

The Asian Tiger Mosquito

Many mosquito species exist in Prince William County, each with its own unique behavior and ecology. **Most of our mosquito complaints in the summer months are the result of the Asian Tiger mosquito**, an invasive insect that has conquered most of the East Coast. These mosquitoes reproduce in **artificial containers** and are very difficult to control.

SCIENTIFIC NAME: *Aedes albopictus*

DISTINGUISHING TRAITS: Small mosquitoes with black bodies and distinctive white banding.

BEHAVIOR: Aggressive; tend to bite during the day. Prefer to bite people. Reproduce in artificial containers around the house. Do not fly far from where they reproduce (less than 1/4 mile).

HISTORY: Invasive species; likely imported to the United States in shipping containers or tires in the mid 80's. Very abundant throughout much of the eastern and southern US.

DISEASE TRANSMISSION: Potential to transmit West Nile Virus to people and dog heartworm to pets. Potential Dengue fever and Chikungunya virus vector.

PREFERRED HABITAT: Artificial containers; i.e., manmade containers that hold water, including drain pipes, gutters, buckets, etc.

CONTROL: Extremely difficult to control. Can use almost anything that holds water as a larval habitat. Adult spraying is ineffective at controlling populations.



Adult female Asian Tiger mosquito

What is an artificial container?

Asian Tiger Mosquitoes can use **almost anything that holds standing water** as a larval habitat, including objects which may not fall under the traditional definition of container. **You must be creative to find all sources of mosquito larvae.** Here are some 'containers' to look for:

- Birdbaths
- Clogged rain gutters
- Black corrugated drain pipes
- French drains
- Children's toys
- Buckets
- Plant saucers
- Tires
- Tire ruts
- Tarps

What can you do to control mosquitoes?

Empty any containers you find at least once a week. Treat standing water you can't empty with **mosquito dunks** according to label instructions.

Black corrugated drain pipes can hold a considerable amount of water. Replace old piping, even if buried, with newer, perforated versions, or cover the entrances and exits of the pipe with screening material or pantyhose.



Examples of artificial containers that Asian Tiger mosquitoes will use as a larval habitat



Photo Credits:
Adult female Asian Tiger mosquito: Susan Ellis
Adult female Culex: Ary Farajollahi
American robin: Richard Floyd,
Creative Ideas, LLC
Repellents: Whitney Cranshaw,
Colorado St University
All others: Rachel Kempf & MFPM

Prince William County
Department of Public Works
Construction & Operations Division
Mosquito & Forest Pest
Management Branch

14879 Dumfries Rd
Manassas, VA 22012

703-792-6279

mfpm@pwcgov.org
www.pwcva.gov/mfpm



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On the cover: *The invasive Asian Tiger mosquito is an aggressive daytime biter*
Cover photo courtesy of James
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A guide to
**Mosquito
Control**
in Prince William County

Prince William County, Virginia
Mosquito & Forest Pest Management
703.792.6279
www.pwcva.gov/mfpm

West Nile Virus FAQ



Culex mosquitoes are the primary vector for West Nile Virus



Gravid traps capture adult female Culex mosquitoes



Birds are the primary reservoir for West Nile Virus

What is West Nile Virus (WNV)? WNV is an arthropod borne virus (arbovirus) most commonly transmitted by the bite of infected mosquitoes. WNV infection can lead to serious febrile and neuroinvasive symptoms. We are at risk for contracting it in Prince William County.

How is it transmitted? Mosquitoes become infected when they feed on infected birds. Infected mosquitoes then spread the virus to humans and other animals.

What are the symptoms? Most (70-80%) people infected by WNV do not develop any symptoms. Around 1 in 5 people will develop a flu-like illness, with fever, headache, body aches, vomiting, diarrhea, or rash. Less than 1% of people will develop a serious neuroinvasive disease, which may cause encephalitis or meningitis and require immediate intervention.

Who is at risk? Anyone can contract WNV, but it is especially dangerous for the young and old, as well as those who are immunocompromised. Most cases occur from June through September.

What can I do to protect myself from WNV? The best defense is to avoid being bitten. Eliminate larval mosquito habitats around your home, wear mosquito repellent when outside, and wear long sleeves and pants. Visit your physician if you think you are exhibiting WNV infection symptoms.

What does the county do? At MFPM, we monitor adult mosquito populations for WNV and implement extensive larval and adult control in WNV hotspots.

Protect Yourself

If you have eliminated larval mosquito habitats around the home but are still getting bitten, the best course of action is to use repellents. Here are some tips on using insect repellents:

The CDC and FDA recommend using an EPA approved repellent. This means the repellent and its active ingredient are not expected to harm human health or the environment. Some active ingredients include:

DEET	IR3535
Picaridin	Oil of lemon eucalyptus

Make sure to read repellent labels for information on how to apply individual products.

Do not apply DEET based products to children younger than two months, or oil of lemon eucalyptus to those younger than three years. Avoid applying to children's hands, around their eyes, or to irritated skin.

Insect repellent and sunscreen can be combined. Apply sunscreen first, followed by the chosen repellent.



What we do at Mosquito & Forest Pest Management (MFPM)

Our mission is to reduce populations of mosquitoes and monitor West Nile Virus activity throughout the county. We do this through:

Monitoring: Field Biologists check thousands of areas of standing water throughout the county to determine whether mosquito larvae are present.

Larviciding: When field biologists find active mosquito breeding sites, they will control the population by applying a larvicide, which targets mosquito larvae. Most larvicides used consist of EPA approved microbial insecticides which have very little impact on humans, pets, or the environment.

Trapping: A variety of traps are used to monitor mosquito populations across the County.

Testing: Adult mosquitoes from our traps are counted, identified to species, and PCR tested for West Nile Virus. This helps us concentrate our control efforts in areas where there is known virus activity.

Outreach: We set up displays at many events, support youth educational programs, publish literature, target neighborhood outreach in areas where there are significant mosquito infestations, and conduct site visits upon request.

Spraying: If adult mosquito populations are great enough or there is high West Nile virus activity in an area, we may use chemicals that control the adult mosquitoes (adulticide), with a truck-mounted ULV sprayer.

For more information on mosquito control, visit www.pwcva.gov/mfpm, or call (703) 792-6279.



A field biologist searches for larvae



WALS sprayer applying larvicide

WALS

(Wide Area Larvicide Spray) Mosquito & Forest Pest Management also uses a truck-mounted WALS sprayer for larval mosquito control.

While it looks similar to the ULV adulticide sprayers, this machine applies a safe, microbial larvicide that targets mosquito larvae. It can quickly treat an entire neighborhood, killing larvae, particularly those in cryptic and hard to reach breeding habitats.

Life Cycle of a Mosquito



Adult female mosquitoes will seek out a host for a bloodmeal, using carbon dioxide and chemicals in sweat as a guide. They draw blood using a sucking mouthpart called a **proboscis**.



The nutrients in the bloodmeal are used to develop **eggs**. The female mosquito will oviposit (lay her eggs) either on the surface of standing water, or in dry habitat that will later flood.

Keep in mind:
ALL mosquitoes MUST have standing water to develop from egg to adult!



Larvae hatch from the eggs and develop in water in as little as two days. They go through four phases of development, called instars. They eat organic matter and bacteria, and breathe air through a tube called a **siphon**.



Pupae are the final stage. Larvae stop feeding and metamorphosize into adults within a pupal case, much like a butterfly transforms within a chrysalis.