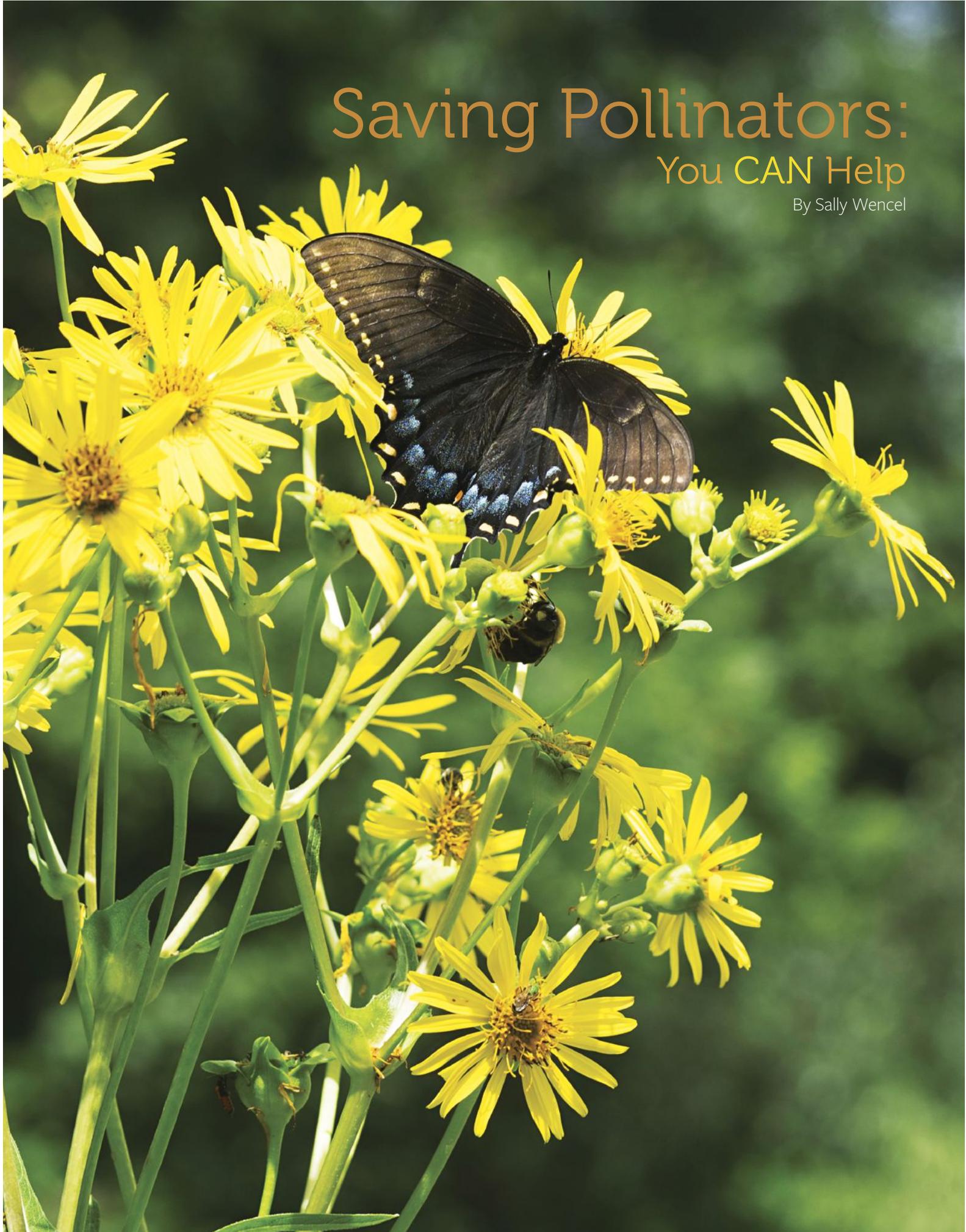


# Saving Pollinators: You CAN Help

By Sally Wencel



## Honey Bees Get All the Press

We often think of honey bees as the primary pollinator of food crops. Honey bees (genus *Apis*) were brought over by European colonists in the 17th century, possibly as early as 1622. According to early American writers like Thomas Jefferson, Native Americans called honey bees “white man’s flies” since the appearance of honey bees in America was associated with the arrival of European settlers. And like many insects, once introduced, they increased their range both swarming and traveling with the settlers as they moved across the country.

Honey bees are often given top billing when the conversation moves to pollinators, and most of the recent focus of pollinator decline has been on their struggles with disease and parasites that lead to “Colony Collapse Disorder.” Unlike wild bees, however, beekeepers can regularly restock honey bee populations because they are artificially-bred agricultural animals—livestock, like cows and pigs. So what about native bees, and other pollinators who were part of the natural ecosystems long before honey bees arrived in the New World?

Native pollinators face many of the same environmental threats as honey bees, but don’t get the attention they deserve. For example, according to Xerces Society for Invertebrate Conservation, over one quarter of all North American bumble bees are facing some degree of extinction risk. We don’t hear about bumble bee collapse disorder!

## Native Bees Are Important and Often Overlooked

Across the U.S., there are an estimated 4,000 native bee species with the greatest diversity found in the western states, from the quarter-sized carpenter bee (*Xylocopa* spp.) to the tiny sweat bee *Perdita minima*, a rarely seen specialist that nectars on wildflowers in the spurge family. Native or “wild” bees pollinate native plants like cherries, blueberries and cranberries, and were here long before European honey bees arrived. Honey bees are well known for pollinating food crops like almond and lemon trees, okra, papaya, and watermelon plants. But native bees are estimated to pollinate 80 percent of flowering plants around the world, according to the U.S. Geological Survey’s “The Buzz on Native Bees” at [usgs.gov](http://usgs.gov). New research shows that at least 120 species of wild bees such as bumble, blue orchard, mason, and even sweat bees are found in Pennsylvania orchards during the growing season, and are more efficient pollinators than honey bees! Researchers at Pennsylvania State University demonstrated that when farmers provide good adjacent habitat, orchards adjacent to wild bee habitat can be fully pollinated without using honey bee hives.

Bees are vegetarians who descended from wasps about 125 million years ago when the first flowering plants evolved.



Susan Waggoner

This Bumble Bee landed on Boneset. *Previous page:* A Black Morph Tiger Swallowtail seen on a Cup Plant.

Some wasps switched from hunting prey to gathering pollen, evolving to become bees, though many modern wasps do feed on nectar and pollen during different phases of their lives. Bees also feed on nectar and pollen—the nectar is for energy, and the pollen provides protein and other nutrients. Most pollen is used by bees as larvae food, but bees also transfer it from plant to plant, providing those pollination services needed by plants and nature as a whole.

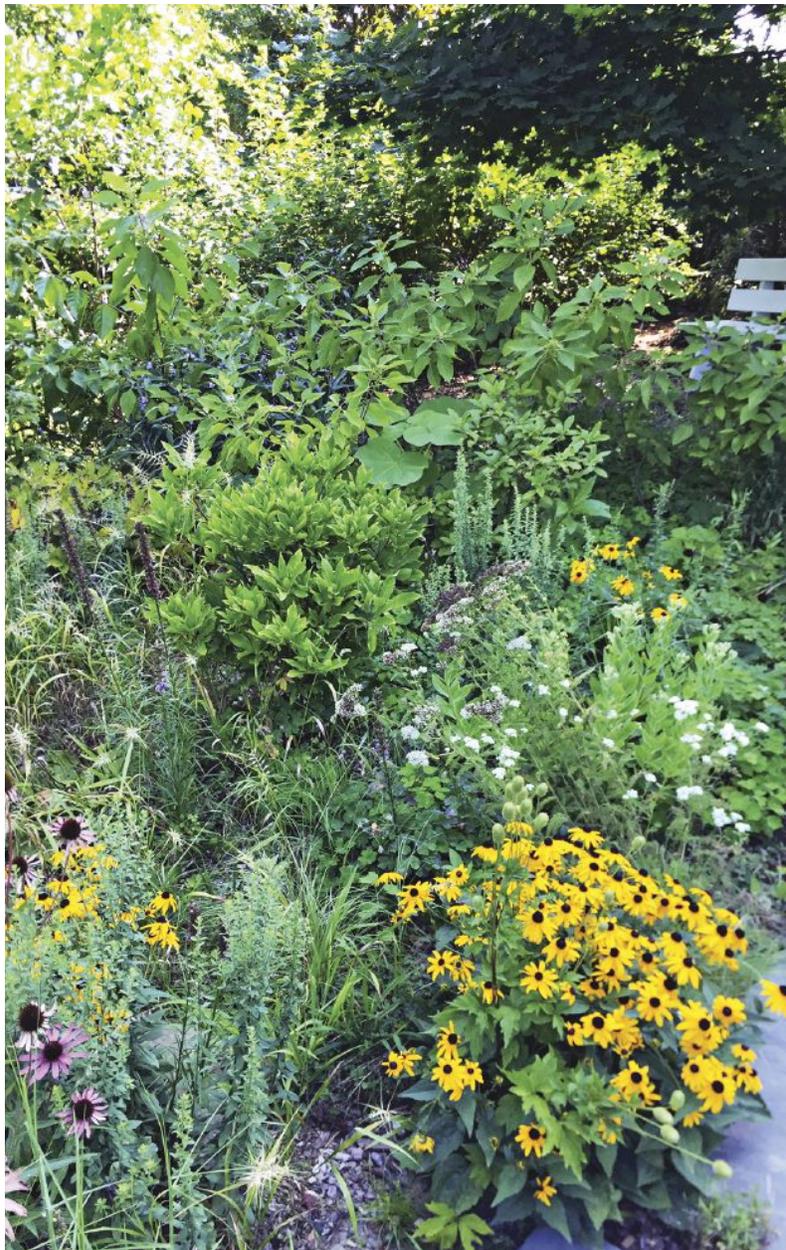
Butterflies, moths, beetles, wasps, and hornets are also important pollinators although they play a relatively smaller role than bees. Many wasps, hornets, and beetles provide additional services by preying on pest insects, which helps to keep crop and garden pests in check. Population changes within these species have not been as closely tracked as honey bees’ decline. There are several hundred thousand species of pollinators. Tracking all of them is not possible. But according to the National Academy of Science, surveys document disturbing population declines and even local extinctions of select pollinator species across the U.S. and Europe.

Sustainable landscaping goals include planting native species that attract parasitoids and predator insects like wasps, hornets and flies—the flying critters that help with crop and garden pests. The city of Chattanooga is investigating creating pollinator garden strips adjacent to its oak street trees to attract native predatory wasps to help control *Lecanium* scale infestations. This approach not only benefits pollinators, but helps reduce the city’s reliance on pesticides with their attendant costs to local ecosystems—as well as city taxpayers.

## Reasons for Pollinator Declines

According to the National Academy of Sciences, chief reasons for pollinator decline are:

- Loss of basic habitat requirements in our landscapes such as floral resources (nectar and pollen) other than flowering crops.
- Pest and diseases that affect managed pollinators like honey bees which then spread to the wild populations.
- Introduced species that change ecological systems.
- A heavy reliance on broad-spectrum pesticides by the agricultural industry, individual homeowners, and other property managers. Land management practices, in other words, have led to this result.



Bob Hulse

## Engaging Private and Public Landowners to Help Pollinators

In 2016, the Tennessee Valley Chapter of Wild Ones (TVWO) decided to focus on ways to help pollinators of all stripes. Inspired by the Greater Atlanta Pollinator Partnership (GAPP), the Chattanooga Area Pollinator Partnership (CHAPP) was launched. CHAPP's mission is to improve pollinator habitat for butterflies, bees, moths, hummingbirds and other pollinators, with the overarching vision to restore habitat corridors across the Mid-South by connecting landscapes that provide food, water, and shelter. Avoiding the use of pesticides is another important goal. The chapter plans to map a growing habitat corridor and connect it to other regional pollinator habitat corridors that GAPP is helping to measure, display, and promote. Since CHAPP launched their website, many private and public gardeners have posted photos of their pollinator gardens, which can be enjoyed at [chapollinator.org](http://chapollinator.org).

As educators and advocates, chapter members spread the word about pollinator health and habitat through public meetings and presentations to garden clubs and master gardener groups, tabling events, newsletters, and websites.



Above: A Ruby-throated Hummingbird on Trumpet Vine. Left: Bob Hulse of Lookout Mountain planted this meadow with a mix of native perennials, grasses, trees, and shrubs, all selected to support pollinators with pollen and nectar sources, as well as caterpillar host plants.

## Tennessee Valley Chapter of Wild Ones' Message for Us:

Your yard is an important ecosystem. University of Delaware entomologist and author of the book *Bringing Nature Home*, Doug Tallamy emphasizes the importance of native plants and the insects that feed on them. “We must look at our yards in a different way. We must turn from an agricultural desert made up of green chemically treated lawns with shrubs and trees from Asia, to yards that are pesticide free and contain native flowering plants that bloom from spring to late fall. Americans have a misplaced love affair with the lawn, Asian plants, and biologically inactive plants. It is a problem easily ten times larger than that caused by modern agriculture,” writes Tallamy. Therefore, restoring native plant communities is crucial.

We have been taught to abhor and kill insects, not realizing that they support the entire human and wildlife food web. Plants convert the sun’s energy into food, and insects move

that energy through food webs. Killing insects deprives other members of the ecosystem an essential food source.

Most plant-eating insects are specialists. They have a relationship with specific native plants during their life stages, without which they will perish. One insect specialist is the Monarch butterfly caterpillar that only feeds on milkweed (*Asclepias spp.*). Many other butterfly and moth larvae will only feed on specific native plants, as well. Specialist insects and native plants have evolved together! Plants from other regions simply cannot supply these ecosystem services. Some native bees are floral specialists—like blueberry and squash bees that pollinate their native plant namesakes. As these host and nectar plants disappear from the landscape, so do their specialist pollinator. This point underscores why it is so important to have plant diversity and particularly native plant diversity.

Sally Wenzel

This Carpenter Bee has found some Spotted Beebalm.



Mike Matthews



Nano Gerstowark

## Keys to Improving Pollinator Habitat

CHAPP promotes four strategies you can use to improve pollinator habitat:

1. Provide native host, pollen, and nectar plants from early spring through late fall when pollinators are active.
2. Offer a safe place for pollinators to reproduce and raise their young.
3. Provide water.
4. Avoid using pesticides, especially pesticides deadly to insects.

Wild Ones offers expertise to homeowners to help us choose the best native plants for our landscapes. The Wild Ones' website includes plant lists of easy-to-grow native plants that flower across the long-growing season in the Southeast, as well

Above: A Sphinx Moth on Monarda.

Below: At the Tennessee Valley Chapter of Wild Ones' exhibit at the Hamilton County Fair, chapter member Fran Geier, in green, speaks with fair attendees.



as more detailed lists of native plants that grow in different conditions, such as sun-shade, dry-moist, etc.

The Stanley Smith Horticultural Trust recently gave TVWO a grant to develop native plant garden designs. Chattanooga is one of five ecoregions that is receiving this design support. The resulting garden designs will be made available to the public.

TVWO offers its own grants to purchase native plants and seeds for pollinator gardens through a new Seeds for Education initiative modeled after the Wild Ones' national program by the same name. Schools, churches, and parks are all fertile ground for expanding pollinator habitat and connecting habitat corridors. To date, \$2,000 has been granted for purchasing native plants for area schools since the program's inception in 2018. On a national level, Wild Ones' Seeds for Education program has granted over \$72,500 to schools, nature centers, and other nonprofits since the program began in 1997. Perhaps more importantly, members consult with those schools to help them design functional and sustainable pollinator garden installations.

Read more at [tnvalleywildones.org](http://tnvalleywildones.org) and [chappollinator.org](http://chappollinator.org).

(Sally Wencel is the vice president of the Wild Ones Tennessee Valley Chapter, co-chair of the Chattanooga Area Pollinator Partnership, and is a member of the Chattanooga Tree Commission. She also serves on the Wild Ones Natural Landscapers national board. She lives in Hixson.)

# Go Green With Us and Save the Pollinators!

By Robin Peeler and Kelsey Davis



**GO GREEN WITH US**

Did you know that agriculture, forestry, and other land-use endeavors are the second largest contributors of greenhouse gas emissions in the world? In an effort to feed our ever-growing population, our agricultural impacts are negatively affecting the climate, natural resources, wildlife, and potentially most importantly, our pollinators.

Many parks are taking action to preserve wildlife habitats and promote pollinator health. Henry Horton State Park has several food-producing gardens tended by community volunteers and managed by park personnel. These gardens use sustainable garden management. Such practices include incorporating compost generated on-site to reduce the need of synthetic fertilizers, and participating in the Tennessee State Parks Honey Project to boost pollinator growth and provide pollinator education and awareness.

Roan Mountain State Park and Seven Islands State Birding Park are two of many Tennessee State Parks that have converted formerly routinely-mowed areas into native grass and wildflower fields. This helps to restore ecosystems, provide critical habitat and food sources for pollinators, and provide improved soil health and erosion control. It also eliminates unnecessary emissions from

mowing and maintenance!

State parks across Tennessee are stepping up to protect pollinators through the installation of native landscaping and butterfly or pollinator gardens. Native plants are more tolerant to the local landscape and require less maintenance. Using native perennials in pollinator gardens and meadows creates a harmonious, low-impact, beneficial ecosystem for our environment and for us.

## How You Can “Go Green With Us”

Replace high-maintenance landscaping with water-tolerant and flowering perennials and enjoy the birds, butterflies, and pollinators that will come! You can also choose an area of your lawn to sow native wildflower seeds and save yourself some time by reducing your mowing space!

**How-to:** DIY pollinator garden:

[youtube.com/watch?v=yuLsUoLC48g](https://www.youtube.com/watch?v=yuLsUoLC48g)

**Info on Tennessee native plants:**

[ag.tennessee.edu/tnyards/Pages/The-Benefits-of-Native-Plants.aspx](http://ag.tennessee.edu/tnyards/Pages/The-Benefits-of-Native-Plants.aspx)

## Upcoming Green Events:

**Endangered Species Day—May 15:**

[endangered.org/campaigns/endangered-species-day](http://endangered.org/campaigns/endangered-species-day)

**World Environment Day—June 5:**

[awarenessdays.com/awareness-days-calendar/world-environment-day-2020](http://awarenessdays.com/awareness-days-calendar/world-environment-day-2020)

**National Pollinator Week—June 22–28:**

[pollinator.org/pollinator-week](http://pollinator.org/pollinator-week)

(Robin Peeler is Tennessee State Parks' Upper East Regional Manager who oversees Tennessee State Parks' Go Green With Us sustainability program. Kelsey Davis is an environmental scientist with the TDEC Office of Policy and Sustainable Practices. She is the co-manager of the Go Green With Us program.)



If you plant water-tolerant perennials, pollinators will come!

At press time, our state is monitoring the COVID-19 situation and the importance of slowing its spread with efforts that may impact travel, meetings and gatherings. Since event plans may change, check ahead to verify scheduled dates.