

Living with Water: Mosquito Control

|
Mary Ann Travis mtravis@tulane.edu

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While the last outbreak of yellow fever in the United States occurred in 1905 in New Orleans, the species of mosquito that transmits yellow fever (as well as dengue, chikungunya and Zika fever viruses)—*Aedes aegypti*—is still around. *Aedes aegypti* has even been making a comeback in population in New Orleans because of hotter, drier weather, which can be associated with climate change.

But, “the danger associated with mosquitoes is not high if you don’t have a pathogen that they’re transmitting in your environment,” said Dawn Wesson, associate professor of tropical medicine in the Tulane School of Public Health and Tropical Medicine. She’s on the board of the Louisiana Mosquito Control Association, which closely monitors mosquitoes infected with the yellow fever family of viruses as well as West Nile virus, which is usually transmitted by another species of mosquito—the southern house mosquito.

In her research, Wesson is investigating ways to suppress mosquitoes through control traps to capture female mosquitoes near the end of their life cycle after they’ve ingested a few “blood meals” and when they are most likely to transmit disease, if they are infected themselves. (The *Aedes aegypti* mosquito needs meals of human blood to thrive. Hence, they bite us.)

As a practical matter, though, the primary action that an individual person can take to protect against mosquitoes breeding is to empty out standing water in containers, like coolers and saucers for potted plants, in yards. And wear mosquito repellent.

“Mosquitoes don’t exist in running water or in water that’s choppy,” said Wesson. Adding a bubbler or a few mosquito fish to fountains and frequently cleaning birdbaths also prevents mosquitoes from surviving.

Sarah Michaels, who graduated from the School of Public Health and Tropical Medicine in 1999 with a master's degree, is an entomologist for the New Orleans Mosquito Control Board. She's also a doctoral student working under Wesson's mentorship.

It's Michaels' job to spread the word to New Orleanians about the importance of emptying and removing containers of standing water. She also supervises a surveillance program that detects changes in mosquito populations and tests pools of mosquitoes for viruses.

Mosquito larvae can hatch in as little as a teaspoon of water, if left undisturbed for about a week. Items such as old tires discarded and left outside are fertile grounds for mosquito breeding, said Michaels.

Michaels has long been interested in the historical aspects of yellow fever in New Orleans and how it's shaped the city's history. "It's a fantastic place to study that," she said. "You'll still find *Aedes aegypti* mosquitoes breeding in urns in front of yellow fever victims' graves in Lafayette Cemetery No. 1."

Through an Environmental Protection Agency Urban Waters Grant, Michaels and her staff have been inspecting the city's new rain gardens to find out if there has been an increase in mosquito abundance associated with their construction. For two and a half years, they've collected data. "We haven't seen an increase in mosquitoes relative to the rain gardens," said Michaels. "They're pretty similar to the neighborhood around them."

[This story originally appeared](#) in the December 2016 issue of *Tulane* magazine. Read the full story [here](#).