



## Entomology Insect Information Series

*Providing Leadership in Environmental Entomology*

Department of Entomology, Soils, and Plant Sciences • 114 Long Hall • Clemson, SC 29634-0315 • Phone: 864-656-3111  
email: dpento@clemson.edu

# BUMBLE BEES AROUND THE HOME

Bumble bees are large, attractive insects that are of interest to children, scientists, beekeepers, naturalists, conservationists, home gardeners, farmers and commercial bumble bee breeders. There are several bumble bee species found in South Carolina which vary in size and coloration. These highly beneficial insects pollinate many native plants, home grown fruits and vegetables and agricultural crops. Though bumble bees are highly social insects, their colonies are not perennial in nature as honey bees. They do not store a surplus of honey which can be harvested. Bumble bee populations in nature fluctuate from year to year depending on many factors including weather, parasites and predators.

**Identification.** Bumble bees are large robust insects with black and yellow coloration. The bumble bee has a black or yellow hairy abdomen which is a character that can be used to differentiate it from a carpenter bee which has a black shiny, hairless abdomen. The foraging bumble bee has a large pollen basket on each hind leg that is often loaded with pollen. The bumble bee queens are typically twice as large as workers or males. A female bumble bee has a pointed abdomen with a stinger. Males do not have a stinger and the tip of the abdomen is rounded.



**A typical bumble bee.**  
Photo Source: Dept. of Entomology, University of Nebraska-Lincoln.

**Life Cycle.** The bumble bee colony is made up of three types of individuals (queen, undeveloped female workers, and males). Bumble bees produce annual colonies in South Carolina. Only the mated queens overwinter. Nests are started in early spring by these solitary, fertilized queens. These queens are often seen feeding on spring flowers or searching for a



**A bumble bee with a full pollen basket.**

Photo Source: C. S. Gorsuch, Clemson University.

suitable nest site. Normally, nests are established in an abandoned rodent or bird nest in the ground. The solitary queen begins the colony by collecting pollen and forming it into a small lump. She lays 6-8 worker eggs on this pollen. After 4-5 days, the eggs hatch into larvae, which begin to feed on the lump of pollen. The young larvae receive all the fats, minerals, proteins, and vitamins that are necessary for growth from the pollen. The queen collects more pollen and nectar to feed this first brood cycle. It takes about 21 days to develop from egg to adult. Once the first brood develops, they take over all the colony duties except egg laying. The adult workers defend the colony, collect pollen and nectar, and feed the larvae. Nectar is collected and stored in small sac like "honey pots" built from wax and pollen. The workers enlarge the nest and by midsummer the colony will have 20-100 workers. The colony produces reproductives (new queens and males) in late summer. They leave the nest to take mating flights. The successfully mated queens fly to the ground and hibernate 2-5 inches deep in the soil. The production of reproductives signals the end of the colony's life. The overwintering queens emerge the next spring to complete the life cycle.

**Economic Importance.** Bumble bees are found wherever flowering plants are located in South Carolina and contribute immeasurably as pollinators of wild flowers and crops. Much of the pleasure and profit from natural bumble bee activities are difficult to measure in economic terms. Bumble bees pollinate many wild flower species that birds and small mammals rely on for food.

**Safety Precautions Around Wild Bumble Bees Nests.** Although Bumble bees are normally harmless

when foraging. A disturbed colony can be nasty. Guard bees stand ready to protect the nest against predators including skunks and man. The worker bumble bee can sting repeatedly without sacrificing her life. Precautions should be taken when working or playing in areas that are likely to be inhabited by bumble bees. This is especially true when mowing fields or trimming weeds around trash or wood piles. A bee veil and hat are highly recommended during summer and fall when doing these activities. If a colony is disturbed, a person should slowly walk away with both hands covering the face. It is best to walk toward dense vegetation or enter a vehicle or building to escape the stinging insects. Swift movements will only attract more bumble bees. Persons highly sensitive to bee stings should always carry a sting treatment kit during outdoor activities. To reduce swelling following a stinging incident, a person may use several sting remedies. A convenient material to place on the sting site is moistened table salt. Mound the salt on the sting entry point and moisten with a few drops of water. Leave the salt on the site for several minutes. This procedure must be applied within 3-4 minutes following the stinging incident to be effective.

A bumble bee nest should not be disturbed or destroyed because of its high pollination value. If a colony becomes life threatening to humans, the bumble bees should be considered pests and eliminated. Purchase a container of pressurized insecticide labeled for bee control. The product should shoot a straight stream of knockdown insecticide from the nozzle. The insecticide should be applied at night when all foragers are inside the nest. The nest entrance should be identified and marked during daytime in order to be easily located at night. A quick knockdown insecticide is preferred because bumble bees may fly out to defend the colony when disturbed. Defending bumble bees are attracted to light, so do not hold a flashlight while applying an insecticide to a nest. Direct the insecticide dispenser nozzle to the nest entrance for best control. Check the colony entrance the next day for activity and reapply if necessary. If bumble bee control is necessary during daylight hours, begin spraying the insecticide in a fanning motion as you approach the nest to repel colony defenders and returning foragers. For complete nest elimination, direct the stream of insecticide directly into the nest entrance. Check the nest for activity the next day and reapply if necessary. Protective clothing is highly recommended.

**Wild Bumble Bee Conservation.** Since bumble bees are excellent pollinators, we should encourage management strategies that help maintain and increase wild colonies. Bumble bees' natural nesting habitat has been drastically decreased by industrial and residential expansion. Large farm monoculture practices are also detrimental to good nesting sites. A way to encourage bumble bee nesting is to set aside uncultivated farm land or hedge rows that are attractive to queens searching for nesting sites. Queens are not too selective as long as the potential nesting site is a dark, underground cavity filled with fine plant fiber. Acceptable nest sites include a burrow beneath an old tree stump or an abandoned rodent nest.

**Lessons in Nature.** Amateur naturalists and children may learn much by observing bumble bees on flowers attractive to the bees. Through simple observation of foraging bumble bees, children can identify pollen loads by using color charts and study flower constancy by following individually marked bees.

**Note.** Bumble bees and other stinging insects often get inside moving vehicles, which may result in a very dangerous situation. The driver should carefully stop the vehicle on the side of the road and all passengers should exit on the passenger side of the vehicle. The driver should open all windows and leave the passenger doors open to allow the insect to exit the vehicle. Flying insects inside a moving vehicle normally go immediately to the windows in an attempt to escape. They are rarely defensive inside a moving vehicle unless provoked by an occupant. Persons should refrain from swatting the insect inside the vehicle.

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Prepared by Wm. Michael Hood, Extension Entomologist/ Associate Professor, Department of Entomology, Soils, and Plant Sciences, Clemson University.

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