

# Mosquito Control:

## What state and local mosquito control programs do



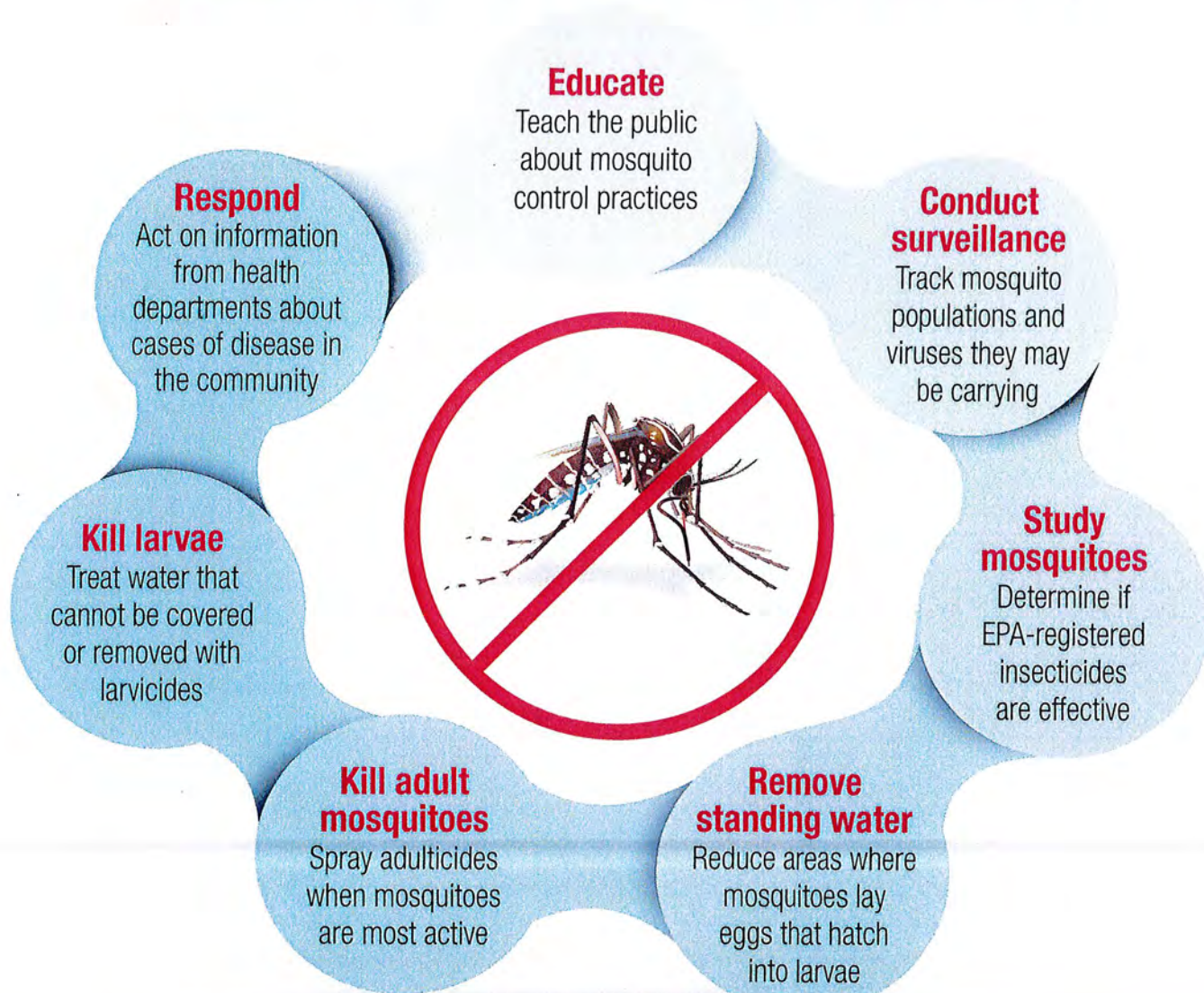
### Why is local mosquito control important?

Some mosquitoes can spread viruses like Zika, West Nile, and dengue. Other mosquitoes bother people, but don't spread viruses. Mosquito control activities reduce all types of mosquitoes.

### Who conducts mosquito control?

Mosquito control districts or state and local government departments work to control mosquitoes.

## What do local mosquito control programs do?

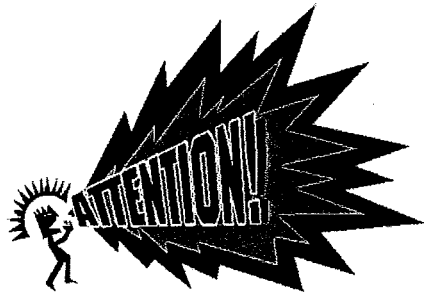


## Mosquito Control: You Have Options.

Learn more: <http://www.cdc.gov/zika/prevention/controlling-mosquitoes-at-home.html>



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# These are Mosquito Traps

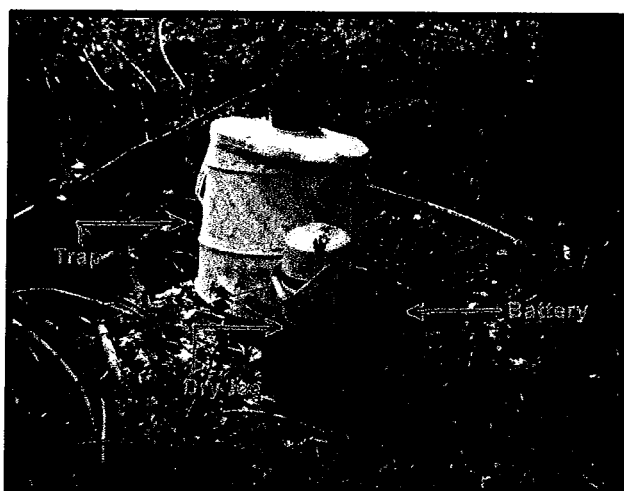
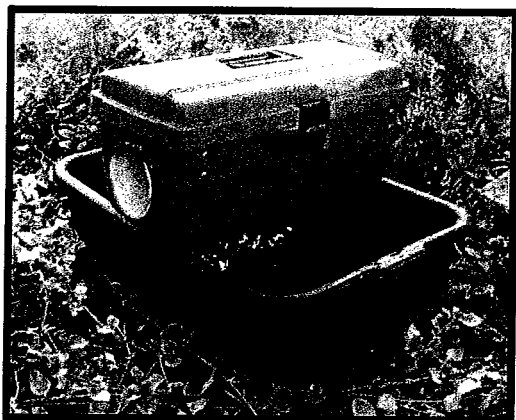


Lehigh and Northampton Counties are participating with the  
Pennsylvania Department of Environmental Protection  
to conduct mosquito surveillance for West Nile virus.



These traps will be deployed throughout the County in urban and suburban settings.  
They will be set in the afternoon and retrieved the following morning.

All are battery powered. Some will contain dry ice. THEY ARE NOT HAZARDOUS.



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# West Nile Virus (WNV) Fact Sheet

## What Is West Nile Virus?

West Nile virus infection can cause serious disease. WNV is established as a seasonal epidemic in North America that flares up in the summer and continues into the fall. This fact sheet contains important information that can help you recognize and prevent West Nile virus.

## What Can I Do to Prevent WNV?

The easiest and best way to avoid WNV is to prevent mosquito bites.

- When outdoors, use repellents containing DEET, picaridin, IR3535, some oil of lemon eucalyptus or para-menthane-diol. Follow the directions on the package.
- Many mosquitoes are most active from dusk to dawn. Be sure to use insect repellent and wear long sleeves and pants at these times or consider staying indoors during these hours.
- Make sure you have good screens on your windows and doors to keep mosquitoes out.
- Get rid of mosquito breeding sites by emptying standing water from flower pots, buckets and barrels. Change the water in pet dishes and replace the water in bird baths weekly. Drill holes in tire swings so water drains out. Keep children's wading pools empty and on their sides when they aren't being used.

## What Are the Symptoms of WNV?

- **Serious Symptoms in a Few People.** About 1 in 150 people infected with WNV will develop severe illness. The severe symptoms can include high fever, headache, neck stiffness, stupor, disorientation, coma, tremors, convulsions, muscle weakness, vision loss, numbness and paralysis. These symptoms may last several weeks, and neurological effects may be permanent.
- **Milder Symptoms in Some People.** Up to 20 percent of the people who become infected will have symptoms which can include fever, headache, body aches, nausea, vomiting, and sometimes swollen lymph glands or a skin rash on the chest, stomach and back. Symptoms can last for as short as a few days to as long as several weeks.
- **No Symptoms in Most People.** Approximately 80 percent of people who are infected with WNV will not show any symptoms at all, but there is no way to know in advance if you will develop an illness or not.

## How Does West Nile Virus Spread?

### ▪ Infected Mosquitoes.

WNV is spread by the bite of an infected mosquito. Mosquitoes become infected when they feed on infected birds. Infected mosquitoes can then spread WNV to humans and other animals when they bite.

### ▪ Transfusions, Transplants, and Mother-to-Child.

In a very small number of cases, WNV also has been spread directly from an infected person through blood transfusions, organ transplants, breastfeeding and during pregnancy from mother to baby.

### ▪ Not through touching.

WNV is not spread through casual contact such as touching or kissing a person with the virus.

## How Soon Do Infected People Get Sick?

People typically develop symptoms between 3 and 14 days after they are bitten by the infected mosquito.

## How Is WNV Infection Treated?

There is no specific treatment for WNV infection. In cases with milder symptoms, people experience symptoms such as fever and aches that pass on their own, although illness may last weeks to months. In more severe cases, people usually need to go to the hospital where they can receive supportive treatment including intravenous fluids, help with breathing, and nursing care.

## What Should I Do if I Think I Have WNV?

Milder WNV illness improves on its own, and people do not need to seek medical attention for this infection though they may choose to do so. If you develop symptoms of severe WNV illness, such as unusually severe headaches or confusion, seek medical attention immediately. Severe WNV illness usually requires hospitalization. Pregnant women and nursing mothers are encouraged to talk to their doctor if they develop symptoms that could be WNV.





## What Is the Risk of Getting Sick from WNV?

- **People over 50 at higher risk to get severe illness.** People over the age of 50 are more likely to develop serious symptoms of WNV if they do get sick and should take special care to avoid mosquito bites.
- **Being outside means you're at risk.** The more time you're outdoors, the more time you could be bitten by an infected mosquito. Pay attention to avoiding mosquito bites if you spend time outside, either working or playing.
- **Risk through medical procedures is very low.** All donated blood is checked for WNV before being used. The risk of getting WNV through blood transfusions and organ transplants is very small, and should not prevent people who need surgery from having it. If you have concerns, talk to your doctor.

## What Is CDC Doing About WNV?

CDC is working with state and local health departments, the Food and Drug Administration and other government agencies, as well as private industry, to prepare for and prevent new cases of WNV.

### Some things CDC is doing include:

- Coordinating a nation-wide electronic database where states share information about WNV
- Helping states develop and carry out improved mosquito prevention and control programs
- Developing better, faster tests to detect and diagnose WNV
- Creating new education tools and programs for the media, the public, and health professionals
- Working with partners to develop vaccines.



## What Else Should I Know?

**West Nile virus infects birds.** In nature, West Nile virus cycles between mosquitoes and birds. Some infected birds can develop high levels of the virus in their bloodstream and mosquitoes can become infected by biting these infected birds. Some, but not all infected birds get sick and die of disease. One way health officials conduct surveillance for West Nile virus is by testing local birds. Finding dead birds may be a sign that West Nile virus is circulating between birds and the mosquitoes in an area. By reporting dead birds to state and local health departments, you can play an important role in monitoring West Nile virus. State and local agencies have different policies for collecting and testing birds, so check with your county or [state health department](#) to find information about reporting dead birds in your area.

**If you find a dead bird:** Don't handle the body with your bare hands. Contact your local health department for instructions on reporting and disposing of the body. They may tell you to dispose of the bird after they log your report.

**For more information,** visit [www.cdc.gov/westnile](http://www.cdc.gov/westnile), or call CDC at 800-CDC-INFO (English and Spanish) or 888-232-6348 (TTY).





*Aedes albopictus* --

the Asian tiger mosquito is a small, black mosquito with striking white markings on its body and legs.

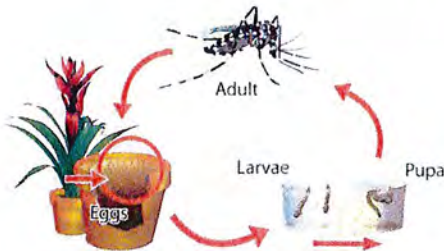
- ❖ Arrived in used tires – Texas, 1985
- ❖ Now firmly established in our area

*The Newest Nuisance!*

- ❖ Aggressive day-time biter
- ❖ Multivoltine
- ❖ Human blood is preferred, but will feed on other mammals and birds.
- ❖ Competent vector for Dengue, West Nile virus, Chikungunya virus, Yellow Fever, EEE, Dog Heartworm



***Eliminate mosquito breeding sites NOW to prevent problems this summer!***



- ❖ *Ae. albopictus* breed in artificial containers – as big as abandoned pools or as small as bottle caps – 1/4 inch of water is enough!
- ❖ Eggs deposited at or above water level
- ❖ Tires, flowerpots, buckets, soda cans, bottles, tarps, roof gutters, plastic bags, roadside trash, plant saucers, garbage cans



Can't dump it? Treat it with an insecticide that specifically targets mosquito larvae such as Bti - (*Bacillus thuringiensis* subspecies *israelensis*).

Program Coordinator: Jeffrey Carroll

Email: [Jefcarroll@lehighcounty.org](mailto:Jefcarroll@lehighcounty.org) Phone: 610-391-9583 EXT. 19





## Mosquito Control:

# What you need to know about using larvicides



Larvicides are products to help control mosquitoes outside your home. They work by killing mosquito larvae and pupae before they can grow into biting adults. When used according to product label instructions, larvicides do not harm people, pets, or the environment.

### Selecting a larvicide

Larvicides come in many forms:

- ♦ Liquids
- ♦ Granules
- ♦ Tablets
- ♦ Briquettes
- ♦ Pellets

### Apply larvicides where mosquitoes lay eggs

Use larvicides where mosquitoes lay eggs to help reduce the number of mosquitoes in an area. Mosquitoes lay eggs in items that hold water:

- ♦ Buckets and rain barrels
- ♦ Fountains
- ♦ Gutters or downspouts
- ♦ Non-chlorinated swimming pool
- ♦ Pool covers that collect water
- ♦ Septic tanks
- ♦ Tires
- ♦ Tree holes



A dunk is placed in a fountain to kill young mosquitoes.

### Information on Insecticides and Health:

- ♦ The US Environmental Protection Agency oversees the registration of these chemicals.
- ♦ The National Pesticide Information Center (NPIC) provides information online or through a toll-free number, 1-800-858-7378.

**If you are experiencing health problems for any reason, see your doctor or healthcare provider.**

### Treat standing water

Use larvicides to treat standing water that:

- ♦ Will not be used for drinking
- ♦ Cannot be covered, dumped or removed

### When using larvicides

Follow the instructions on the label. Do not apply more than directed or reapply more often than instructed.

### Prefer to hire a pest control professional?

Hire a pest control expert to treat your yard and outdoor areas. The National Pest Management Association offers tips on finding a pest management professional at <http://www.npmapestworld.org/>.

## Mosquito Control: You Have Options.

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## Mosquito Control:

# What You Need to Know About Using Adulticides



An adulticide is a type of insecticide used to kill adult mosquitoes that spread viruses like West Nile or Zika. Adulticides may be applied by a mosquito control program, a licensed pest control professional, or as a do-it-yourself application. Adulticides can be used indoors or outdoors. Some adulticides kill adult mosquitoes immediately and some continue to kill mosquitoes over longer periods of time. When used according to product label instructions, adulticides do not harm people, pets, or the environment.

### Select an adulticide

Mosquito adulticides come in different forms. Products are sold for indoor or outdoor use. Check the label instructions before using a product.

- ◆ Coils
- ◆ Foggers
- ◆ Sprays or aerosols

### Apply adulticides where mosquitoes rest

- ◆ **Outdoors:** Mosquitoes rest under plants, in dense brush or tall grasses, and the undersides of leaves on trees and bushes. They can also rest under the eaves on buildings, under decks and porches, and in moist, shady areas.
- ◆ **Indoors:** Mosquitoes rest in dark, humid areas like under sinks or in closets, in the laundry room, and behind furniture.

### When using adulticides

- ◆ Always follow the product label instructions.
- ◆ Do not apply more product than recommended or reapply more often than stated on product label instructions.
- ◆ Do not apply outside directly to fruits and vegetables in your garden or inside near food.
- ◆ Do not apply to plants in bloom or to plants that bees, butterflies, and other pollinators visit.
- ◆ Keep people and pets out of the treatment area until the product has dried, usually about an hour.



An adulticide is sprayed to kill adult mosquitoes.

### Information on Insecticides and Health:

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### Prefer to hire a pest control professional?

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**Mosquito Control: You Have Options.**

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## Mosquito Control:

# What You Need to Know About Truck Spraying



Mosquito control districts or local government departments track mosquito populations to learn where viruses, like Zika or West Nile, are spreading in a community. Spraying insecticides from a truck is one way to safely kill mosquitoes in an area, especially when people in the community are getting sick from mosquito bites. There are different types of sprayers that can be put on a truck.

### Truck spraying is used to:

- ♦ Control and reduce the number of mosquitoes that can spread viruses.
- ♦ Reduce your chances of getting infected with viruses.

### What are mosquito control trucks spraying?

Mosquito control trucks spray very small amounts of insecticide into the air to kill mosquitoes. This spray is a fine mist that acts as a fogger in the area. Mosquito control districts or local government departments will choose what type of insecticide to use in an area.

### What does the insecticide spray do?

Adulticide sprays immediately kill flying mosquitoes. Larvicide sprays kill mosquito larvae that hatch from eggs and lasts longer than adulticide sprays. Both products will temporarily reduce mosquito populations in an area, but will not permanently get rid of them.

### When does spraying occur?

Spraying takes place in the early evening when mosquitoes are more active. Often, local government agencies or mosquito control districts announce the dates and times of spraying in the local newspaper, on district websites, through public service announcements, by telephone, or through door-to-door notices.

### How often do communities spray?

After spraying, mosquito control districts or local government departments will track mosquito populations and treat an area again as necessary to reduce the chances of people getting bitten by mosquitoes that can spread viruses.

### Is the spray harmful to people, pets, animals, or the environment?

No, when done correctly, truck spraying will not harm people, pets, animals, or the environment.

### What should I do during or after spraying?

Spraying is safe. You do not need to leave an area when truck spraying for mosquito control takes place. If you prefer to stay inside and close windows and doors when spraying takes place you can, but it is not necessary. If you are having any type of health problems after spraying, contact your doctor or healthcare provider. The spray does not harm pets, but you may choose to bring them inside when spraying occurs.



Mosquito control truck spraying insecticide into the air  
Photo courtesy of Ed Freytag, City of New Orleans Mosquito & Termite Control Board



A truck with a different type of sprayer on the back.

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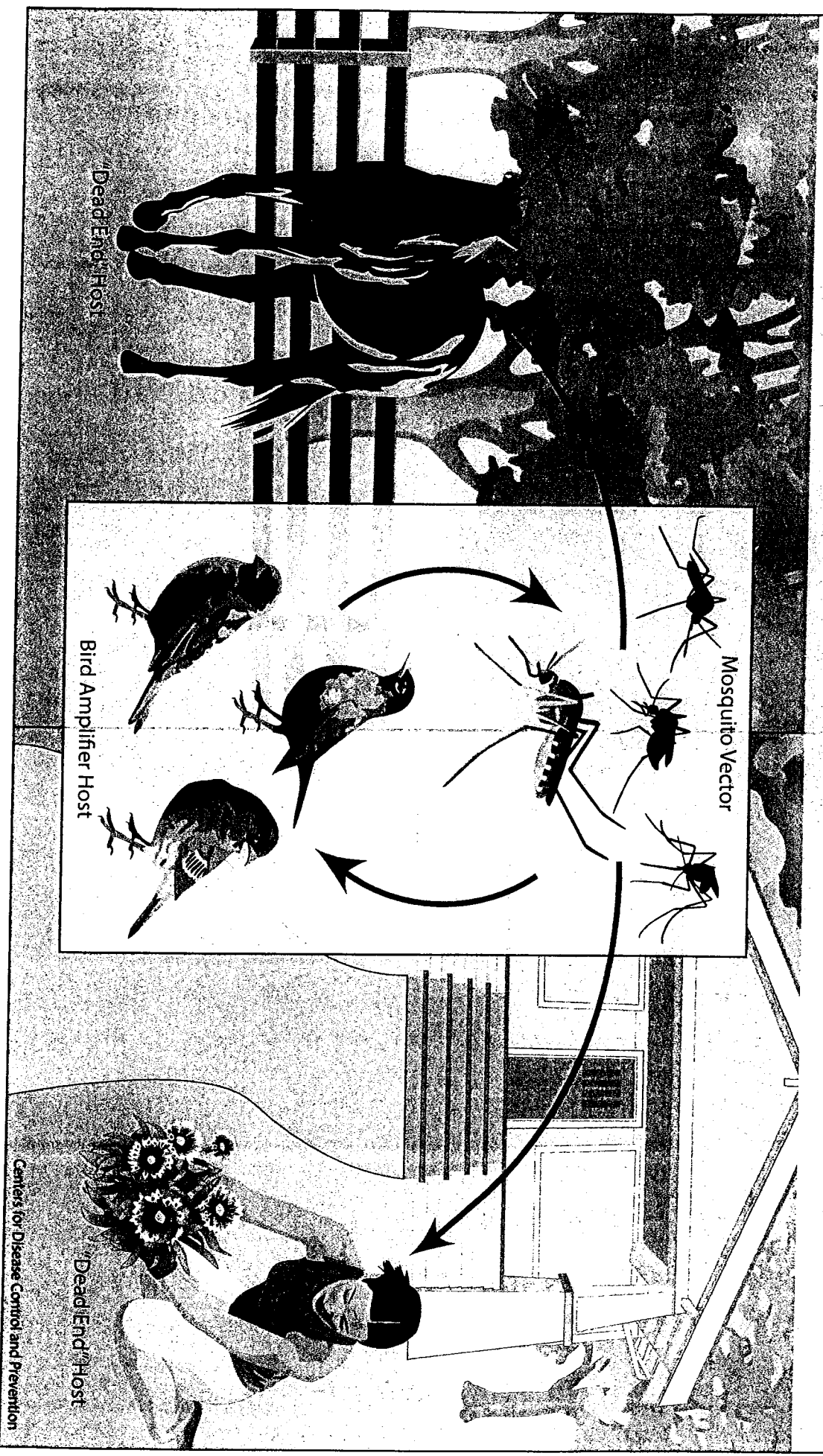
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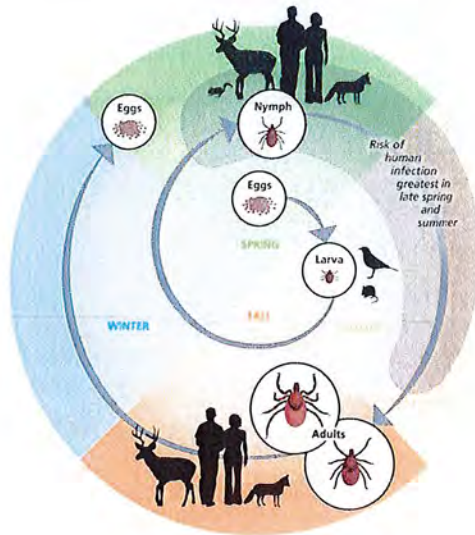
# West Nile Virus Transmission Cycle

In nature, West Nile virus cycles between mosquitoes (especially *Culex* species) and birds. Some infected birds, can develop high levels of the virus in their bloodstream and mosquitoes can become infected by biting these infected birds. After about a week, infected mosquitoes can pass the virus to more birds when they bite.

Mosquitoes with West Nile virus also bite and infect people, horses and other mammals. However, humans, horses and other mammals are 'dead end' hosts. This means that they do not develop high levels of virus in their bloodstream, and cannot pass the virus on to other biting mosquitoes.







## Useful resources for Living with Ticks

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**Tick Management Handbook** - An integrated guide for homeowners, pest control operators and public health officials for the prevention of tick-associated disease, recommendations for pesticide products

Kirby Stafford, The Connecticut Agricultural Experiment Station

<http://www.ct.gov/caes/lib/caes/documents/publications/bulletins/b1010.pdf>

**Environmental Protection Agency (EPA)** - Choosing, using and evaluating repellents for mosquitoes, ticks and other arthropods

<https://www.epa.gov/insect-repellents>

**Center for Disease Control and Prevention (CDC)** - information on human tick-borne diseases, treatment, prevention and current research

<https://www.cdc.gov/ticks/>

**Tick Encounter Resource Center** - University of Rhode Island - Everything you want or need to know about ticks

<http://www.tickencounter.org/>

**Damminix Tick Tubes** - EPA approved, easy to use tick control method, research and ordering information

<http://www.ticktubes.com/index.html>