



## Bugs Around Your House

### Bumble Bees

(Scientific name: *Bombus* spp;  
Family: Apidae; Order: Hymenoptera)

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**Description** Of the approximately 239 species of bumble bees worldwide, 15 to 18 species occur in Michigan and surrounding states. The most common one is probably *B. impatiens*, depicted in the photos below. Queens are about 1 inch long; workers are from 1/4 to 1/2 inch and both are hairy. Bumble bees seldom sting, unless provoked near their nest or stepped on by someone wearing no shoes. When they do sting, they can inflict pain multiple times, unlike the honey bee.



**Above:** A bumble bee queen foraging on a flower. Notice the pollen on the pollen baskets on her hind legs. **Right:** A peek inside a bumble bee nest, the larger bee in the center is the queen. Workers of various sizes are incubating brood in brood cells. The open cells are honey pots. Photographed indoor at a commercial bumble bee supplier by Zachary Huang.



**Behavior and biology** Bumble bees have an annual cycle similar to that of paper wasps and yellowjackets. The queens overwinter inside leaf litter or loose soil and start new nests in April and May in Michigan. They usually nest in abandoned mouse nests or groundhog holes, occasionally in birdhouses or wall cavities. The queen will forage for nectar and pollen and take care of her first batch of 'brood' (a term used for larvae and pupae of social insects). Once the workers (which are sterile as in honey bees) emerge, she retires from foraging and stays home as a full-time mother (laying eggs and incubating brood). Workers will forage for pollen and nectar and bring them back into the colony. A nest in September may contain 300-1500 workers. New queens are produced in the fall and will mate and find shelters to overwinter. Only mated new queens survive, males, workers and the old queen or unmated new queens will die during winter.

**Important pollinators** Bumble bees can be better pollinators than honey bees. First, they fly at cooler temperatures and work earlier and later hours than honey bees. Second, they have a special mode of pollination behavior called "buzz pollination". They vibrate their bodies in high frequency (producing the buzzing sound) to shake the pollen loose from flowers. This behavior is more efficient and almost required for pollination in some crops such as eggplants, tomatoes (both solanaceous plants) and blueberries. Third, they seem much better than honeybees in getting home when inside enclosures. Buzz pollination and their homing ability make them the ideal pollinator for greenhouse plants (mainly cucumbers, tomatoes and eggplants). They also work on flowers faster than honeybees. In a three-year study (1992-94), Javorek, MacKenzie and Vander Kloet reported that a bumble bee pollinated twice as many lowbush blueberry flowers as a honey bee in the same amount of time. They also pollinated in 80 percent of their floral visits as opposed to about 25 percent for honey bees. They also deposited 34 tetrads (four pollen grains fused together in blueberries) per visit, while honeybees deposited only 13. This makes a bumble bee about 24 times more efficient than a honey bee, on a worker for worker basis, for blueberry pollination.

**Control and prevention** Because bumble bees are important native pollinators, killing them is not recommended. To prevent them from nesting on your property, fill in all animal burrows and holes in soil, seal holes and cracks in sidings and screen all vents. If they nest near your house and a family member is allergic to insect stings, killing is the only option because it is not practical to relocate them. If they are nesting underground or inside a wall cavity, wait until after dark for all workers to return home, then pump dusts (Sevin), inject sprays (general bug spray or resmethrin), or pour water containing insecticides (e.g. Baygon, containing propoxur) into the hole. Cover the hole with soil afterward to prevent unpoisoned bees from escaping the next day. If you are allergic to insect stings, have someone help you or call a pest control firm listed in your yellow pages.

Disclaimer: This fact sheet is for information only. Mention of products does not indicate endorsement. Prepared by Zachary Huang, Department of Entomology, Michigan State University, East Lansing, MI 48824, USA. Email: bees@msu.edu.

url: <http://cyberbee.msu.edu/column/stinging/bumble.pdf>