

# Mosquitoes, West Nile Virus and Repellents

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This information is available in  
alternative formats.



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Photos Courtesy of James Gathany (CDC),  
CDC Image Library, Texas A&M University,  
and MVCAC



# DEFEND YOUR YARD

## Things You Can Do

### Every Week

- Tip and toss water from free-standing containers such as flowerpot saucers, watering cans and buckets.
- Clean bird baths and change the water.
- Empty water that collects in folds of tarps used to cover woodpiles, boats, etc.
- Position corrugated drain pipes to ensure drainage or dump out the water.

### Once a Month

- Apply a larvicide (an insecticide applied to water to kill mosquito larvae), such as Mosquito Dunks®, to standing water that cannot be tipped, tossed or drained.

### Organize a Neighborhood Clean-up

- This is the most effective way to control mosquitoes in your area.

### As Necessary

- Clean leaves and debris from roof gutters.
- Recycle old tires.
- Clear debris to allow water to flow freely from drainage ditches and culverts.
- Filter or aerate ornamental ponds using a circulation pump, or stock the pond with fish.
- Check window and door screens and repair as needed to ensure that mosquitoes cannot enter.

## Applying an Insecticide

- Permethrin is an insecticide that kills mosquitoes.
- Applying a permethrin barrier spray to your yard will provide temporary relief from biting adult mosquitoes.
- Permethrin has low human toxicity and is readily available in garden centers and hardware stores.
- When looking for permethrin products, make sure to check the labeling—permethrin is the name of the active ingredient, not the product brand name.
- Apply permethrin to ivy, shrubs, trees, ornamental grasses and to any other plants where mosquitoes are resting.
- Permethrin will not harm your garden plants.
- Treatment will last two to three weeks, depending on rain fall.
- Reapply as needed depending on mosquito presence and annoyance.
- Always read and follow the label instructions before applying insecticides.



## WHAT WE DO



The Health Department's Disease Carrying Insects Program (DCIP) works to keep you safe by monitoring mosquito populations for West Nile virus.

Pro-active mosquito control treatments are made across the County in an effort to reduce the number of mosquitoes that are known to transmit WNV.

The Health Department knows that one of the best ways to protect the public's health is through education. The DCIP has a multi-faceted education and outreach program that informs the public about insects that carry disease and how to best protect yourself against those insects. Visit our Web page at [www.fairfaxcounty.gov/fightthebite](http://www.fairfaxcounty.gov/fightthebite).

The DCIP also investigates complaints about mosquitoes around the home and provides advice about controlling mosquitoes. Call 703-246-8931.



**Fairfax County Health Department**  
**10777 Main Street, Fairfax, VA 22030**





# ASIAN TIGER MOSQUITOES



*Photo Courtesy of Sean McCann*

## What are they?

Asian Tiger mosquitoes are black mosquitoes with striking white markings on the body and legs. They are very aggressive, daytime biters.

## Where are they found?

Asian Tiger mosquitoes lay their eggs in artificial containers that hold water for several days. Tires, buckets, flowerpots and corrugated drain pipes are just a few of their preferred breeding sites. Adults rest where it is cool and humid especially in and around plants like ivy and azaleas.

## Are they a health risk?

These mosquitoes are not normally associated with West Nile virus transmission. They are our County's biggest nuisance mosquito and can make spending time in your yard difficult if you don't keep your yard free of standing water.

## Did You Know?

Most mosquitoes are poor fliers. If mosquitoes are biting you at home, they are probably breeding around your yard. Check your yard periodically for containers that may contain standing water and eliminate their breeding sites. Mosquito larvae only need a few tablespoons of water to survive!

Make sure corrugated drain pipes are placed so that they do not hold water. If above ground, empty them once a week. Otherwise, place a Mosquito Dunk® inside the pipe to prevent mosquitoes from breeding. Replace the dunks once a month during mosquito season. Use a piece of string to secure the dunk in the pipe or gutter to prevent it from being washed away.



# CULEX MOSQUITOES



Photo Courtesy of Sean McCann

## What are they?

*Culex* mosquitoes are small brown mosquitoes that feed primarily on birds, (and sometimes on mammals) from dusk until dawn.

## Where are they found?

They prefer to breed in stagnant, nutrient-rich water like catch basins (storm drains) and clogged rain gutters. During the day they spend time in trees, bushes and tall grass.

## Are they a health risk?

Yes, this type of mosquito can transmit West Nile virus. Even though *Culex* mosquitoes prefer to feed on birds, they will bite humans and other mammals, which can become sick if bitten by an infected mosquito.

## Did You Know?

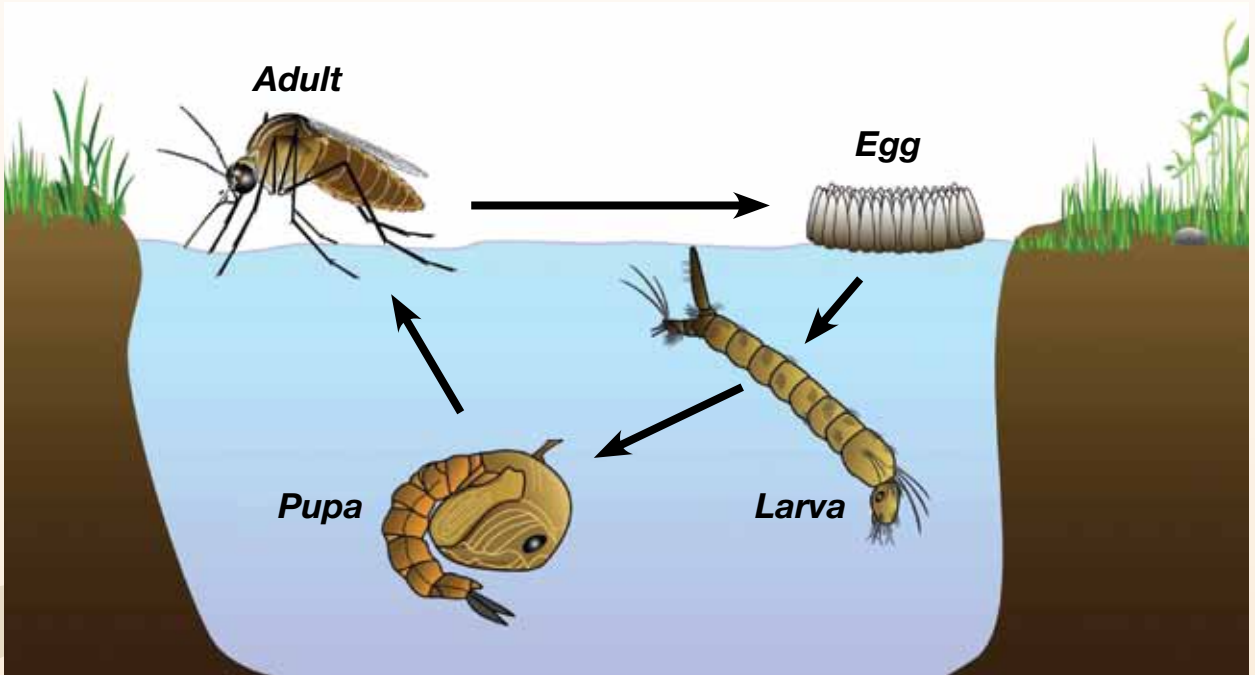
These mosquitoes are not as aggressive as some of the other species, so you may not notice them biting you – another good reason to wear an insect repellent.

The Fairfax County Health Department has a pro-active catch basin treatment program to reduce the number of *Culex* mosquitoes. Catch basins are treated with larvicide during the mosquito breeding season. Do not dump yard waste or debris in catch basins as this can impede the flow of water and create mosquito breeding habitats.












# MOSQUITO LIFE CYCLE



*Courtesy of MVCAC*

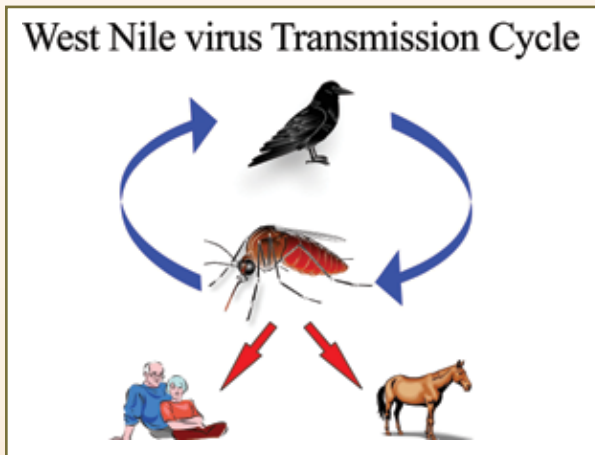
-  There are four stages in the life of a mosquito: egg, larva, pupa and adult.
-  Mosquito eggs are laid so that they hatch in water.
-  A larva emerges from the egg and feeds and grows in the water for about a week.
-  The larva then turns into a pupa, which is also found in water, but does not feed.
-  After about two days, the adult mosquito, which has developed inside the pupa, will emerge into the familiar flying form.
-  There are both male and female mosquitoes, but only the female bites because she needs the blood to provide nutrients for her eggs.
-  Female mosquitoes will lay 200-300 eggs each time they have a blood meal. She may lay eggs three or four times during the month that she is alive.

# WEST NILE VIRUS



## What is West Nile Virus?

West Nile virus (WNV) is a virus that is transmitted to people by the bite of an infected mosquito.



*Courtesy of MVCAC*

## The West Nile Virus Transmission Cycle

- The natural transmission cycle of West Nile virus is between a few types of birds and some mosquitoes.
  - A bird infected with WNV is bitten by a mosquito.
  - The mosquito picks up the virus from the bird and, after about a week, the mosquito can transmit the virus.
  - The infected mosquito will then feed on an uninfected bird and transmit the virus to the bird.
- Sometimes the infected mosquito will feed on humans or horses which can get sick or die from the infection.

## Who is at Risk for West Nile Virus?

While everyone is equally susceptible to West Nile virus, people over the age of 50 are at greatest risk for developing more severe forms of the disease. No vaccine against WNV is available for people.

## What are the Signs and Symptoms of West Nile Virus?

Symptoms generally appear three to fifteen days after being bitten by an infected mosquito.

- **SERIOUS SYMPTOMS in a few people:**  
About 1 in 150 people infected with West Nile virus will develop severe illness. This may include: high fever, headache, neck stiffness, stupor, disorientation, tremors, convulsions, muscle weakness, vision loss, numbness, paralysis, or coma. These symptoms may last several weeks and neurological effects may be permanent. West Nile virus infections can be fatal.
- **MILDER SYMPTOMS in some people:**  
Up to 20 percent of people infected with West Nile virus develop West Nile fever. The symptoms may include: fever, headache, body aches, nausea, vomiting and sometimes swollen lymph glands or a skin rash on the chest, stomach and back. Symptoms may last a few days to several weeks.
- **NO SYMPTOMS in most people:**  
Approximately 80 percent of people who are infected with West Nile virus will not show any symptoms at all.



## TYPES OF REPELLENT




	DEET	Picaridin	Oil of Lemon Eucalyptus	IR3535
Repels Mosquitoes	Yes	Yes	Yes	Yes
Repels Ticks	Yes	Maybe	Maybe	Maybe
Hours of Protection (25% formula)	5	5	4	3
Use on Children	Over 2 months	N/A	Over 3 years	Over 6 months
CDC* Recommended	Yes	Yes	Yes	Yes

\*Centers for Disease Control and Prevention



Photo Courtesy of R. Castañeda

### When applying repellent:

-  Spray repellent on your hands and rub onto exposed areas.
-  Avoid the eyes and mouth and use sparingly around the ears.
-  Keep repellents out of reach of children.
-  **DO NOT** spray the face.
-  **DO NOT** apply repellent to children's hands, because children put their hands in their mouths.
-  **DO NOT** allow children to apply repellent by themselves; have an adult do it for them.
-  Always read and follow label instructions.