# Expedited surveillance efforts to update distribution maps for *Aedes aegypti* and *Aedes albopictus* mosquitoes in Texas

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**Stories FROM THE Field**

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CATEGORY: **Epidemiology and Laboratory Capacity (ELC)**

The Texas Department of State Health Services leveraged partnerships with universities to expand mosquito surveillance throughout the state. The increased surveillance provided more robust information, including maps for local jurisdictions to utilize as they plan vector-borne disease prevention activities.

**Mosquito collections coordinated through this project from 2016-2018, enhanced *Stegomyia* species documentation to 115 Texas counties where information was previously lacking.**

## The "What"

Historically, Texas has experienced endemic dengue transmission in the Rio Grande Valley, particularly in the colonias, which are low-income communities along the border, often lacking basic infrastructure. In 2015-2016, concerns began to rise about potential local transmission of exotic viruses in Texas, like chikungunya and Zika viruses, as they were circulating in South and Central America and moving northward. The primary vector species for Zika, chikungunya, and dengue viruses are *Aedes aegypti* and *Aedes albopictus* (subgenus *Stegomyia*). At that time, little was known about the spatial distribution of *Stegomyia* species in Texas. In 2016, one (1) locally-acquired case of chikungunya and six (6) locally-acquired cases of Zika were reported for the first time in Texas, with an additional five (5) locally-acquired Zika cases occurring again in 2017. With these viruses circulating on both sides of the border, information was needed about the spatial distribution of vector species so that risk assessments could be determined.

In order to gain a better understanding about *Stegomyia* populations in Texas, a collaborative project was initiated between the Texas Department of State Health Services (DSHS) Arbovirus/Entomology Laboratory, the Texas DSHS Zoonosis Control Branch, and several university partners, including Texas A&M AgriLife, Texas Tech University, and the University of Texas-El Paso. DSHS developed protocols for egg collections, shipping samples, and mosquito rearing for species identification. Conference calls were organized to discuss statewide collection strategies and to prioritize counties lacking species documentation. Epidemiology and Laboratory Capacity for the Prevention and Control of Emerging Infectious Diseases (ELC) funds were used to

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support travel, egg collection traps (ovitraps), shipping costs, and mosquito rearing supplies. Mosquito collection efforts began in 2016 and continued through the end of 2018. Species information was reported to the DSHS Arbovirus Laboratory, where it was compiled, summarized, and mapped. Annually updated distribution tables and maps were sent out to collaborators, local health departments, and other interested parties at the end of each trapping season.

## The "So What"

Mosquito collections coordinated through this project from 2016-2018, enhanced *Stegomyia* species documentation (for either one or both species) to 115 Texas counties where information was previously lacking (Figure 1). Annually updated maps were utilized by state, regional, and local public health agencies to inform decisions regarding vector-borne disease surveillance and vector control strategies.
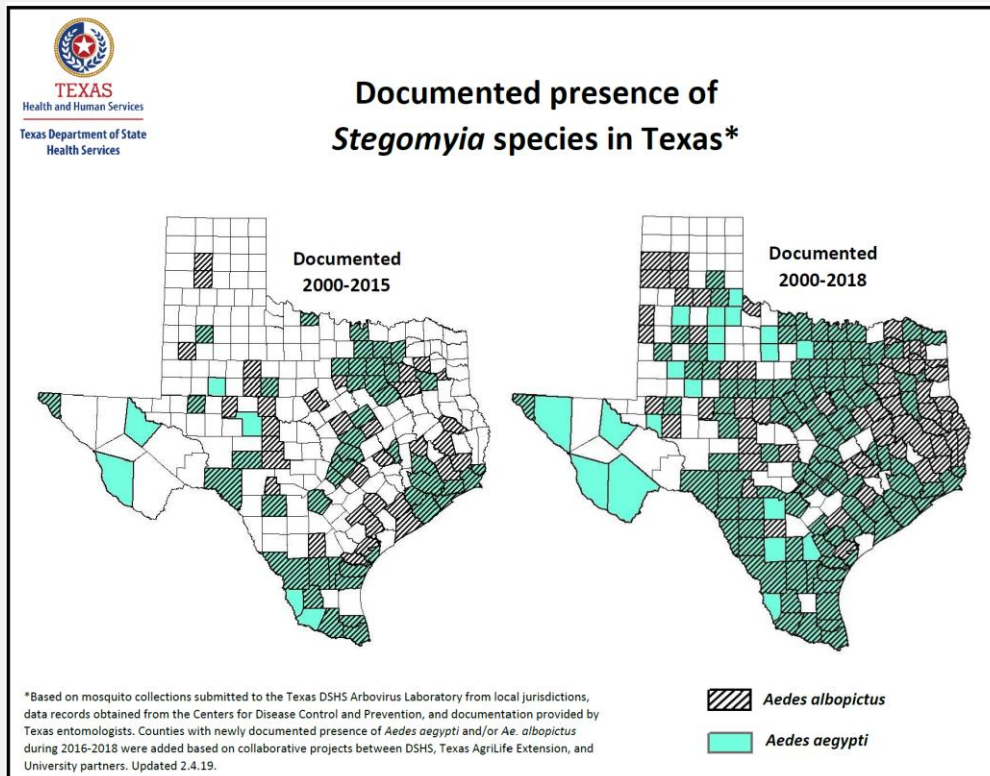


Figure 1. Documented presence of *Stegomyia* species in Texas, before and after enhanced surveillance activities.

## The "Now What"

Since Texas is such a large state, projects involving field collections can be time-consuming and expensive. Collaborating with local universities can be a rewarding and productive way to tap into local resources and skillsets. Texas DSHS was able to document mosquito species distributions in counties throughout Texas by working with university partners positioned in different regions of the state. By coordinating the project, supporting collaborators with ELC funding, and providing summary maps, DSHS increased information about important vector species distributions and shared this information with others. Local jurisdictions can use this enhanced information to make data driven decisions around vector-borne disease prevention activities.

Key contributors to this project include Sonja Swiger, Professor & Veterinary/Medical Extension Entomologist, Texas A&M AgriLife Extension.