

Opinion: Government won't stop disease-carrying mosquitoes

By Kenn K. Fujioka

On Sept. 2, 2011, two employees of mosquito and vector control district where I work told me they had found a mosquito – *Aedes albopictus* – that had supposedly been eradicated from Los Angeles for 10 years.

Aedes albopictus (“albos” for short) is a mosquito that keeps vector control officers up at night, especially with the attention that mosquito-borne Zika virus is garnering as it moves through Brazil, Latin America, and the Caribbean. Mosquitoes of the genus *Aedes*, including “albos,” are the ones in the U.S. capable of transmitting chikungunya, dengue, and Zika virus, all of which cause serious human diseases.

Worse, these black-striped mosquitoes are not shy about their love for humans: They prefer feeding on us and bite relentlessly during the day, enhancing the risk that they will spread viruses from the infected to the uninfected.

In 2001, *Aedes albopictus*, the “Asian tiger mosquito” arrived in California as a stowaway in shipments of popular plants marketed as “lucky bamboo.” Getting rid of that infestation took a massive effort by multiple agencies. Regulations were enacted to ensure “lucky bamboo” was no longer shipped in standing water. For the next three years, no one found *Aedes albopictus*. We surmised that Southern California’s climate was too inhospitable for *Aedes albopictus* to easily gain a foothold, and the pressure we exerted on them caused their demise.

We were very wrong.

The genetics of the mosquitoes we collected in 2011 most closely resembled those from south China, where the 2001 infestation originated. Somehow, *Aedes albopictus* had lived under the radar here for a decade. Surveillance to detect small populations of these mosquitoes is difficult, so by the time we found them in 2011, they had infested a large area.

Because of our relative success in 2001, we started fighting 2011's infestation brimming with confidence we could wipe them out by spring 2012. Famous last words. When spring came, "albos" emerged with a vengeance. Although we tried everything, *Aedes albopictus* doubled its range every year after that. We expect to find them in each of the 24 cities in our jurisdiction by the end of 2016. The drought that plagues Southern California will have little effect on *Aedes albopictus*; they hardly need any water to develop. Even without water, their eggs will remain poised for months, waiting for the next rain to fall.

Toward the end of 2014, the fight against *Aedes albopictus* took an ominous turn when *Aedes aegypti* was discovered in Commerce. Now, two of the world's most infamous vectors were present in L.A. County. *Aedes aegypti*'s common name, the "yellow fever mosquito" says it all. Its biology is similar to *Aedes albopictus*, but *Aedes aegypti* is considered the most versatile vector of all when it comes to transmitting human diseases.

2015 was a banner year for both species of *Aedes*. By its end, *Aedes aegypti* or *albopictus* could be found in 12 counties and 76 cities in California. And *Aedes* mosquitoes have made themselves quite at home in the southeastern U.S., with a range as far north as Connecticut and the Midwest, and through much of Texas.

The good news: it's not likely that a widespread epidemic like Zika in Central and South America will occur in the U.S. The viruses are not transmitted when *Aedes aegypti* and *Aedes*

albopictus stop biting during winter, and the viruses cannot live in hosts other than humans. This means chikungunya, dengue, and Zika viruses must be introduced to mosquitoes each year by infected humans.

Even though the Zika virus is getting the attention, the mosquito-borne virus that we should really worry about is the deadly West Nile virus. Unlike Zika, West Nile virus lives primarily in birds and is continuously present, ready to infect humans. Last year there were 299 cases in Los Angeles County and 22 deaths. These numbers are high—especially for a disease that doesn't get much press anymore—but there may have been as many as 7,000 cases of West Nile in Los Angeles alone last year, based on statistics from 2015 and the CDC's estimates of symptomatic illness.

Our biggest challenge will be getting people to change their behavior. No agency's budget is sufficiently large to hire enough workers to get into everyone's backyard. We must motivate residents to remove all the sources of water on their property that may produce mosquitoes.

This time, we might get lucky. Californians are not used to mosquitoes, and the ferocious daytime bites of *Aedes aegypti* and *Aedes albopictus* will interrupt our famous outdoor lifestyle—making people uncomfortable enough to take action.

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