



Photo Jessica Forrest

Rusty-patched bumblebee, *Bombus affinis*

Rusty-Patched Bumblebee, *Bombus affinis* Canada's endangered species

The rusty-patched bumblebee is a newly listed endangered species in Canada and the first federally listed bee in North America. This species is on the brink of extinction throughout its large range. In Canada, only three individuals have been found in the past 10 years with the only currently known population occurring at Pinery Provincial Park.

Wildlife Preservation Canada is working to find wild populations of *Bombus affinis* as part of their Pollinators-At-Risk Initiative. To find out more and to be part of the solution visit www.wildlifepreservation.ca.

Photo Leif Richardson



Other Bumblebees in decline

Yellow-banded bumblebee, *Bombus terricola*

Photo Ron Hemberger



American bumblebee, *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 Canada, Mexico and the United States.

The **NAPPC Bombus Task Force**, with further support from **Wildlife Preservation Canada**, produced this brochure for your use and information.

For more information and resources or to order more brochures contact
Pollinator Partnership
info@pollinator.org
415-362-1137
www.pollinator.org

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Wildlife Preservation Canada
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NAPPC



Bumblebees are Essential

Helping Pollinators Thrive

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

Bumblebee Facts

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

Bumblebees are documented to pollinate many important food crops. They are also more effective than honeybees at pollinating crops grown in greenhouses.

When most insects are inactive due to cold temperatures bumblebees 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 bumblebee 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 bumblebees 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.

Bumblebees 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 bumblebee (*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.

Bumblebee 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 bumblebees. Below is a bumblebee nest of *Bombus impatiens*, which is common in much of Eastern North America.



Photo Steve Buchmann

Bumblebees vs. Honeybees: What's the Difference?

Bumblebee colonies last only one year.

Honeybee colonies can last more than one year.

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

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

The division of labour in bumblebees is primarily determined by the quantity of food fed



Bumblebee

Photo Sheila Colla



Honeybee

Photo Steve Buchmann

to a larval female by a young worker.

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

Bumblebees do not communicate floral resources to other bumblebee foragers at the nest.

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

Bumblebees at Risk?

Recent research in Canada and the United States has shown that some bumblebee species are in trouble. One species, the Rusty-patched Bumblebee (*Bombus affinis*), is known to be in decline throughout its range, and at least five others are suspected to be in decline. These include the Yellow-Banded Bumblebee (*Bombus terricola*), American Bumblebee (*Bombus pensylvanicus*), Franklin Bumblebee (*Bombus franklini*), Western Bumblebee (*Bombus occidentalis*), and Ashton Cuckoo Bumblebee (*Bombus ashtoni*). Researchers are currently working to determine the causes of these declines, but some possible factors include:

- **Habitat Loss** – Bumblebees 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-



Photo Leah Lewis

weather adapted and are likely affected by long-term changes in weather patterns.

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

Resources

www.savethebumblebees.com

www.wildlifepreservation.ca

www.pollinatorpartnership.ca

www.xerces.org/bumblebees/

What you can do to help protect bumblebees:

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

