



# BUMBLE BEE BRIGADE

## 2019 Year-In-Review

2019 marked the statewide rollout of the Wisconsin Bumble Bee Brigade (B3). We held six trainings throughout the state, adding to the ranks of B3 volunteers who had participated in the 2018 pilot season. We were expecting the program to grow, but we were amazed by the number of passionate volunteers who contributed their time to monitoring bumble bees. We more than doubled the observations reported in our 2018 pilot, and B3 volunteers reached almost every county in the state! We are extremely grateful for the passion and commitment of B3 volunteers and your dedication to monitoring and conserving Wisconsin's bumble bees. Thank you all!

-Eva, Jay, and Terrell (The B3 Team)



*Bombus perplexus*, the confusing bumble bee Photo: B3 user Jan Sharp

B3 Contributions	Number*
Volunteers	157
Species Observed	17
Observations	2341
Surveys	1293 (160 small area & 1133 incidental)
Sites	568
Counties with Surveys	66

\*Includes 109 historical observations submitted in 2019

## Your Data in Action

B3 volunteers dedicate a great deal of time to photographing, identifying, and reporting bumble bees, and the data you submit are used in many ways.

- We share all observations of *B. affinis* (rusty patched), as well as any other species of interest, with the US Fish & Wildlife Service.
- We are partnering with researchers from UW-Green Bay to develop a simple model for predicting likely locations for *B. affinis*, which can be used when selecting locations for future field surveys. The model could help identify landscape or habitat characteristics that are associated with *B. affinis* locations.
- Researchers from UW-Madison are using B3 data to explore how landscape features that vary across an urban to rural gradient impact bumble bee presence.
- Habitat management decisions and priorities (like prescribed fire or pulling invasives) on state managed properties, such as State Wildlife Areas, Natural Areas and Parks, are informed by rare bumble bee observations.
- Local land managers, such as county parks departments, can and do request data collected on their own properties to inform their management decisions, such as where to focus restoration or maintenance efforts.
- Observations of rare bumble bees are entered into the Wisconsin Natural Heritage Inventory database to monitor, manage and protect bumble bee populations in the state.
- You can use your B3 observations and the data from the Explore Data portion of the website to inform your own gardening and landscaping decisions. For instance, if you are not seeing bumble bees late in the season when others in your area are reporting them, you might consider planting more late-blooming flowers.

## Frequently Asked Questions

Can I submit historical observations?

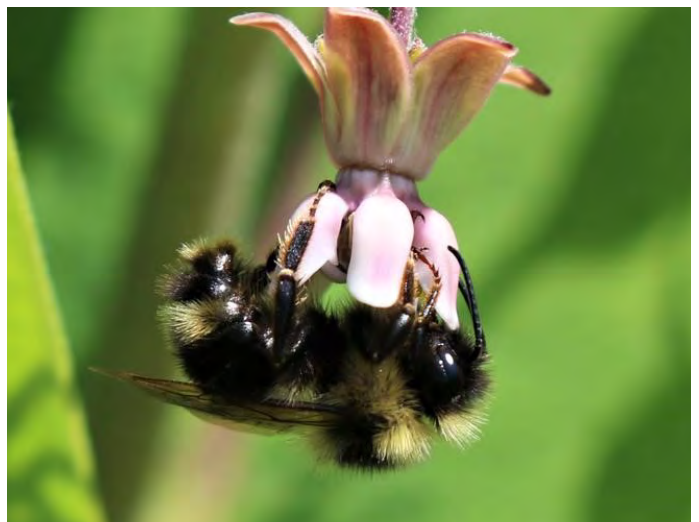
Yes! If you have observations from previous years that you have not submitted to another project or platform (like Bumble Bee Watch), you are welcome to submit them to B3. We especially welcome observations from undersurveyed counties or of rare species.

Do I need to submit my observations to multiple projects?

No, there is no need to submit observations to multiple projects. We are happy to share our data with other bumble bee researchers and conservation groups. When an observation is submitted to multiple projects, it adds extra work for scientists and conservation professionals who compile data from many sources and then need to search for and remove duplicate records. If you submit your observations to multiple projects for personal reasons, please add a comment to each observation (on all projects) saying where else the data have been submitted.

What else can I do to help bumble bees?

You can create and maintain high quality nesting, foraging, and overwintering habitat. Check out the conservation links on the [B3 Resources page](#).



One of 17 observations of *Bombus flavidus* reported to B3 in 2019. Photo: B3 user MPWoodford

## Room to Grow

B3 volunteered submitted data from 66 of Wisconsin's 72 counties. That's an amazing outcome for our first full year, but it still leaves 6 counties with no volunteer-collected bumble bee data for the year. Below are the counties we missed in 2019; let's try to get observations in every county this year!

- Clark
- Dunn
- Kewaunee
- Menominee
- Pierce
- Washburn

Volunteers observed 17 of our Wisconsin bumble bee species in 2019. Here are the bees we didn't find:

- *B. frigidus* (frigid bumble bee)– this species is present in limited areas of northern Wisconsin. B3 co-coordinator Jay Watson observed it during several 2019 surveys, so there definitely is a chance that an intrepid B3 volunteer might photograph it this year.
- *B. bohemicus* (Ashton's cuckoo bumble bee) – This bee parasitizes the nests of *B. affinis* and *terricola*, two rare species. It was last confirmed in Wisconsin in 1979, so it might well be extirpated from our state. However, there is always a chance that it remains, so pay careful attention in areas where *B. terricola* or *affinis* are known to be present.
- *B. variabilis* (variable cuckoo bumble bee)– This is another extremely rare cuckoo bumble bee, and in fact it may be extinct. In Wisconsin, it was last reported in Waukesha County in 1930.

## Bumble Bee Nests

Bumble bee nests are hard to find– so hard that we only received 8 nest sightings for 2019. Below are a few examples of those lucky findings.

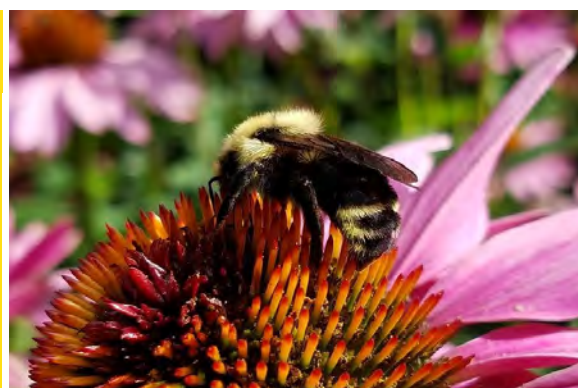


Photos from top: B3 users Woody, Greg Schwartz, Thistledown

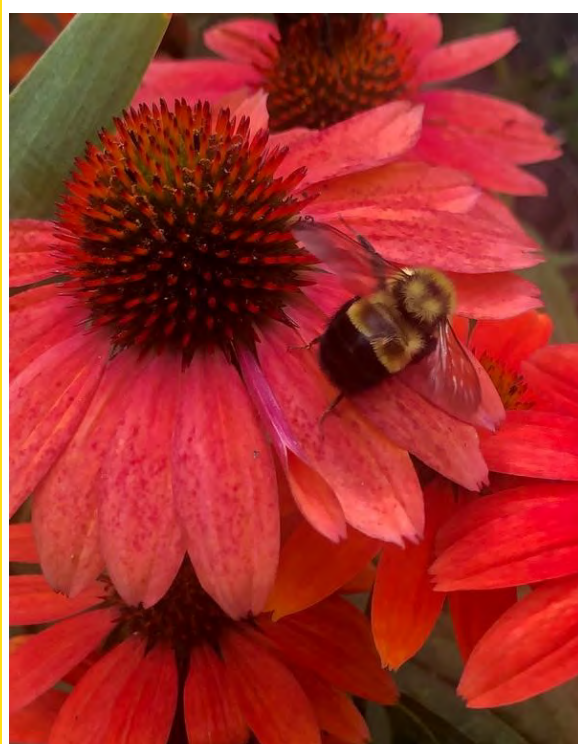
## 2019 Preliminary Results

- The first bee reported to B3 was a *B. impatiens* (common eastern) queen in Jefferson County on April 8.
- The last bees reported to B3 were a *B. impatiens* male in Rock County and queen in Waukesha County on October 27.
- Volunteers added new county records for *B. affinis* in Jefferson and Portage Counties, and a *B. affinis* was reported in Marinette County for the first time since 1960. The map on the next page depicts where and when *B. affinis* were last verified throughout the state.
- *B. pennsylvanicus*, *insularis*, *sandersoni*, and *flavidus* were all verified at less than 10 sites, while *B. impatiens* was reported at almost 250. See the table below for a full list of the number of sites at which each species was found. Please note that these numbers don't fully represent how rare or common a species is. Reporting bias, location of volunteers, and difficulty in identifying some species in photos all play a role in the number of sites at which a species is verified.

Species	2019 Sites
<i>B. pennsylvanicus</i> (American)	1
<i>B. insularis</i> (Indiscriminate cuckoo)	2
<i>B. sandersoni</i> (Sanderson's)	2
<i>B. flavidus</i> (Fernald cuckoo)	7
<i>B. perplexus</i> (Confusing)	20
<i>B. terricola</i> (Yellowbanded)	26
<i>B. borealis</i> (Northern amber)	32
<i>B. citrinus</i> (Lemon cuckoo)	47
<i>B. fervidus</i> (Yellow)	55
<i>B. affinis</i> (Rusty patched)	63
<i>B. ternarius</i> (Tricolored)	67
<i>B. auricomus</i> (Black and gold)	87
<i>B. rufocinctus</i> (Redbelted)	103
<i>B. vagans</i> (Half-black)	112
<i>B. bimaculatus</i> (Twospotted)	142
<i>B. griseocollis</i> (Brownbelted)	192
<i>B. impatiens</i> (Common eastern)	249

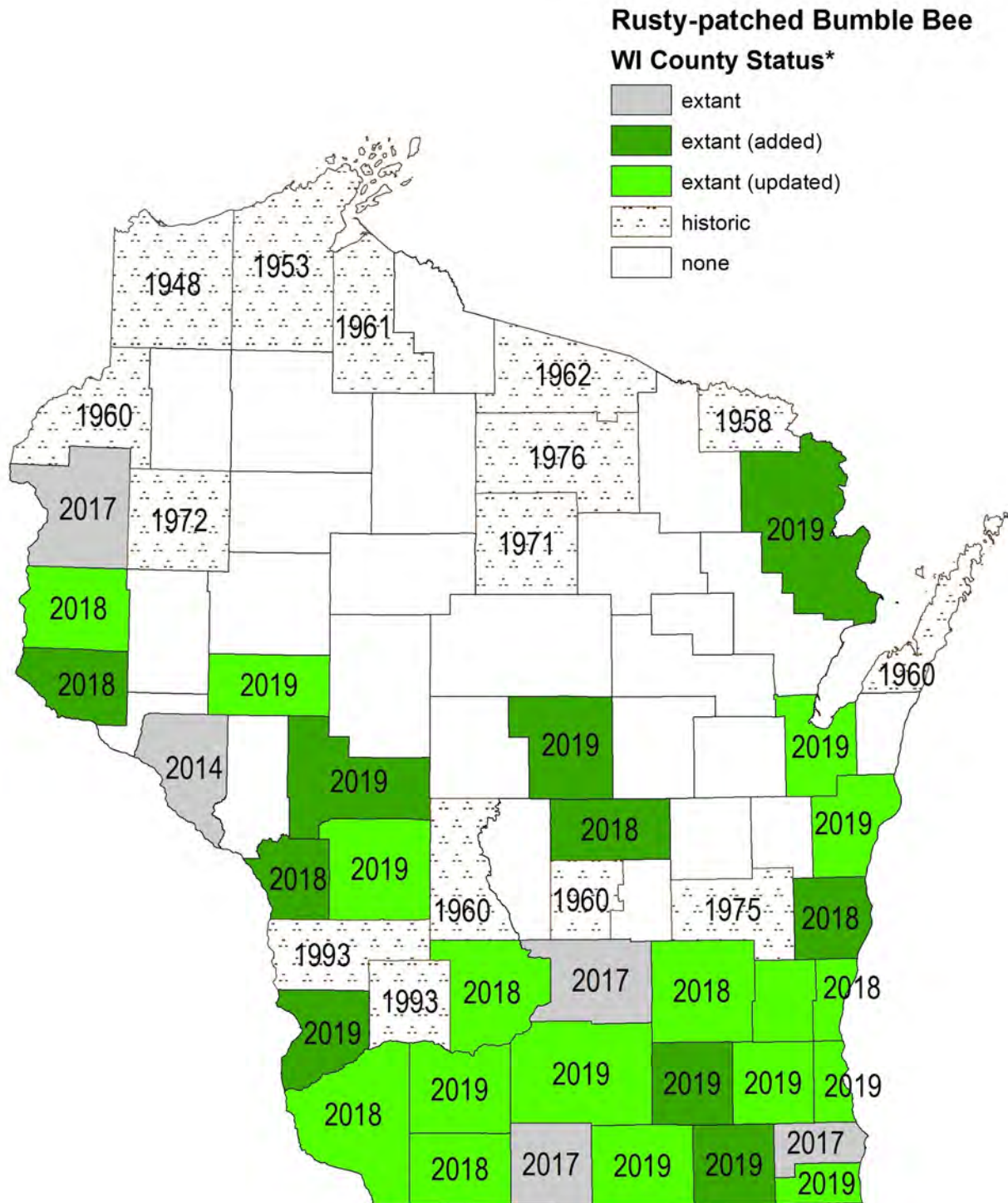


*Bombus insularis*. Photo: B3 user Nick Gremban



First *Bombus affinis* for Portage County. Photo: B3 user Ashley Thiel

# 2019 Preliminary Results



Map: Wisconsin counties with extant (>2006) and historic (<2007) populations of *B. affinis* (rusty patched). Counties that were added or updated to extant with new information as a result of DNR surveys or Wisconsin Bumble Bee Brigade volunteers are highlighted.

historic = observed <2007

extant = observed between 2007-2017

extant (added) = observed in 2018/2019, but not between 2007-2017

extant (updated) = observed in 2018/2019 and between 2007-2017

