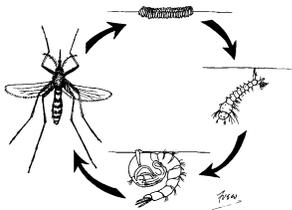


## Discarded Tires and Mosquitoes: A Quality of Life and Public Health Perspective

Discarded tires are not only unsightly, but can be unhealthy, providing ample habitat for mosquitoes and other vermin. Of the nearly 3,000 species of mosquitoes worldwide, 176 species are known to occur in the United States. Currently, Connecticut has 52 mosquito species; two of these are exotic (non-native) mosquitoes alleged to have been imported into the U.S. in shipments of used tires.



Mosquitoes have a life cycle known as “complete metamorphosis,” that is, they have a distinct egg, larvae, pupae and adult stage. They can be very broadly categorized into two groups: those that lay clusters of “egg rafts” that float on a stagnant water surface and those that lay individual eggs on a moist surface such as mud, leaf litter or the inside of a tree hole or used tire casing. When the eggs of these “floodwater” mosquitoes are flooded by melting snow or heavy rain they hatch and grow through their aquatic larval and pupal stages before they emerge as adults. This process can take as little as 7-10 days during the summer. Mosquitoes can be found in almost any natural and artificial still water environment. Tire casings very readily mimic natural tree cavities and provide a very effective incubator for mosquito larvae, free from predators.

The two species of imported mosquitoes, *Ochlerotatus japonicus* (the Asian bush mosquito) and *Aedes albopictus* (the Asian tiger mosquito) are suspected of having been imported into the U.S. in shipments of tires and quickly expanding their range through the used tire trade. Both are native to Japan, Korea and parts of Asia. These species are aggressive mammal-biters and have been shown to displace native



mosquito species from their natural habitats including rock pools, tree holes and artificial containers such as scrap tires. *Ae. albopictus* was first discovered in the U.S. in Texas in 1985 and has spread its range throughout the eastern half of the country as far north as Maine. The Asian Tiger is now considered the number one pest species in several states and is also a very effective vector of West Nile virus, malaria, dengue and dengue hemorrhagic fever. More recently Chikungunya virus, another debilitating mosquito-borne disease, was discovered in

2013 for the first time in the western hemisphere on St. Martin in the Caribbean and has since spread throughout the region resulting in over 738,000 human cases. Several cases of Chikungunya have been documented in Connecticut from travelers returning from the Caribbean, demonstrating how quickly and easily certain vector-borne diseases can be spread. In addition, the long-term effects of climate change will likely increase the northward expansion of some of our more southern mosquito species, some being effective vectors of disease.

The Connecticut Mosquito Management Program (MMP) is a multi-agency collaboration of the CT DEEP, CT Agricultural Experiment Station (CAES), Department of Public Health (DPH), Department of Agriculture (DAG) and the University of Connecticut (UConn). The MMP is founded on surveillance and

testing of mosquito populations, monitoring of human disease cases, educating the public on source reduction and personal protective measures against mosquito bites, focused water management and wetland rehabilitation, and the judicious use of registered mosquito pesticides. The Connecticut General Statutes (Sec's. 22a-45b and 19a-213) allow for the elimination or prevention of mosquitoes and natural or man-made mosquito-breeding habitats, as is necessary to abate a threat of disease to humans or animals from insect vectors.

In 1999, and again in 2005, a survey was conducted of abandoned tire piles and tire facilities around the state documenting the presence and extent of *Och. japonicus* and *Ae. albopictus*. A number of scrap yards, abandoned tire piles and collection facilities were found to be producing mosquitoes. Often, the facilities piled uncovered used tires for a period of time before shipping them to other locations,



demonstrating how frequently and easily scrap tires (and the mosquito eggs they may be harboring) can be moved from place to place. Ideally, discarded tires should be disposed of promptly and properly. At a minimum, tires should be stored under cover (roof, awning, trailer, storage container) or stacked and covered to prevent rainwater from entering. If used, for example, on a farm to hold down tarps, tires should be cut in half lengthwise or have holes drilled in them to prevent rainwater from accumulating.

Perhaps not readily apparent, discarded tires do play a role in public health as a source of mosquitoes, and their importation and interstate movement can have significant impacts on the health, ecology and economy of our state and country.

#### References:

Connecticut Mosquito Management Program: [www.ct.gov/mosquito](http://www.ct.gov/mosquito)

American Mosquito Control Association: [www.mosquito.org](http://www.mosquito.org)

Northeastern Mosquito Control Association: [www.nmca.org](http://www.nmca.org)

National Centers for Disease Control and Prevention: [www.cdc.gov](http://www.cdc.gov)

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