

Rusty patched bumble bees were the first bee in the lower 48 states listed as a federally endangered species. Photo credit: Jay Watson



Bully for Bees

Help Save the Endangered Rusty Patched Bumble Bee

By Jay Watson
NHC terrestrial invertebrate ecologist

The rusty patched bumble bee (*Bombus affinis*) is one of 46 bumble bee species found in North America and one of 20 in Wisconsin. Bumble bees are important pollinators of wildflowers and the chief pollinator of many economically important crops, and until the mid- to late 1990s, the rusty patched bumble bee was abundant across a broad geographic range that included 28 states, the District of Columbia and two Canadian provinces.

Since that time, however, the bee's abundance and distribution has declined by about 87 percent and its population has been reduced to 8 percent of its historical extent. That decline has resulted in the [U.S. Fish & Wildlife Service listing it as an endangered species](#) effective March 2017, making it the first bee species protected under the federal Endangered Species Act in the lower 48 states.

Wisconsin remains one of only nine states and one Canadian province where the rusty patched bumble bee has been found

recently. The bee has been found in 21 counties in Wisconsin, with most of the observations from the southern third of the state and the majority reported from Dane County. In 2014-15, Wisconsin's Department of Agriculture, Trade and Consumer Protection led the development of [Wisconsin Pollinator Protection Plan](#),

Wisconsin remains one of only nine states and one Canadian province where the rusty patched bumble bee is found.

which provides voluntary actions that homeowners, gardeners, farmers and pesticide applicators can take to protect pollinators including the rusty patched bumble bee.

DNR staff have been working on other fronts to gain a better understanding of the rusty-patched and other declining bumble

bee species in Wisconsin. We have been promoting [Bumble Bee Watch](#), a citizen science project to track and conserve North America's bumble bees and have also funded a University of Wisconsin-Arboretum project to expand the use of citizen-based monitoring to inform bumble bee conservation, and are using lessons learned from both to pilot the [Wisconsin Bumble Bee Brigade](#) starting in 2018.

DNR staff, myself included, also have been participating in workshops hosted by the U.S. Fish & Wildlife Service to identify habitat goals, research needs, and priority actions to help prevent the extinction of the rusty patched bumble bee.

Threats and Imminent Extinction Without Action

In early 2013, the Xerces Society petitioned the U.S. Fish and Wildlife Service to list the rusty patched bumble bee due to losses documented throughout its range. The Species Status Assessment report the service produced documented that the bumble bee's ability to sustain



Purple prairie clover is one plant property owners can add to boost nectar sources for bumble bees like the rusty patched bumble bee.

Photo credit: U.S. Fish & Wildlife Service

populations over time has declined. The abundance is forecast to decline over time under all risk scenarios evaluated, with extinction predicted in all but one ecoregion within five years; and within 30 years in that remaining ecoregion.

Threats to the rusty patched bumble bee causing the recent dramatic decline include disease, pesticides, climate change, habitat loss, and small population dynamics. It appears that no one single factor is responsible, but these threats working together have likely caused the decline. As numbers decline, the bumble bee's reproductive strategy makes it particularly vulnerable to the effects of small population size.

Why Saving the Rusty Patched Bumble Bee Matters

Bumble bees are important pollinators of wildflowers and are the chief pollinator of many economically important crops, among them blueberries, cranberries, clover and tomatoes. The pollination services provided by native insects (mostly bees) is estimated at \$3 billion per year in the United States. In Wisconsin, pollinator-dependent crops account for over \$55 million in annual production. Apples, cranberries, cherries, green beans, pickling cucumber and fresh market fruits and vegetables are among the crops relying on pollinators. Even in crops that can be self-pollinated (for example, some tomatoes), the plant produces more and bigger fruits with the aid of bumblebees



Counties with confirmed occurrences of rusty patched bumble bees as of 2017.

for pollination. In natural areas, bumble bees pollinate plants that provide food for other wildlife. By conserving them, other species of pollinators also benefit. Beyond those economic and agricultural impacts, however, saving the rusty patched bumble bee is critical for healthy ecosystems. Susan Carpenter, the native plant gardener at the UW-Arboretum, spoke to the bee's importance in a recent blog post for [Scientific American](#). "Bumble bees, such as the rusty patched bumble bee, are crucial for gardens, orchards, prairies, woodlands and wetlands. They transfer pollen from flower to flower in many plant species, resulting in the production of fruits and seeds. In turn, we and other animals rely on plants, fruits and seeds for our survival and health."

6 Ways to Help Rusty Patched Bumble Bees and Other Pollinators

1. **Provide nectar and pollen sources across the growing seasons:** The Xerxes Society's [Pollinator plants: Great Lakes Region fact sheet](#), has plant lists to benefit pollinators across the seasons. The DNR's new publication, [Wisconsin Native Plants](#), is not specific to pollinators but does provide lists of plants that will thrive in different Wisconsin regions, soil types and climates and will provide plenty of nectar and pollen sources.
2. **Remove invasive species to promote healthy ground cover.**
3. **Avoid using pesticides, particularly near your nectar and pollen species:** If that is not possible, limit pesticide use and follow the label. Susan Carpenter, the UW-Arboretum's native plant gardener, covers other pesticide tips in a recent blog post for [Scientific American](#), "[How to Protect Our Disappearing Bumble Bees](#)".
4. **Avoid disturbing nests you find and keep patches of rough grass for bees to nest in:** Bumble bees have small colonies and are rarely aggressive.
5. **Report rusty patched bumble bee observations to [Wisconsin Bumble Bee Brigade](#):** Submit photos online of bumble bees you've spotted, along with the date, time, and location. The project's bumble bee experts will verify the species and your monitoring their populations over time will help advance research and protection efforts.
6. **Learn more about Wisconsin pollinators and how you can help them on our [Pollinator webpage](#).**

