Flowers Bring the Bees and So Much More

Adam Dale

Are any of your customers ready to set free their formal landscapes and lawns? Is it time for a more relaxed, breezy garden routine? Planting wildflowers is good for insects, plants and people.

Blanket flower

PLANTING AND maintaining healthy, flowering plants at your workplace or in your home yard or garden is a great practice for attracting pollinators and providing food and habitat for them. However, the bees, butterflies and hummingbirds that are frequently pictured or discussed are not the only beneficiaries. Other insects, plants and people benefit from flowering plants as well!

During my interactions with environmental activists, pest control professionals, and the public, I frequently hear conflict between insect or pollinator conservation and pest control efforts. There is often a perception that the two concepts are independent of one another. However, this is far from the truth.

Urban and residential landscapes

In today's ever-changing landscape, there are several concerns about conserving insect pollinators and the pollination services they provide. Insects pollinate over 75 percent of flowering plants on earth. This is extremely important because most flowering plants rely on pollination to reproduce, providing habitat and food for wildlife, food for people, and numerous other environmental benefits.

Unfortunately, recent evidence indicates that several pollinators like native bees are declining, and features of urban landscapes like warmer temperatures and fewer flowering plants is associated with the reduction in the number and/or diversity of pollinators that live in these spaces.

Urban and residential landscapes — where over 90 percent of the 22 million Floridians and 80 percent of people in the United States live — are rapidly expanding and replacing natural vegetation with buildings, roads and parking lots.

This change in land use has been linked to declines in insect diversity, including pollinators. This change in land use has also been linked to increases in the abundance or damage caused by insect plant pests, which presents a challenge when trying to protect and maintain the plants that remain in urban landscapes.

Continued

Photo at right: A monarch butterfly nectars on swamp milkweed.

Photos below: Shrubby false buttonweed attracts Larra bicolor wasp, which attacks and controls pest mole crickets.

Jim Hudgins, USFWS

Conserving beneficial insects

Fortunately, urban landscapes can support diverse and abundant communities of pollinators if suitable habitats are available. Conservation habitat can take many forms, particularly in tropical or subtropical climates where there is a high diversity of plants and animals.

To work well, conservation habitat must provide food or places of refuge that will attract wildlife of interest. These requirements differ and can be tailored to the wildlife of interest. For example, pollinators like monarch butterflies, *Danaus plexippus,* need a specific genus or species of flowering plant to complete their life cycle. Monarchs need milkweed.

A very important aspect of creating flowering habitats is selecting the appropriate species. Base your plant selections on **site conditions**: sun exposure, soil moisture; **geographic region**: tropical, subtropical, temperate; and **anticipated level of maintenance** the plants will receive.

In addition, flowering plants can be selected based on the services you want them to provide. For example, some flowering plant species attract specific predatory or parasitic insects that attack plant pests. For example, shrubby false buttonweed, *Spermacoce verticillata,* attracts a wasp called *Larra bicolor,* which specifically attacks and controls invasive mole crickets. Alternatively, partridge pea, *Chamaecrista fasciculata,* a commonly used native wildflower, is also highly attractive to *Larra bicolor*.

Research at the University of Florida has demonstrated that planting these species attracts this wasp and increases biological control of invasive mole crickets up to 650 feet from the planting. *Continued on Page 14*

The flower is the poetry of reproduction. It is an example of the eternal seductiveness of life.

—Jean Giraudoux

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Urban and residential landscapes can lend themselves well to creating attractive and unique conservation plantings. Considering the color, texture, seasonality, and other components of how the habitat will look throughout the year is very important. Selecting wildflower species mixtures that provide some form of blooms throughout the year will maximize the aesthetic quality and increase the environmental benefits provided by these habitats by constantly providing floral resources and habitat for insects and other wildlife.

More than bees

Recent research from my lab at the University of Florida has investigated the effects of planting wildflowers and different wildflower mixtures to attract insect pollinators, and the benefits these plants can provide.

As predicted, we have found that converting areas of maintained turfgrass into wildflower habitats increases the abundance of pollinating insects and the number of different pollinator species using that space. This is particularly important for native bees, like many of the 300-plus native bees that live in Florida.

Our research has also found that on average, native bees are three to four times more abundant in areas where mixtures of eight wildflower species are planted compared to turfgrass areas and wildflower mixtures of four species. Therefore, creating wildflower habitats boosts general pollinator abundance, but more diverse plant species mixtures may provide even more benefits for native bees.

Although bees are extremely valuable, many insects that are attracted to wildflowers do more than pollinate. Flowering plants also attract and support a diversity of predatory and parasitic insects that attack other insects.


Red-marked pachodyneus


Fall armyworm

Why this matters for pest control

You may be wondering why conserving bees and other pollinators is relevant to pest control. Well, the most abundant insect to establish and reproduce within our experimental wildflower plots in North Central Florida was the red-marked pachodynerus, *Pachodynerus erynnis,* a predatory wasp that specifically attacks caterpillars, particularly the fall armyworm, *Spodoptera frugiperda*. As many pest control

professionals in the Southeast know, fall armyworms, sod webworms, and other caterpillars can cause quite the headache when managing turfgrass lawns.

To capture the true benefit of these wasps and other predators visiting our wildflower plots, we measured predation rates of fall armyworm caterpillars within maintained turfgrass areas adjacent to wildflower plantings. We found that the biological control of fall armyworm caterpillars increased by 50 percent up to 60 feet from the wildflower plantings.

A 50 percent increase in pest control without any additional pesticide applications or pest control efforts can make quite a difference when it comes to protecting your landscape plants and reducing the time and cost of doing so. It means fewer insecticide applications and less damage from insect plant pests like caterpillars. That should be particularly attractive during the late summer and fall, when caterpillar pests tend to flare up.

The multitude of predatory bugs, beetles, wasps and flies that are attracted to flowering plants conduct pest control daily. In fact, their primary life function is to attack and kill other insects, primarily those that eat plants. Therefore, by planting flowering vegetation that is attractive to pollinators next to your home, garden or workplace, you can simultaneously increase the natural pest control going on in that space. The evidence says so.

Postscript

After two years of walking through, sitting down in, and capturing insects from wildflower plots, none of the approximately eight people involved in this research has been stung or bitten by an insect living there. PP

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Simplica cornicalis


Southern hayworm


Tiki weevil


Tiki weevil male and female

Photos by Lyle J. Buss.

Tiki Hut Insect Pests

Lyle J. Buss

TIKI HUTS are popular structures in Florida at resorts, restaurants, and even homes. The roof of these structures is typically made of leaves cut from cabbage palms. Associated with this palm thatch is a unique set of insect pests, including caterpillars and a weevil.

Back in 2015 in the January/February issue of *PestPro* magazine, I wrote about a caterpillar that was a relatively new problem for some tiki hut owners. This tiki hut caterpillar, known as *Simplicia cornicalis,* feeds on the thatched roofs of recently constructed tiki huts. Since writing that article, I have seen another type of caterpillar feeding on the same material. That second species is called the southern hayworm. It feeds on a variety of dry plant material and can be a pest of hay stored in barns. An Extension article was recently published on these caterpillars, and is available at http://edis.ifas.ufl.edu/in1213.

Caterpillars aren't the only insects that feed on palm thatch in tiki huts. A few beetles can bore into the thick petioles of the palm leaves. The "tiki weevil" is the beetle most often found in palm thatch. Its scientific name is *Phoenicobiella chamaeropis,* and it belongs to a family of beetles called the fungus weevils.

It is 8–12 mm long and has a broad, flat beak that is not long and narrow as in the true weevils. Males have antennae that are longer than the body. The tiki weevil is found in Florida and Georgia and is associated with cabbage palms. The larva bores into the leaf stems, and the adult makes a large, oval exit hole when it emerges.

A couple of false powderpost beetles may also burrow into the leaf stems of palm thatch in South Florida. They don't appear to be common pests of tiki huts, as I know of only one occasion for each. The larger species is *Amphicerus cornutus,* at 8–13 mm long. *Xylopsocus capucinus* is smaller, at 3–5 mm long. Both species have a variety of other host plants that they probably prefer over palms. PP

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