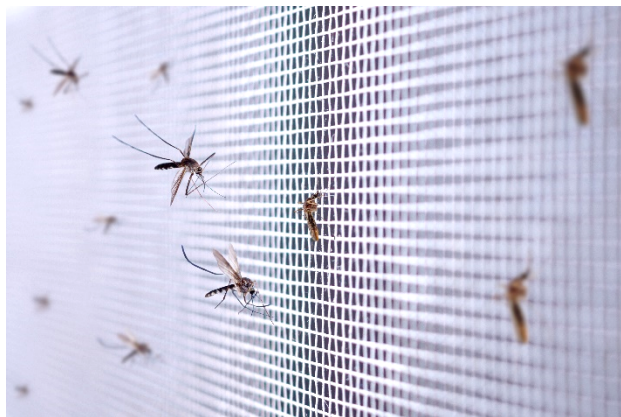


**3. Remove unnecessary clutter.** Dispose of tires or drill drainage holes in them. Store big and small items so they do not collect rainwater including buckets, and pots, boats, canoes, and other objects. Keep rain gutters free of leaves and anything else that might prevent water from draining. Cover rain-collection barrels with fine mesh netting.



**4. Pets and livestock.** Empty and refill water bowls every few days and add mosquito-eating fish to larger water troughs for livestock and horses that cannot be drained.

**5. Keep mosquitoes out.** Install window and door screens and avoid propping doors open, especially after dark.



**6. Check for mosquitoes emerging from indoor water sources.** If a female mosquito

gets inside your home, she will lay her eggs in any water container she can access. Flush toilets and run showers weekly if they are not regularly used. Check swamp cooler systems often for wriggling larvae.

**For more information:**

Mosquitoes:

<http://extension.arizona.edu/pubs/az1706-2019.pdf>

Viruses: <http://extension.arizona.edu/pubs/az1744-2017.pdf>

Repellents:

<https://extension.arizona.edu/pubs/az1761-2018.pdf>

Find the repellent that is right for you:

<https://www.epa.gov/insect-repellents/find-repellent-right-you>

THE UNIVERSITY OF ARIZONA  
COLLEGE OF AGRICULTURE AND LIFE SCIENCES  
TUCSON, ARIZONA 85721

Dawn H. Gouge, Department of Entomology, College of Agriculture & Life Sciences  
Shujuan Li, Department of Entomology, College of Agriculture & Life Sciences  
Shaku Nair, Department of Entomology, College of Agriculture & Life Sciences  
Maureen Brophy, Department of Entomology, College of Agriculture & Life Sciences  
Kathleen Walker, Department of Entomology, College of Agriculture & Life Sciences  
Chris Sumner, Yuma County Pest Abatement District  
Frank Ramberg, Department of Entomology, College of Agriculture & Life Sciences

**Contact:**

**Dawn H. Gouge** [dhgouge@arizona.edu](mailto:dhgouge@arizona.edu)

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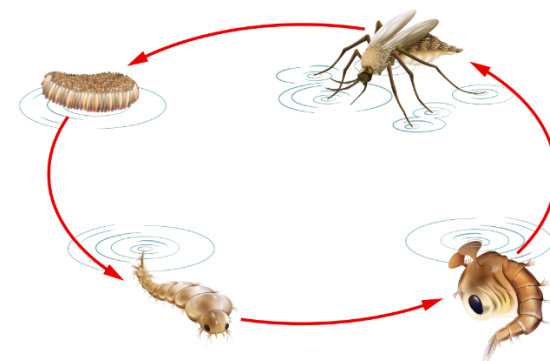


THE UNIVERSITY OF ARIZONA

**Agriculture, Life &  
Veterinary Sciences &  
Cooperative Extension**

## Mosquitoes

Dawn H. Gouge, Shujuan Li,  
Shakunthala Nair,  
Maureen Brophy, Kathleen Walker,  
Chris Sumner and Frank Ramberg

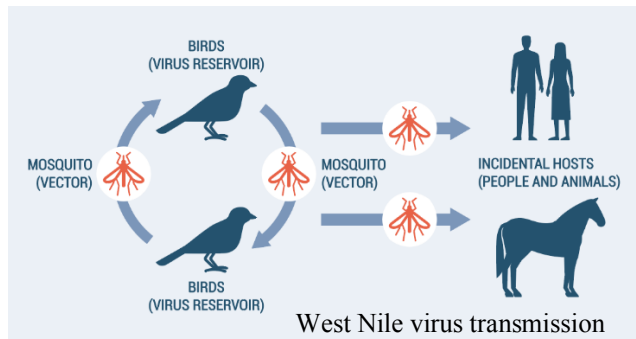


**July 2020**



**Mosquitoes** can cause many different health problems in humans. They are able to transmit viruses and other disease-causing pathogens.

West Nile virus (WNV) is currently the most common mosquito-borne virus affecting humans in all continental U.S. states. St. Louis encephalitis virus (SLEV) is also a concern for residents in Southwestern states. Arizona, California, and Texas have human cases of St. Louis encephalitis most years. WNV and SLEV are viruses that generally cause disease in birds and are transmitted by *Culex* mosquitoes. *Culex* mostly feed on birds, but will also bite other animals, and can then transmit the viruses to humans and horses (but rarely in the case of SLEV).



There are multiple mosquito-transmitted viruses in the U.S. that cause brain inflammation known as *arboviral encephalitis*. There are also pathogens that can affect travelers returning to the U.S., such as dengue, chikungunya, Zika, and yellow fever viruses, and the *Plasmodium* parasites that cause malaria. Nearly all dengue cases reported in mainland U.S. are in travelers that were infected elsewhere, but dengue is common in the U.S. territories of Puerto Rico, Virgin Islands, and American Samoa. Locally acquired dengue does occur some years in Guam, states along the Gulf Coast and in the Southeast region of the U.S. Many more states in the U.S. have mosquitoes that are able to transmit these pathogens when they are introduced.

**Mosquitoes are not known to transmit the novel coronavirus SARS-CoV-2 or blood-borne pathogens like hepatitis or HIV.**

**Water management** is very important for controlling mosquitoes and reducing disease. Female mosquitoes lay eggs on or near water where flooding will occur.



Eggs hatch in the water and larvae eat microorganisms and decaying organic matter. Larvae grow through four stages (instars), then pupate. Pupae rotate as they move in the water, but do not feed. Both larvae and pupae visit the water surface to breathe by penetrating the surface of the water to access air directly.



**Reducing mosquitoes and related illness:**

**1. Use an EPA registered repellent when in mosquito habitat.** These active ingredients give reliable protection when used according to label directions: DEET, picaridin, IR3535, oil of lemon eucalyptus (OLE), para-menthane-diol (PMD), and 2-undecanone. **Follow label directions exactly to ensure safe and effective use.**



**2. Eliminate standing water.** Check under plant pots, birdbaths, fountains, tarpaulins covering boats or other objects, backyard trampolines and other items. Check for pooled and standing water after every rain or at least weekly.

