Vector Hazard Report:
Pictorial Guide to CONUS Zika Virus Vectors

Information gathered from products of
The Walter Reed Biosystematics Unit (WRBU)

VectorMap
Systematic Catalogue of the Culicidae

WALTER REED BIOSYSTEMATICS UNIT
Know the vector, know the threat

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Notes on the Biology of Zika Virus Vectors

*Aedes aegypti* and *Aedes albopictus*, the major vectors of dengue, chikungunya & Zika viruses, are originally of African and Asian origin, respectively. The spread of these two species around the world in the past 50 years is well documented and facilitated by a unique life trait: their eggs can survive desiccation. This trait allows eggs laid by these species to travel undetected in receptacles like used tires, or lucky bamboo plants, which are distributed throughout the world. When these receptacles are wetted (e.g. by rain), the larva emerge and grow to adults in their new environment. In temperate or tropical environments conditions are highly suitable for populations to quickly become established, as these mosquitoes have done in Brazil and nearly every other country in North, Central and South America.

Compounding this problem is that these mosquito species are capable of ovarian viral transmission – meaning that if the mother is infected with a virus, she can pass it on to her offspring through her eggs. Each female mosquito lays 100-120 eggs, every 4-5 days (c.4-8 times in her life time of 1-3 months), and if she is infected, all her offspring emerge ready to infect the first person they bite.

Reducing the exposure of infected people to mosquitoes requires the widespread availability of rapid diagnostic tests, effective treatment and most importantly, containment of the patients. Given that there is currently no vaccine or effective treatment for Zika virus, reducing the opportunity for mosquitoes to bite infected people is critical in slowing the continued spread of the disease.

Further guidance on protecting yourself from the Zika Virus:

- CDC Guidance on Zika Virus
- CDC Dengue and Chikungunya in Our Backyard: Preventing Aedes Mosquito-Borne Diseases
- CDC Preventing Aedes Mosquito-Borne Disease
- CDC DEET Factsheet
- WHO Zika Virus Background
- WHO Microcephaly/Zika virus
- U.S. EPA Controlling Mosquitoes at the Larval Stage
Mosquito Body Parts

Click on a label to the left of the diagram to view side-by-side photos of *Aedes aegypti* and *Aedes albopictus*. Note: If you do not have access to a microscope, the thorax (specifically scutum) can be viewed with a hand lens and should be enough to differentiate these species.
Aedes (Stg.) aegypti (Linnaeus, 1762)

**Bionomics:**
In association with man, *Ae. aegypti* will use any and all natural and artificial containers as larval breeding sites. Away from urban areas the species tends to favor pools in river beds, tree stumps, tree holes and natural containers. Females are primarily day biters and readily enter buildings to feed. They have also been taken in lesser numbers at night (Christophers 1960).

**Medical Importance:**
Primary vector of Yellow Fever, Dengue Fever, Chikungunya Virus and Zika Virus (Christophers 1960; ).

[WRBU Mosquito Catalog Species Page](#)

**Distribution:**

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**Bionomics:**
Larval *Ae. albopictus* are found in natural containers, including treeholes, bamboo stumps, coconut shells, rockholes, palm fronds, and leaf axils. They are also found in all varieties of artificial containers and will breed indoors. Females readily bite man (Huang 1972).

**Medical Importance:**
Vector of dengue and yellow fever in the wild. Under laboratory conditions: bird malarias, Eastern and Western equine encephalitis, West Nile, Zika, Chikungunya and Japanese encephalitis viruses (Huang 1972).

[WRBU Mosquito Catalog Species Page]

**Distribution:**

[Map of the distribution of Aedes (Stg.) albopictus (Skuse, 1894)]
Ae. aegypti
Head: dorsal view

Ae. albopictus
Head: dorsal view

Ae. aegypti
Head: lateral view

Ae. albopictus
Head: lateral view
Thorax

Ae. aegypti
Thorax: dorsal view

Ae. aegypti
Thorax: lateral view

Ae. albopictus
Thorax: dorsal view

Ae. albopictus
Thorax: lateral view
Abdomen

Ae. Aegypti Abdomen: dorsal view

Ae. albopictus Abdomen: dorsal view

Ae. aegypti Abdomen: lateral view

Ae. albopictus Abdomen: lateral view
Wings

*Ae. aegypti* Wing: dorsal view

*Ae. albopictus* Wing: dorsal view
Legs

Ae. aegypti: Foreleg

Ae. albopictus Foreleg

Ae. aegypti Midleg

Ae. albopictus Midleg

Ae. aegypti Hindleg

Ae. albopictus Hindleg

Ae. aegypti Hindtarsi

Ae. albopictus Hindtarsi

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## Taxonomic Keys

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# Zika Virus Background

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# Insecticide Resistance of Zika Virus Vectors

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The Walter Reed Biosystematics Unit is part of the Walter Reed Army Institute of Research and is based at the Smithsonian Institution Museum Support Center. To access taxonomic keys, the Systematic Catalog of Culicidae or to learn more about WRBU visit www.wrbu.org.

VectorMap is only as good as the data you provide. If you have collection records, models or pathogen testing results please contact the VectorMap team to learn how to contribute data at mosquitomap@si.edu.

The published material reflects the views of the authors and should not be construed to represent those of the Department of the Army or the Department of Defense.