



SCIENCE

Why Are Native Ladybugs Disappearing?



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Published Date: **September 6, 2009**

Last Edited: **April 17, 2018**



Researchers in New York are breeding colonies of ladybugs from those found by scientists in Oregon and Colorado during a year-long search.

Last year, entomologist John Losey from Cornell University first introduced the Lost Ladybug Project in an attempt to find out why the once-common native ladybug species had almost completely disappeared across the nation.

The project, which is funded by the National Science Foundation, rounds up citizen scientists, or individual volunteers who may have seen

rounds up citizen scientists, or individual volunteers who may have no scientific training, to search for ladybugs and relay photos of them to Losey and his team.

Researchers are particularly interested in the nine-spotted, two-spotted and transverse ladybugs. They are three native species whose populations have drastically dropped over the past ten years, likely due to the introduction of foreign species to control crop pests.

"Between 1999 and last year when we started the program, less than 10 individuals of the nine-spot were collected anywhere in the country," Losey said. "That used to be the most dominant species across the U.S. and Canada."

So far, there have been hundreds of citizen scientists participating in the project across the U.S and Canada that have produced thousands of photos since its launch.

However, the researchers got their breakthrough in June, when 6-year-old Alyson Yates and her mother, Kate, began sending in photos of nine-spotted ladybugs from their rural backyard in Lakeview, Oregon.

"It was really an amazing find," Losey said. "Usually, someone just finds one or two. Alyson and Kate sent in a couple one day, a few more three days later, a couple more a few days after that. It became apparent they had a population out there."

Losey then took a colleague to Oregon and came back hauling 13 nine-spotted and 30 transverse ladybugs.

"Aly [Alyson] was thrilled that people would come all the way from New York to go collecting in our yard," said her mother, Kate, who took on the project when her daughter saw an ad in the National Wildlife Federation's Ranger Rick magazine for children. "She just had a wonderful time looking for ladybugs, and we were ecstatic when we found some of the nine-spots they were looking for."

Then, Sheena Beaverson from Illinois sent in more than 200 ladybug photos while she was visiting Boulder, Colorado. That discovery resulted in an overnight shipment of 13 more nine-spotted ladybugs to the researchers.

Beaverson, who works for the Illinois State Geological Survey, likened the search for ladybugs to looking for seashells on the beach. "At first you look at every single one; later on you start looking for something rare or something special."

Since their arrival at Cornell, the tiny beetles have been occupied with reproducing within gossamer net cages lined up in Losey's lab, and feasting on green pea aphids being raised for them on fava bean plants in the university's greenhouse.

Losey intends to conduct a number of studies with the captive populations in hopes of learning why their numbers dwindled in the wild.

"The leading theory is that the decline had something to do with ladybugs that were imported," Losey said. "That's mostly based on the timing of the decline, which coincides with the introduction of the seven-spot."

"It does do a lot of good in pest control," Losey said. "The question is whether it just replaced the existing ladybugs or added to the diversity."

The U.S. Department of Agriculture released the Asian multicolored ladybug in the 1970s and '80s in order to curb the number of insects on trees, but they did not become widely established until after the natives declined, Losey said. The round Asian beetle is best known for swarming homes by the thousands on warmer days in the fall.

"Some of the things we'll look at are, do the native species take longer to develop than the imported ones? Do they not eat as much? Are they more susceptible to parasitoids or pathogens? Did they interbreed and take on the appearance of the seven-spot?" Losey said.

If someone is going to manage pests based on natural predators, they must have a certain level of understanding in regards to the life cycle and feeding habits of the predators.

"The different ladybug species forage different parts of the plant, different parts of the field, at different times of day, and seek different prey," Losey said. "If you want the most effective suppression of pests, you need a whole variety of ladybugs because then they work together and cover different parts of the environment."

Ladybugs are responsible for ridding vegetation of its harmful pests, such as aphids, mealybugs, scale, and the eggs and young larvae of European corn borers and eastern tent caterpillars.

Eventually, field studies will be conducted with the ladybugs procreating in Losey's lab. But, he says the program's objective is not

proceeding in Loscy's lab. But, he says the program's objective is not to re-establish the natives in the wild.

"It could evolve into one, but for now, we're just trying to determine why they declined and what the implications are."

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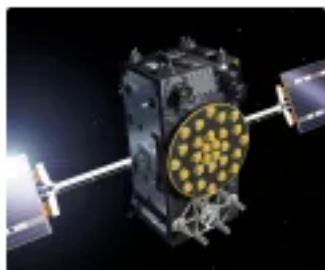
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