch for activity throughout the day and the seasons.
- ✿ Keep a simple notebook of when and what comes to your garden.
NOTE: It is not necessary to identify each species when you first get started. Simply note if it is a bee that likes the yellow flower that blooms in the fall.
- ✿ Consult a local field guide or web site when you are ready to learn more details.

ADD NATIVE PLANTS TO ATTRACT MORE NATIVE POLLINATORS.

- ✿ List the plants you currently have in your landscape.
- ✿ Determine when you need additional flowers to provide nectar and pollen throughout the growing season.
- ✿ Add plants that provide additional seasons of bloom, create variable heights for shelter, and attract the types of pollinators you want.
- ✿ Don't forget to include host plants that provide food and shelter for larval development.
- ✿ Contact your local native plant society or extension agent for more help.

USE POLLINATOR FRIENDLY LANDSCAPE PRACTICES TO SUPPORT THE POLLINATORS YOU ATTRACT.

- ✿ Use Integrated Pest Management Practices to address pest concerns.
- ✿ Tolerate a little mess – leave dead snags and leaf litter, keep areas bare for ground nesting insects, and leave some weeds that provide food for pollinators.
- ✿ Provide safe access to clean water.

NOTICE THE CHANGES THAT YOU HAVE HELPED TO CREATE!



RESOURCES

Many books, websites, and people were consulted to gather information for this guide. Use this list as a starting point to learn more about pollinators and plants in your area.

BAILEY'S ECOREGION MAPS

USDA Forest Service

fs.fed.us/land/ecosysgmt/ecoreg1_home.html

POLLINATION/POLLINATORS

Pollinator Partnership

pollinator.org

North American Pollinator Protection Campaign

nappc.org

Bee Friendly Gardening

pollinator.org/bfg

Natural Resources

Conservation Service

nrcs.usda.gov

USDA Forest Service

fs.fed.us/wildflowers/pollinators/

Wild Farm Alliance

wildfarmalliance.org

Xerces Society Pollinator Program

xerces.org

Illinois Natural History Survey

inhs.uiuc.edu

The Forgotten Pollinators

Buchmann, S.L. and G.P. Nabhan. 1997. Island Press: Washington, DC.

Status of Pollinators in North America

2007. The National Academies Press: Washington, DC.

NATIVE PLANTS/GARDENING

Plant Conservation Alliance

nps.gov/plants

Seeds of Success

nps.gov/plants/sos

Lady Bird Johnson Wildflower Center

wildflower.org/plants/

USDA Hardiness Zone Map

usna.usda/Hardzone/

U.S. National Arboretum

usna.usda.gov/Hardzone/ushzmap.html

USDA, NRCS. 2007. The PLANTS Database

plants.usda.gov

NATIVE BEES

Alternative Pollinators: Native Bees National Sustainable Information Service

by Lane Greer, NCAT Agriculture Specialist, Published 1999, ATTRA Publication #IP126

attra.ncat.org/attra-pub/nativebee.html

Plants Attractive to Native Bees Agriculture Research Service

ars.usda.gov/Research/docs.htm?docid=12052

Bees of the World

Christopher O'Toole and Anthony Raw. 1999. Blandford. London, UK.

BUTTERFLIES AND MOTHS

Butterflies and Moths of North America.

Opler, Paul A., Harry Pavulaan, Ray E. Stanford, Michael Pogue, coordinators. 2006.

butterfliesandmoths.org/

Butterflies of North America

Jim Brock and Kenn Kaufman. 2003.

Houghton Mifflin. New York, NY.

North American

Butterfly Association

naba.org

FEEDBACK

We need your help to create better guides for other parts of North America. Please e-mail your input to feedback@pollinator.org or fax to 415-362-3070.

- ✿ How will you use this guide?
- ✿ Do you find the directions clear? If not, please tell us what is unclear.
- ✿ Is there any information you feel is missing from the guide?
- ✿ Any other comments?

**THANK YOU
FOR TAKING
THE TIME TO HELP!**

NOTES



NOTES



**POLLINATOR
PARTNERSHIP**
Protect their lives. Preserve ours.



NAPPC



Plant Conservation Alliance



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For a copy of this brochure, or for another region, visit pollinator.org

Pollinator Partnership/North American Pollinator Protection Campaign

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