

## Mosquitoes: More than a nuisance...



**Yellow fever mosquito – *Aedes aegypti***  
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**Asian Tiger Mosquito - *Aedes albopictus***  
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### Tiny but Powerful...

Despite its tiny size, the mosquito is one of the most powerful insects on the planet—at least as far as human beings are concerned. Although the power they hold over us is not sheer strength, their ability to vector some serious diseases has caused their very existence in some cases, to be a threat to human populations. In this pest press we'll be discussing the effect of mosquitoes on history, and present control options.

Some of the diseases that mosquitoes vector include: Dengue fever, yellow fever, malaria, rift valley fever, and a number of encephalitis diseases including West Nile virus and Western equine encephalitis.

### Mosquitoes and Diseases

The first recognized case of yellow fever in the new world was reported in 1648. It was thought to have been brought by ships carrying slaves from West Africa. The last major outbreak in the United States was in New Orleans in 1905. Over 3,000 cases were reported and there were 452 deaths. A vaccine was created in the 1930's which has drastically reduced the impact of this disease in the U.S. but it continues to be a problem in other parts of the world where vaccine use is not practiced routinely.

Malaria is an infectious disease caused by protozoan parasites. It is spread by female mosquitoes in the genus *Anopheles*. Females bite an infected person and ingest their blood. The next time they feed, some of the parasites are injected into the person that they are feeding upon. Each year there are between 350-500 million cases of Malaria, killing 1-3 million people. It is most prevalent in tropical and sub-tropical areas. Currently there is no vaccine that effectively protects against the disease.

More recently, the number of cases of West Nile Neuroinvasive Disease (WNNND) in hurricane Katrina damaged parts of Louisiana and Mississippi showed significant increases in the three weeks after the storm passed through. This was to be expected since mosquitoes breed and lay eggs in standing water. The number of cases went back down after the third week, most likely because aerial pesticides were applied to control the mosquitoes.

## Mosquito Life Cycles

Although there are many species of mosquitoes in the world, they have several shared similarities in their life cycles. First of all, only female mosquitoes bite and feed on humans and other mammals. Thus, only females vector diseases since this happens by feeding on infected individuals and passing pathogens to uninfected individuals. Males may suck plant juices or they may not feed at all as adults. This is because for females to be able to produce eggs, they require the nutrients that they get from blood. Eggs may be laid singly or attached to each other in masses, but they all need water as a critical element in their development. The eggs need water to hatch and the larvae are commonly called “wrigglers” because they wriggle up and down in the water. Because of this need, standing water is a great attractant for mosquitoes.

## Control and Management Options

In areas where mosquitoes are thought to be a serious public health threat or populations are becoming a problem (too big), state governments may mandate mosquito control agencies to deal with mosquito populations. This may consist of treating bodies of water with chemicals that kill the larvae or spraying chemicals to kill the adults. However, in areas where mosquito programs aren't in effect, there are many non-chemical things that can be done to reduce mosquito populations and their effect on humans. Below is a list of non-chemical strategies that school personnel and homeowners can do to reduce mosquito populations and prevent problems:

1. Eliminate standing water on the property! Without water, mosquito life cycles can't be completed.
2. Dispose of debris on the property to eliminate harborage.
3. Keep vegetation around structures short.
4. Replace any broken screens and ensure that they fit properly over windows.
5. Keep gutters cleaned out to eliminate harborage.

## School Impacts

Mosquitoes pose a health risk in that they vector diseases and their bites cause allergic responses in certain individuals. For these reasons, populations should be kept in check around schools. The preceding list of control management options are safe, easy and appropriate options for managing mosquito populations around children and youth.



**Mosquito larvae**

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