

You can make a difference in conserving the endangered rusty patched bumble bee in farmlands. Create bee habitat protected from pesticide drift and runoff.

Bumble bees and other pollinators need high quality habitat to survive, including habitat on farms. Keeping pesticides out of non-crop lands and reducing exposure on cropped lands will be an important part of the plan to recover the rusty patched bumble bee and other pollinators.



Iowa State University, staff,
<https://hortnews.extension.iastate.edu/2011/6-1/bumblebee.html>



Johanna James-Heinz,
<http://xerces.org/rusty-patched-bumble-bee/>



Queen photo by Rich Hatfield available at
<https://flic.kr/p/wP2Yz9>

Bumble bee ground nest (left), rusty patched worker on beebalm (center), rusty patched queen (right)

On January 11, 2017, the United States Fish and Wildlife Service placed the rusty patched bumble bee (*Bombus affinis*) on the list of endangered species. The listing became effective on March 21, 2017, making it the first listed bee from the continental United States. The rusty patched bumble bee is a species of bumble bee once common in eastern North America, but in recent years it has declined from an estimated 87% of its historic range. The rusty patched bumble bee is a large social bee that lives in nests in the ground. It was once an excellent pollinator of wildflowers, cranberries, plum, apple, alfalfa, onion seed and other crops. Both the female workers and males have a small rust-colored patch on the middle of their second abdominal segment. Queens, workers, and males all forage for pollen and nectar.

Consider creating or restoring pollinator habitat. Bumble bees need three things to survive.

1. Food: Flowers in bloom from early spring through fall. The pollen and nectar from native plants, weeds and crops is the only source of food for bumble bees. Without enough flowers throughout the season, bumble bee queens and colonies can die.

More information is available on the web:

[Plants Favored by Rusty Patched Bumble Bee, U.S. Fish and Wildlife Service](#)
[Pollinator Conservation, Xerces Society](#)

2. Habitat: Leave some areas undisturbed for nesting and overwintering. Bumble bees nest under bunch grasses, piled stones, brush and compost piles, in abandoned rodent holes, or other overgrown areas. Bumble bees queens also need a safe place to overwinter or hibernate. Areas with bare soil and leaf litter (including evergreen needle duff) are likely to support overwintering queens.

3. Management: Pesticides should not be used in or around nesting or forage sites. The use of pesticides, especially long-lived, highly-toxic insecticides, can render both forage and nesting habitat harmful and even lethal to bees. Do not allow pesticides to drift or runoff into designated pollinator nesting and foraging habitat.

A number of pesticides and pesticide ingredients can harm bees

- Insecticides can kill or harm bees.
- Herbicides can kill the plants that bees use for food and shelter.
- Fungicides can be toxic to bees.
- Some additives used in pesticides can be toxic to bees.

By minimizing pesticide use, you can help conserve this once common bee.

To help conserve the rusty patched bumble bee consider the following ways to reduce the harmful impacts of pesticides:

1. Use the principles of Integrated Pest Management (IPM). IPM is the use of multiple practices to control pests, not just spraying pesticides or using insecticide treated seeds. Implement the cultural practices that reduce pest pressure and improve plant health, such as soil amendments, minimal tillage, crop rotation, mulching, trap crops and the use of cover crops. Scout crops for pests to determine if intervention is needed to avoid economic harm. Avoid scheduled or “calendar” sprays. Use the services of certified crop advisors or your local extension office to help implement an IPM program.

More information is available on the web:

[Preventing or Mitigating Potential Negative Impacts of Pesticides on Pollinators Using Integrated Pest Management and Other Conservation Practices, U.S. Department of Agriculture, Natural Resources Conservation Service](#)

[How to Reduce Bee Poisonings from Pesticides, PNW 591, Oregon State University](#)

2. Avoid off-site movement of pesticides into pollinator habitat. Reduce drift potential by using ground application methods instead of aerial, lowering boom to be right above the canopy, and using a coarse versus fine droplet spectrum. Apply pesticides when wind speeds are between 3-9 mph to reduce drift and volatilization. If possible, use precision application technology to focus your pesticide application on the intended site.

3. Avoid tank mixes of demethylation inhibitor (DMI) fungicides, such as “azole” fungicides, with neonicotinoid or pyrethroid insecticides as mixing these pesticides can increase toxicity to bees.

More information is available on the web:

[Bee Precaution Pesticide Ratings, University of California Statewide Integrated Pest Management Program](#)

4. Limit use of foliar sprays and soil drenches of systemic insecticides such as imidacloprid, dinotefuran, clothianidin and thiamethoxam, as they are highly toxic to bees and can be taken up by plants and expressed in pollen and nectar for months to years after a single application.

5. Consider switching to seed not treated with a neonicotinoid insecticide. Neonicotinoid seed treatments typically target secondary pests, which are uncommon in many large acreage row crops. Read the literature on the pests controlled by seed treatments. Use monitoring and bait traps to determine if damaging levels of these pests occur on your property. Less than ten percent of what is applied to seeds goes into the crop, while the remainder is in the soil. Insecticides in dust from treated-seeds can harm bees. Neonicotinoids also readily leach into surface and ground water. If you use treated-seeds, take steps to avoid drift at planting time, including use of a seed lubricant that reduces drift.

More information is available on the web:

[Benefits of Neonicotinoid Seed Treatments in Soybean Production, U.S. Environmental Protection Agency](#)

[The Effectiveness of Neonicotinoid Seed Treatments in Soybean, a joint publication of 12 land grant universities](#)

[Making Decisions about Neonicotinoid Seed Treatment Use in Iowa, the Xerces Society and the U.S. Department of Agriculture, Natural Resources Conservation Service](#)

[Corn Dust Research Consortium](#)

[2013 Summit on Reducing Exposure to Dust from Treated Seed, U.S. Environmental Protection Agency](#)

6. Create a vegetative buffer of grass or a hedge row of woody evergreen shrubs between the field and pollinator habitat. Vegetative buffers to catch pesticide drift should not include pollinator attractive plants.

More information is available on the web:

[Using Agroforestry Practices to Reduce Pesticide Risks to Pollinators & Other Agriculturally Beneficial Insects, U.S. Department of Agriculture, National Agroforestry Center](#)

7. As possible, avoid use of pesticide, especially insecticides, in areas adjacent to rusty patched bumble bee habitat. This is particularly important when there are blooming flowers in the habitat. If pesticides are used in areas adjacent to habitat consider the following risk mitigation efforts.

More information is available on the web:

[Guidance to Protect Habitat from Pesticide Contamination, Xerces Society](#)

[Maximizing Pollinator Health and Pollinator Service on Farms, Wisconsin Department of Agriculture, Trade and Consumer Protection](#)

8. Read the EPA approved label that will be attached to the pesticide package, with safety and application information. Read the label to locate information on hazards to pollinators and application methods to protect pollinators. Remember that product labels are legally binding and must be followed exactly, including specific pollinator protection language.

The sum of your year round land management practices will make a difference. Mitigate pest management risks and support the food and habitat of the rusty patched bumble bee and other pollinators.

You can make a difference.

Developed by an interagency committee comprised of Dr. Vera Krischik (University of Minnesota), Aimee Code (Xerces Society for Invertebrate Conservation), Mike Murray (WI DATCP), Dave Cuthrell (Michigan Natural Features Inventory) and USFWS.