

Journal of the Arkansas Academy of Science

Volume 64

Article 31

2010

Presence of the Asian Tiger Mosquito (*Aedes albopictus*) in Northwest Arkansas

J. Wilson

NorthWest Arkansas Community College

David H. Jamieson

NorthWest Arkansas Community College, djamieson@nwacc.edu

Follow this and additional works at: <http://scholarworks.uark.edu/jaas>

 Part of the [Entomology Commons](#)

Recommended Citation

Wilson, J. and Jamieson, David H. (2010) "Presence of the Asian Tiger Mosquito (*Aedes albopictus*) in Northwest Arkansas," *Journal of the Arkansas Academy of Science*: Vol. 64 , Article 31.

Available at: <http://scholarworks.uark.edu/jaas/vol64/iss1/31>

This article is available for use under the Creative Commons license: Attribution-NoDerivatives 4.0 International (CC BY-ND 4.0). Users are able to read, download, copy, print, distribute, search, link to the full texts of these articles, or use them for any other lawful purpose, without asking prior permission from the publisher or the author.

This General Note is brought to you for free and open access by ScholarWorks@UARK. It has been accepted for inclusion in Journal of the Arkansas Academy of Science by an authorized editor of ScholarWorks@UARK. For more information, please contact scholar@uark.edu.

Presence of the Asian Tiger Mosquito (*Aedes albopictus*) in Northwest Arkansas

J. Wilson and D. Jamieson¹

NorthWest Arkansas Community College, Biology Department, One College Drive, Bentonville, AR 72712

¹Correspondence: djamieson@nwacc.edu

The Asian tiger mosquito, *Aedes albopictus* (Skuse), was first documented in the United States in 1985 (Sprenger and Wuithiranyagool 1986). In Asia, adult female *A. albopictus* historically utilized the tree hole habitat as the principle site for oviposition and subsequent larval development. Like other tree hole species, it has quickly adapted to artificial containers readily available in the suburban environment. It is believed to have migrated from Asia to North America on board ships containing automobile tires. Following its documented arrival in Houston, Texas, the interstate shipment of tires has resulted in it being well-established in several states in the Eastern U.S., including Arkansas (Moore et al. 1988) (Jamieson et al. 1994) (Jamieson and Olson 1995). According to Pfitzner et al., (1998), *A. albopictus* is locally abundant and can restrict outdoor human activity within cities located in the Ozarks Mountains Physiographic Region, an area that historically lacked any such problem with pestiferous mosquitoes. In addition, its ability to vector several viral diseases of humans, including dengue fever and encephalitis, has infectious disease experts greatly concerned about its colonization of North America (Hawley 1988, Savage et al. 1994).

In the fall of 2008 and 2009, 35 students enrolled in freshman biology courses at NorthWest Arkansas Community College participated in a biting/probing mosquito survey to determine if the Asian tiger mosquito was the principal pest mosquito in Northwest Arkansas. Sampling occurred from August 30 to October 9 in 2008 and August 25 to October 17 of 2009. Sampling mimicked the methodology of Pfitzner et al., (1998), where students sat in a shaded area on their property for 20 minutes and collected any adult female mosquito attempting to take blood using a wide-mouthed vial. Students were instructed to capture the mosquito while it was probing and before it actually started taking a blood meal. All collections were done within the two hour period before dusk with the intent of maximizing the chances of capturing diurnal, crepuscular, and nocturnal species. Any mosquito captured was killed by being placed in a freezer overnight and subsequently identified using the

keys of Darsie and Ward (2005). Collection sites were located in twelve different cities all within Benton and Washington counties. Twenty-two of the thirty-five (63%) collection sites were within the city limits of Fayetteville, Bentonville, Springdale, and Rogers.

A total of 110 mosquitoes representing four genera and seven species was collected. *A. albopictus* represented 79.1% (87 of 110) of mosquitoes collected during the study (Table 1). Two mosquitoes belonging to the genus *Culex* were not identifiable to the species level.

Table 1. Species Collected

Species	Percentage of Total
<i>Aedes albopictus</i>	79.1
<i>Culex pipiens/quinqüefasciatus</i>	6.4
<i>Aedes vexans</i>	4.5
<i>Ochleratatus trivitattus</i>	4.5
<i>Psorophora ferox</i>	1.8
<i>Psorophora ciliata</i>	0.9
<i>Psorophora cyanescens</i>	0.9

The second most frequently encountered species (*Culex pipiens/quinqüefasciatus*) only represented 6.4% of the total. Though not abundant during the study, the presence of *C. pipiens/quinqüefasciatus* is significant due to its importance as a vector of West Nile fever (Kilpatrick et al. 2005). It should be noted that the keys used did not provide characters for distinguishing adult female *C. pipiens* and *C. quinqüefasciatus*. Northwest Arkansas is a region where the ranges of the two species are believed to overlap (Darsie and Ward 2005). The results of this study suggest *A. albopictus* is the principle pest mosquito in this region. In many neighborhoods, it was the only mosquito encountered. Due to the presence of the Asian tiger mosquito, there is now a new public health dilemma in the Ozark Mountains of Arkansas.

Literature Cited

- Darsie RF** and **RA Ward** (2005). Identification and geographical distribution of the mosquitoes of North America, North of Mexico. University Press of Florida. Gainesville, FL., 384 pp.
- Hawley WA.** (1988). The biology of *Aedes albopictus*. Journal of the American Mosquito Control Association. 4:2-39.
- Jamieson DH** and **LA Olson.** 1995. Recent establishment of the Asian tiger mosquito (*Aedes albopictus*) in Independence County, Arkansas. Proceedings of the Arkansas Academy of Science 49:80-1.
- Jamieson DH, LA Olson** and **JD Wilhide.** 1994. A larval mosquito survey in northeastern Arkansas including a new record for *Aedes albopictus*. Journal of the American Mosquito Control Association. 10:236-9.
- Kilpatrick MA, LD Kramer, SR Campbell, EO Alleyne, AP Dobson,** and **P Daszak.** 2005. West Nile virus risk assessment and the bridge vector paradigm. Centers for Disease Control and Prevention. 3:425-9.
- Moore CG, DB Francy, DA Eliason, TP Month.** 1988. *Aedes albopictus* in the United States: rapid spread of a potential disease vector. Journal of the American Mosquito Control Association. 4:356-61.
- Pfitzner S, DH Jamieson** and **LA Olson.** 1998. The colonization of an Ozark Mountain city by the Asian tiger mosquito (*Aedes albopictus*). Proceedings of the Arkansas Academy of Science 52:13.
- Savage HM, GC Smith, JC Mitchell, RG McLean** and **MV Meish.** 1994. Vector competence of *Aedes albopictus* from Pine Bluff, Arkansas for a St. Louis encephalitis virus strain isolated during the 1991 epidemic. Journal of the American Mosquito Control Association. 10:501-6.
- Sprenger D** and **T Wuithiranyagool.** The discovery and distribution of *Aedes albopictus* in Harris County, Texas. Journal of the American Mosquito Control Association. 2:217-9.