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Pennsylvania Pollinator Series

3.5. Hymenoptera Stings

Hymenoptera is one of the largest and most beneficial orders of insects; some that have the ability to sting, like most ant, bee and wasp species. Unlike males, most hymenopteran females can inject venom with a modified egg-laying apparatus, called a stinger. All ant, bee, and wasp females that can sting can do so repeatedly, except for honeybees (Apis spp.), which have evolved barbed stingers and die upon using them. As a result, the stinger remains in the victim's skin and slowly injects the full content of the venom sack, increasing the chances of deterring predators. When stung by a honeybee, one should remove the stinger as soon as possible, regardless of technique.

Female wasps have stingers that they use to paralyze their prey.

Comprised primarily of proteins, peptides, and amines, the hymenopterans' venom is species-specific (Vankawala & Park, 2009). A person known to be allergic to honeybee stings is not necessarily allergic to yellowjacket stings, and vice versa.

Should you get stung, it is important not to panic and start screaming or swatting. Once a social bee or wasp stings, it releases a pheromone that will stimulate the rest of the colony to attack. Running in a straight line for a sealed refuge (car, tent), or towards darker places, is the most sensible approach.

A simple remedy against pain and swelling is to apply an ice pack on the affected area. If a limb is stung, it should be lifted to heart level to reduce the swelling. An antihistamine tablet or painkiller is an additional option. Usually redness on the stung spot increases the next day; if associated with fever and pain, the sting warrants a hospital visit. Headaches, fever, nausea, throat and tongue swelling, difficulty in breathing, cramps, drowsiness or unconsciousness are symptoms of anaphylactic shock, and medical help should be sought immediately.

Annually in the United States, bees and wasps inflict about one million stings, which result in up to 120 deaths (Vankawala & Park, 2009), with 50% of them occurring in the first 30 minutes after the incident. About ten stings per pound of body weight represent a lethal dose for a non-allergic person (Pawankar, Holgate, & Rosenwasse, 2009).

For a highly allergic person, a single sting can be lethal. Yearly, there are an average of 50 lethal cases in the US from one-sting incidents. Even so, it is important to stress that less than 1% of children and only 3% of adults develop systemic responses to stings. Moreover, the odds of dy-

ing from bee or wasp stings are significantly lower than dying from a lightning strike (Britt, 2005). Humans most often encounter hymenopterans that are searching for resources.

The European Hornet (Vespa crabro) and the wasp (Vespa vulgaris).

Both bees and wasps need nectar or sugar-rich substitutes, water and mud, or plant material. Most bees have a vegetarian diet strictly of pollen, while most wasps need arthropods or protein-rich substitutes. Unless brushed, trapped, or squished, all hymenopterans will peacefully seek food resources and choose to go find other resources rather a conflict with humans.

If sugar- or protein-rich beverages and foods are left uncovered, accidents are bound to happen with opportunists like yellowjackets or honeybees. These can get trapped in soda bottles or sandwiches, thus get in one's mouth, and defensively sting. Stings to the mouth and throat are especially dangerous, since the airways can become constricted and lead to suffocation.

The highest stinging incidence is posed by social hymenopterans that are defending their nest, such as yellowjackets, hornets, paper wasps, honeybees, and bumblebees. The level of aggression varies depending on the species, size of the colony, time of the year, resource availability, etc. In the US, the majority bee and wasp species are solitary and do not exhibit defensive behavior around their nests. Regardless of our perceptions of hymenopterans, it is important to respect and learn about them. This will not only reduce misconceptions about bees and wasps, but will allow you to better assess their behavior, lowering the odds of getting stung.

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