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Fireflies shine light on insect conservation

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By Linda Lombardi, For The Associated Press

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The fireflies on Denise Wade's property in Montgomery, Texas, are so magical that they remind her of a very different time of year. "I can say safely that there are thousands," she says, "and they're at all levels and they're blinking like Christmas lights. It's awesome."

Wade has seen the number of fireflies increase since she bought her property, but a lot of people have a different experience. In parts of the world where firefly populations have been monitored for a long time, such as Japan, their numbers are down. And scientists think the same might be true in the United States.

"You hear people saying, growing up I saw fireflies all the time, now I don't see them anymore," says Christopher Cratsley, a professor at Fitchburg State College in Massachusetts who studies them.

Are fireflies disappearing? Answering that question is part of the goal of Firefly Watch, based at the Museum of Science in Boston. In the first year of the program last year, more than 1,400 people provided their own observations from as far away from Boston as Texas, Kansas and even India.

Contributing to Firefly Watch takes just a few minutes a week, but there's a lot to learn about these creatures. Start with the fact that they're not flies, they're beetles.

Although we only see them for a short time in the summer, fireflies are surprisingly long-lived, but they spend most of their lives — up to two years — as grubs underground. The nighttime lights that we see represent only about the last two weeks of their lives.

And what's the point of that magical display, anyway?

It's all about producing more fireflies.

"They're using these flashes to attract a mate," says firefly researcher and ecologist Kristian Demary. "The males are the ones flying around flashing. Females are perched on grass and they will respond with a female species-specific response."

It's in that "species-specific response" that things can get interesting. There's not just one "firefly" but a number of different kinds. There are some behavioral differences — how high they fly, how late in the evening they become active — but they look so similar physically that their flashes, which vary in color, length, and pattern of repetition, are the main way to tell them apart. And they can use these flash patterns not only to attract a mate, but to fool each other: Some mimic the patterns of another species and then eat the hopeful mate.

"We call them femme fatales," says Cratsley. "The females of the species will flash and attract the males of other

species."

In places where firefly populations have dwindled, it seems increasing development is to blame. Some species with aquatic larvae in southeast Asia have declined by 70 percent in the last three years due to water pollution, says Demary.

Fireflies are sensitive to habitat disturbance and to moisture levels in the soil, and other human activities may affect them as well. For example, researchers suspect that artificial light, like streetlights, has an impact on their ability to find each other and mate, which may affect either total numbers or the diversity of species.

The scientists involved in Firefly Watch, which was started by Tufts University graduate student Adam South, plan to compare the data collected to a range map from the 1960s. But the goals of Firefly Watch go beyond this one insect.

"There hasn't been a lot of attention on insect conservation," says Demary. "Because fireflies are charismatic, it's one way to get people thinking about conservation of insects in general."

And there's nothing that gets people involved like realizing that a fascinating creature lives right in their backyard, which is why Denise Wade signed up.

She says of seeing the amazing number of fireflies at her home, "It's made me want to know more. It's making me crave more knowledge."

On the Net:

https://www.mos.org/fireflywatch/

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