



Construction Sites Are Excellent Breeding Grounds for Vector Mosquitoes, Researchers Find

If you don't like mosquitoes, what are some places in Miami-Dade County you should avoid? Construction sites.



Collections conducted at 11 construction sites in 2017 and 2018 found mosquitoes living and actively reproducing in large numbers in protected places where water can accumulate.

Researchers from the Public Health Sciences Department at the University of Miami Miller School of Medicine, collaborating with scientists from the Miami-Dade County Mosquito Control Division, set out to determine if urbanization – altering the natural environment to accommodate increasing human populations – was creating new places in which mosquito populations could also thrive.



Even if the buildings are still going up, the researchers found, the flying pests have already moved in. Collections conducted at 11 construction sites in 2017 and 2018 during peak mosquito season (between July and October), including areas affected by the Zika virus outbreak in 2016, found mosquitoes living and actively reproducing in large numbers in protected places where water can accumulate.

Most important, however, was that of seven species of mosquitoes found in construction sites in Miami-Dade County, 95 percent of those collected at the study sites were from two species of disease-spreading mosquitoes – *Aedes aegypti*, which is the primary vector for dengue, chikungunya, yellow fever and Zika viruses, and *Culex quinquefasciatus*, which is the primary vector of lymphatic filariasis, West Nile and Eastern Equine Encephalitis viruses.

The researchers' findings were published on December 20 in the journal *PLOS ONE*.

“Miami-Dade County is a high-risk area for vector-borne disease outbreaks. Its climate is conducive to the proliferation of mosquitoes, and its location makes it an entry point to the U.S. for people coming from areas where mosquitoes and arboviruses are endemic,” said lead author John C. Beier, Sc.D., professor of public health sciences and director of the Division of Environment & Public Health. “Our research shows that construction workers are particularly vulnerable to arbovirus transmission, as are residents of nearby neighborhoods. Controlling mosquito populations is the most effective strategy for preventing vector-borne disease outbreaks. Future studies should examine the need for improved safety guidelines for construction sites.”



Dr. Beier's Miller School co-authors were André B.B. Wilke, Ph.D., a postdoctoral associate in the Department of Public Health Sciences, and Alberto J. Caban-Martinez, D.O., Ph.D., MPH, assistant professor of public health sciences. The paper was a collaboration with Miami-Dade Mosquito Control Division and included co-authors Chalmers Vasquez and William Petrie.