



Photo Jessica Forrest

Rusty-patched bumble bee,
Bombus affinis

Declining North American Bumble Bees



Photo David Inouye

Western bumble bee,
Bombus occidentalis



Photo James Strange

Franklin bumble bee,
Bombus franklini



Photo Leif Richardson

Yellow-banded bumble bee,
Bombus terricola



Photo Ron Hemberger

American bumble bee,
Bombus pensylvanicus



The **North American Pollinator Protection Campaign (NAPPC)** is a collaborative body of over 140 organizations that work for the protection of pollinators across Mexico, Canada and the United States.

The **NAPPC Bombus Task Force** produced this brochure for your use and information. Feedback is welcome. For more information please contact info@pollinator.org or **415-362-1137** or visit www.pollinator.org.

Visit www.pollinator.org to see how much you can do.



NAPPC



Bumble Bees are Essential

Helping Pollinators Thrive

Prepared by the **Bombus Task Force of the North American Pollinator Protection Campaign (NAPPC)**

Bumble Bee Facts

Globally, there are about 250 described species of bumble bees. They are found primarily in the temperate zones of North and South America, and Eurasia.

Bumble bees are documented to pollinate many important food crops. They are also more effective than honey bees at pollinating crops grown in greenhouses.

When most insects are inactive due to cold temperatures bumble bees are able to fly by warming their flight muscles by shivering, enabling them to raise their body temperature as necessary for flight.

Instead of starting their own colonies, some bumble bee species have evolved to take over another species' colony to rear their young. These 'cuckoo' bees then use the workers from the queen-less colony to feed and care for their offspring.

Some bumble bee are known to rob flowers of their nectar. Nectar robbing occurs when a bee extracts nectar from a flower without coming into contact with its reproductive parts (i.e. anthers and/or stigma), usually by biting a hole at the base of the flower.

Bumble bees are effective buzz pollinators of several economically important plants in the family Solanaceae such as tomato, bell pepper and eggplant. In buzz pollination bees extract pollen from a flower by vibrating against the flower's anthers, making an audible buzzing noise.

Currently, the Common Eastern bumble bee (*Bombus impatiens*) is the only species being commercially reared for pollination services in North America, despite the fact that it is only native to the eastern U.S. and Canada.

Bumble Bee Life Cycle

The primary function of the nest is to house all members of the colony, particularly developing bees in cocoons (globular sacs in the picture below) laid by the queen. Empty cocoons are used to store nectar and pollen that are replenished by foraging bumble bees. Below is a bumble bee nest made in the fiberglass insulation of a house in Maryland.



Photo David Inouye

Bumble Bees vs. Honey Bees: What's the Difference?

Bumble bee colonies last only one year.

Honey bee colonies can last more than one year.

Bumble bees typically nest underground in rodent burrows, and sometimes on the ground surface.

Managed honey bees nest inside bee boxes; feral honey bees typically nest in tree cavities.

The division of labor in bumble bees is primarily determined by the quantity of food fed to a



Bumble bee

Photo Sheila Colla



Honey bee

Photo Steve Buchmann

larval female by a young worker:

The division of labor in honey bees is primarily determined by the quality of food, such as royal jelly, fed to a larval female by nurse bees.

Bumble bees do not communicate floral resources to other bumble bee foragers at the nest.

Honey bees are able to communicate the location of floral resources to other foragers at the nest by a complex 'waggle dance'.

Bumble Bees at Risk?

Recent research in Canada and the United States has shown drastic declines in some bumble bee species. In particular, four bumble bees have declined through much of their range over the past few decades—the Franklin Bumble Bee (*Bombus franklini*), the Rusty-patched Bumble Bee (*Bombus affinis*), the Western Bumble Bee (*Bombus occidentalis*) and the American Bumble Bee (*Bombus pensylvanicus*). Researchers are currently working to determine the causes of these declines, but some possible factors include:

- **Habitat Loss** – Bumble bees need three types of habitat, all of which may be threatened by urbanization and other forms of land alteration:
 - A suitable underground area for nesting (e.g. abandoned rodent burrows)
 - A site for overwintering (i.e. mulch and rotting logs)
 - An abundance of wildflowers for food from spring through fall
- **Climate Change** – These fuzzy bees are cold-weather adapted and are likely affected by long-term changes in weather patterns.



Photo Leah Lewis

- **Pathogen Spillover** – The use of managed bumble bees for pollination of greenhouse crops has led to the spillover of disease from managed to wild bumble bees.
- **Pesticide Use** – These chemicals are meant to affect pests but may have harmful effects on bumble bees as they forage from treated plants as well as untreated plants.

Resources

www.pollinator.org

www.discoverlife.org

www.greatsunflower.org

www.xerces.org/bumblebees/

What you can do to help protect bumble bees:

- Plant pollen- and nectar-rich plants in your garden
- Provide habitat for bumble bees
- Buy organic and locally produced food
- Join citizen-science efforts to track bumble bees
- Support bumble bee conservation efforts

