



## ***SOUTH CAROLINA FAMILY AND COMMUNITY LEADERS***

Affiliated with National Volunteer Outreach Network, Country Women's Council, U.S.A., Associated Country Women of the World and in partnership with Clemson University Cooperative Extension Service  
SCFCL website: <http://www.scfcl.com>

### **Leader Training Guide**

#### **Promoting pollinators**

##### **Objectives:**

To support bees, butterflies, and other pollinators in your yard and garden.

##### **Lesson Overview/Introduction:**

Pollinators, attracted by nectar or pollen, move pollen from flower to flower as they visit, ensuring cross-pollination and subsequent fruit and seed production. More than 90% of the world's quarter-million flowering plant species are animal-pollinated, by insects, birds, and other animals. Roughly a third of U.S. crop plants are pollinated by insects, the rest being wind-pollinated grains such as rice, wheat, and corn. So, every third bite of food we eat started out as a flower pollinated by an insect, usually a nondescript native bee.

The most pervasive threats to pollinators include habitat fragmentation and disturbance, loss of nesting and over-wintering sites, exposure to pesticides and nectar plants to herbicides, new diseases, and loss of nectar corridors, which support some pollinators during migration. Honeybees have recently been decimated by rapid spread of two species of parasitic mites and a condition called Colony Collapse Disorder.

Providing flowers and plants that nourish and nurture these pollinators is something that we can all do in our yards and gardens.

##### **Lesson:**

Even on a cool and cloudy day, native bumblebees can be observed busily 'working' their favorite flowers, collecting nectar or pollen, or both. Butterflies and moths visit flowers for their nectar, using their long tongues to drink nectar from the base of the flowers. Hummingbirds, known for their love of tubular red flowers, also enjoy visiting flowers of other colors that produce abundant nectar.

Large fuzzy bumblebees are probably the most familiar of the more than 3500 species of native bees in the U.S., which include tiny sweat bees, mason bees, and carpenter bees. Many species have long, pointed tongues, well-adapted for drinking nectar from flowers. Female bees of most species collect pollen, and usually have a special pollen basket or brush on their hind legs to carry it.

Most bees are solitary, with each female constructing a nesting tunnel either underground or in a plant stem or wood. She then stocks the brood cells with pollen and nectar for the larvae. Eggs are laid on pollen balls inside the tunnel. Bumblebees and

honeybees are social, living in colonies consisting of a fertile queen, sterile female workers, and males

Pollinators need food, water, and shelter, just like us. To create a pollinator garden for bees, butterflies, moths, and hummingbirds, create a garden that includes many different kinds of flowers which bloom over a long period of time- increased flower diversity means increased pollinator diversity.

Pay attention to the shapes, colors, and nectar-producing attributes of flowers. Fragrances, colors, and masses of flowers attract a variety of bees; birds and butterflies use visual cues rather than relying on their poor sense of smell.

Use a wide variety of native wildflowers and older cultivated varieties to attract pollinators and reward them with nutritious nectar and pollen. Planting lots of yellow, pink, and blue flowers will attract a variety of bees and butterflies - especially plants in the sunflower (Asteraceae), pea (Fabaceae), and mint (Lamiaceae) families. Some excellent choices to include are species of Aster (*Symphyotrichum*), *Penstemon*, *Monarda*, *Salvia*, *Coreopsis*, *Solidago*, *Asclepias*, *Rudbeckia*, *Hypericum*, and *Eutrochium*.

Beside food, bees need water, nest sites, and building materials (including mud, pebbles, and plant hairs). Leaving some undisturbed areas along the edges of your garden can provide good nesting sites for solitary and social bees. Standing dead trees or limbs on your property can become ideal nesting sites for mason and leafcutter bees. Butterflies need sun, shelter, and a source of larval host plants and adult nectar plants to keep populations healthy.

#### **Butterfly habitat requirements:**

- a sunny sheltered area
- masses of nectar-rich flowers
- extended flowering period (spring to fall)
- available larval host plants for egg-laying, multiple broods
- no insecticides, fungicides, or herbicides
- lots of “edges” and varied habitat types

#### **Bumblebee/ solitary bee habitat requirements:**

- masses of nectar-rich and pollen-rich flowers
- extended flowering period (early spring to fall)
- available areas for nest sites (meadow areas, patches of bare ground, and dead branches) and for the queens to hibernate
- no insecticides, fungicides, or herbicides

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**Hummingbird habitat requirements:**

- tubular nectar-rich flowers
- extended flowering period
- no insecticides, fungicides, or herbicides
- cover and shelter (shrubs and trees)

**Lesson Summary:**

By planting an array of plants producing nectar and/or pollen-rich flowers throughout the growing season, we can better support pollinators in our yards, gardens, and public areas.

**Suggested Activities:****Steps to a pollinator-friendly garden:**

1. Learn the habits of butterflies, bees, and hummingbirds that can be attracted to your garden: nectar and pollen-rich plants, larval food plants, and habitat preferences. Add a variety of nectar and/or pollen producing plants to your garden every year. Nearly all species of bees are inherently gentle and won't sting you unless provoked.

Start with some of the easiest pollinators to attract: tiger swallowtails and bumblebees, for example, and work towards the rarer and more specialized local butterflies, bees, and hummingbirds.

2. Survey the plants that you already have in your garden. Do you have perennial beds that can be oriented towards providing nectar and pollen? Are host plants or nesting habitat already present?

3. What's around you? Are there hardwood forests, old fields, or open fields nearby that provide host plants or nesting habitat for butterfly, bumblebee, or solitary bee species? Is the setting primarily residential, with lawns and foundation plantings?

If you're fortunate to live in a more natural or rural area, it will be easier to attract a diversity of pollinators without adding as many larval food plants, nectar or pollen-rich plants, or suitable nesting habitat.

Learn to identify other beneficial insects and their nest sites, especially the bees, digger wasps, and hunting wasps.

4. Start with plantings of favorite nectar and pollen plants, focusing on extending flowering times. Use sunny, sheltered sites as much as possible for additional plantings.

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5. Incorporate a range of larval food plants and nectar and pollen-rich plants in your garden design. Work in shrubs and trees that serve as butterfly host plants in your plantings and provide "meadowy" areas for native bee nesting areas. Abandoned rodent burrows are especially favored. Especially useful as backdrops for perennial beds and for shelter are trees and shrubs.

6. Add a basking area and a source of shallow or dripping water to expand the attractiveness of your garden to butterflies, bees, and other pollinators.

**Suggested Materials:**

Diverse perennials and shrubs, native and non-native, with flowers that produce nectar and/or pollen and a sunny area for planting!

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