PennState Extension

Five-Step Decision Support: Nesting Bees and Wasps Near Homes

There are a number of insects in Pennsylvania that can sting. When these insects take up residence near our homes, conflicts can arise. What to do when bees and wasps are nesting in or near the home?

When swarming occurs, a large group of bees will cluster for several hours or days. Photo: Christine Stone

To make informed decisions about removal, homeowners should consider the nesting behavior and seasonal life cycles of these fascinating insects. The figures below provide a framework to consider when removal of social bees and wasps is required.

Step One: Risk Assessment

Does a conflict exist? Social insects live as part of a colony and the colony lives in a nest. Social insects often take advantage of existing structures to build their nests. If the insects are not compromising the structure or behaving aggressively toward the inhabitants, consider leaving them in peace. However, when a colony of insects threatens the safety of residents, children, pets, or structures, it is important to choose a removal method that will be effective based on the species of insect and implement strategies to reduce future colonization in undesirable areas.

Step Two: Insect Identification

Common social stinging insects in Pennsylvania include honey bees, bumble bees, and wasps. Solitary bees and wasps also inhabit our backyards and homes, but these insects rarely behave defensively. By identifying the insect, an assessment can be made about risk, management, and the best course of action for resolving conflicts that may exist.

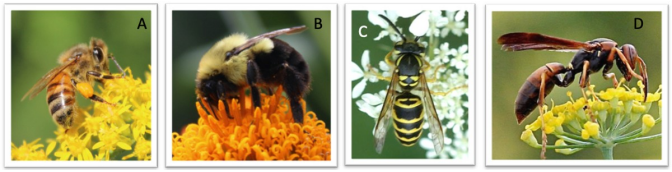


Figure 1. Honey bees (A) and bumble bees (B) have fuzzy bodies and special baskets on their legs for collecting pollen, honey bees have stripes and are more slender than bumble bees. Most wasps (C and D) have smooth, hairless bodies and narrow waists. Images: A and B) J. Lana Mejias C) Christian Grenier D) Richard Wolfert

Social insects have several key characteristics. Most notably, many adult females live together and participate in caring for and raising offspring. These insects also cooperatively defend their nests and resources when they feel threatened. For most species of social bees and wasps in Pennsylvania, there is only one female reproductive member in these colonies: the queen. The queen is the only female who mates and lays fertilized eggs, which develop into female workers or future queens. For bees and wasps, unfertilized eggs become males. Male bees and wasps cannot sting and do not participate in colony tasks.

Bees and wasps are often brightly colored with yellow, white, orange, and black. These bright colors and patterns serve as a warning to others - that they possess a powerful sting if provoked. This strategy is so successful that other non-stinging insects mimic these patterns to protect themselves from predators. For example, many flies are mistaken for bees because of their coloration. The easiest way to determine if an insect is a bee or a wasp is by examining it closely. Bees are covered in hair (Figure 1. A, B), while wasps are usually hairless and smooth (Figure 1. C, D). Another useful feature is that wasps typically have a slender wasp waist and bees have rounder, less narrow waists. Flies that mimic bees and wasps are generally harmless and have just two

wings, instead of the four that all bees and wasps have.

Insect identification has become increasingly popular in recent years, there are many online resources and apps that make identification easier and more engaging than ever. To learn more about pollinators in your backyard, please explore this Pennsylvania pollinator identification guide. BugGuide.net and iNaturalist are also popular resources that you can use to identify insects in your backyard or neighborhood.

Please note that the Asian Giant Hornet (also called the murder hornet or sparrow hornet) has not been found in Pennsylvania and has only been reported in Washington State. For more information on this species and how to identify it, please refer to the Extension fact sheet Asian Giant Hornets.

Step Three: Assess the Time of Year

Honey bees, bumble bees, and wasps have different life cycles and can become problematic at different times of the year. Honey bee colonies swarm in the spring and early summer. Swarming is a reproductive strategy that will generally split the colony into two. About half of the colony will stay in their original residence, while the other half (which can include tens of thousands of bees) leaves to form an exposed, temporary cluster. Scout bees then search the local surroundings to find a new nesting cavity. Swarms are usually not aggressive and will depart to their new nest within two days after leaving the hive. Honey bee colonies persist year-round, including through winter. If you have a feral honey bee colony inside or nearby your home, it may survive for many years.

In Pennsylvania, bumble bee and wasp colonies survive only for the summer. These colonies are started by a single queen in the springtime. The queen (who hibernated through winter) lays eggs and rears the first workers. As the workers mature, they participate in nest building and care of offspring as the colony grows. Later in the summer, the colony raises a new generation of queens and males, and the population begins to decline. After the first hard frost, these colonies die completely. Only mated queens hibernate through the winter, usually in locations other than their original nests. People usually do not notice bumble bee or wasp colonies until the late summer or fall, when the colonies have become larger. If the first frost is imminent, simply waiting for nature to take its course will resolve any conflicts with these insects. Queens sometimes overwinter under house siding or in walls, which can lead to conflict if they become turned around and accidentally come indoors in the spring.

Step Four: Select the Best Removal Method

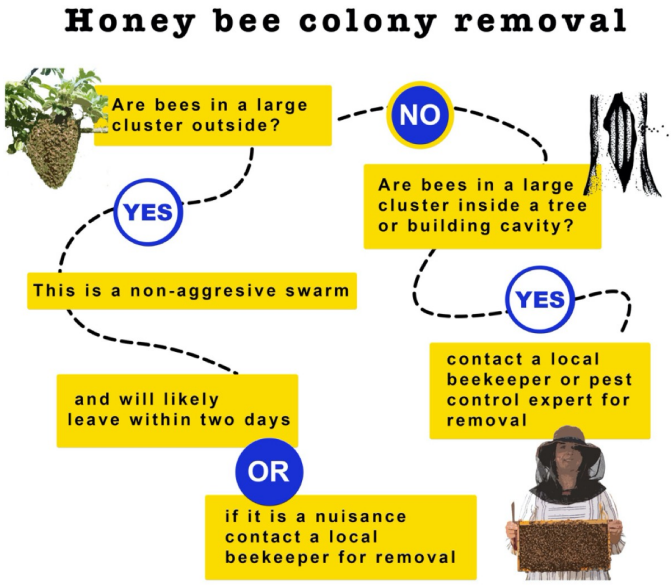
If removal is necessary, select the best method for the target species. Differences in the life cycle and nesting behavior are important considerations when choosing a method for removal. Detailed information about the most common species of bees and wasps as well as removal methods can be found in the Penn State Extension article Common Social Bees and Wasps of Pennsylvania: Behavior, Lifecycle, and Management.

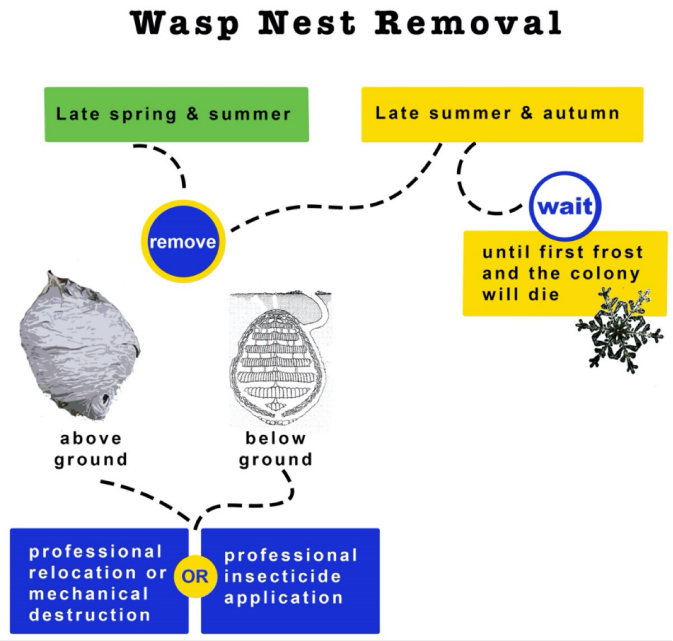
Step Five: Repair Removal Location

If necessary, repair the area where the nest was located. After the removal of a nuisance insect nest, it is important to make repairs to the area to avoid future infestation.

Social bees and wasps are fascinating insects that have evolved impressive defenses to protect themselves and their colonies. Bees and wasps play important roles in agriculture and our ecosystem. Pollination services provided by bees are essential for food production, and the natural pest control offered by predatory wasps helps to protect farms, gardens, and recreation areas from crop-damaging insect pests. Many conflicts between people and stinging insects can be avoided by making changes to limit interactions; when nests do pose a threat, it is important to choose the safest management option.

Decision Support at a Glance





Additional information about insects, pest management, and pollinator health can be found by following the links below.

- Bees in Pennsylvania: Diversity, Ecology, and Importance
- Identifying and Observing Pollinating Insects in Pennsylvania
- Asian Giant Hornets
- Penn State Extension: Pest Management and Education
- The Center for Pollinator Research
- The Eastern Carpenter Bee: Beneficial Pollinator or Unwelcome Houseguest?

Pennsylvania beekeeping organizations can be found by following the link below.

- PA beekeeping organizations

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