Endangered rusty patched bumblebee is at the center of a legal challenge

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Conservation groups are making another push to protect habitat for the endangered rusty patched bumblebee, a creature that once buzzed throughout much of the United States and today is an insect you're lucky

to spot at all.

A federal lawsuit challenging a decision by the U.S. Fish and Wildlife Service to not designate critical habitat for the bee was filed last week by the Natural Resources Defense Council, the Center for Biological Diversity and Friends of Minnesota Scientific and Natural Areas. It's the latest in a series of legal challenges in the lead-up to and aftermath of the bee's listing under the Endangered Species Act.

The bee, which at one point existed in nearly 30 states including Illinois, is the first and only bumblebee listed under the act. A little more than two decades ago, its numbers began a sharp drop—crashing by at least 87%. The listing means the species was found to be at risk of extinction; recovery efforts are underway.

Like monarch butterflies, the bee is thought of as a species that can encourage conservation and open the door to creating pollinator habitat. Pollinators are responsible for a significant amount of food supply and the overall health of ecosystems. The rusty patched bumblebee might not be as flashy as the monarch, but it's thick and fuzzy and adorable, as far as bugs go.

As the legal challenge moves ahead, local efforts to encourage habitat creation for the bee are picking up. And rusty patched hopefuls are still on the lookout for a rare sighting of a bumblebee with a tawny marking below black and yellow stripes.

In August 2018, Andrea Gruver was conducting graduate research as part of a joint program between Northwestern University and the Chicago Botanic Garden when she saw something she wasn't expecting. And something she hasn't seen since.

Gruver's research involved the effects of urbanization on bees. She set

up field sites, some more urban, some less, and waited to see which bees showed up.

"I was like, I don't think that's a rusty patched," Gruver said. "The probability of it being a rusty patched bumblebee is very low."

But two rusty patched bumblebees happened to be foraging around Rogers Park near the Metra station. Confirmation of the bee brought a sigh of relief.

"This is a really good sign that this bee is still here and it's even in Chicago," Gruver said. "Potentially, these could be areas that could really harbor a lot of bee diversity."

Last year, the Fish and Wildlife Service determined that designating critical habitat for the bee was "not prudent," arguing that its recovery didn't depend primarily on specific habitat.

"As a habitat generalist, the rusty patched bumble bee can find the habitat it needs in a variety of ecosystems, including prairies, woodlands, marshes, agricultural landscapes and residential parks and gardens, all of which are abundant across the bee's range," said Lori Nordstrom, assistant regional director for Ecological Services in the Great Lakes region, in the agency's news release announcing the decision.

But some conservation groups argue the bee should get a full suite of protections.

There can be instances in which the habitat designation, which offers another round of regulatory checkpoints, isn't needed, said Lori Ann Burd, the Center for Biological Diversity's environmental health director. But this isn't one of those cases.

"This was a Trump-era decision," Burd said. "I really hope that the Biden administration realizes that they have an opportunity to really make a difference in the pollinator crisis. Extinction is a political choice and the solutions to extinction are political choices. And this is just a question of mustering the political will to give the species what it is entitled to and what it needs to not go extinct."

Burd said she's hoping to see a shift in how the Fish and Wildlife Service takes action on endangered species, from the rusty patched bumblebee to the monarch butterfly. "I think they both tell the story of how these once-widespread generalists are tanking because of human action," Burd said.

Some bumblebee populations are shrinking at a significantly more rapid pace than others. As is often the case with threatened species, there's not one clear cause accepted as the definitive answer to the rusty patched bumblebee's decline. There is a mix of hazards, which together can increase the potential for harm.

The Fish and Wildlife Service's 2016 species status assessment, which helps inform the decision to list a species as endangered, identified some main concerns: pathogens, pesticides, habitat loss and degradation, climate change and problems caused by small populations.

The species' reduction correlates with the spread of a fungus called nosema bombi. The pathogen may have "spilled over" into populations like the rusty patched bumblebee from commercial bees, but the link has not been proved.

Sydney Cameron, a professor in the department of entomology at the University of Illinois at Urbana-Champaign, led a study that found declining populations of some bumblebees, including the rusty patched, were more frequently infected with the fungus.

"I was actually not a believer, it seemed too simple a story," Cameron said. "But everything just really seemed to converge strongly on that hypothesis."

Researchers don't know why the rusty patched bumblebee largely disappeared from the East but is still in pockets of the upper Midwest, Cameron said.

"I think the issue is that any factor that could help bring the species back is important," Cameron said.

The increased use of neonicotinoids, which act as insect neurotoxins, also correlates to the bee's decline. Bumblebees are susceptible to the widespread crop and seed treatment, through exposure from plants and in the soil.

Habitat loss negatively affects the bees, the assessment said, but some researchers didn't see it as the driving factor. The rusty patched once occupied native grasslands in the East and upper Midwest that scientists estimate are almost completely wiped out. The bees also need nesting sites and incoming queens require safe overwintering sites just below ground. And a major requirement is blooming flowers—the bee's food.

In the Chicago area, local efforts to encourage habitat creation are underway.

Libby Shafer, an Evanston native and graduate student at DePaul University, is interested in what's going on in our backyards and what our plants mean for the bigger picture.

"I think a lot of people don't even really realize how their yards contribute to the urban ecosystem," Shafer said. "The narrative of the rusty patched bumblebee struck me as something that might be

compelling to organize people to transform their yards."

Shafer is launching The Evanston Native Bee Initiative, a community science project in partnership with Natural Habitat Evanston. The project will be based in Evanston, but participation isn't exclusive to the north suburb. Participants are asked to assess existing plants, grow new plants and document any visiting pollinators through the iNaturalist site. Shafer will then use that data to create maps of each blooming period for the bee and see which host plants might be missing throughout the bee's lengthy season.

"One yard space can contribute but really what's most beneficial is having a network of yards," Shafer said. "The city can serve as a mosaic of habitat patches."

One group of Evanston neighbors is working to do just that, joining together to create pollinator habitat on the block with grant funds. They're trying to recruit some new participants so habitat stretches around the corner.

Sarah Abu-Absi, an Evanston resident, said she hopes the project is a way for neighbors to learn from one another.

"I think that residential properties are a crucial component of providing habitat for pollinators and being part of the fight against climate change," Abu-Absi said.

As she's learned about bees, Abu-Absi said she was surprised by how many different kinds there are—nearly 50 species of bumblebees in North America alone. So, that's cool, Abu-Absi said. "And that we can have an effect on them by what we plant in our yard."