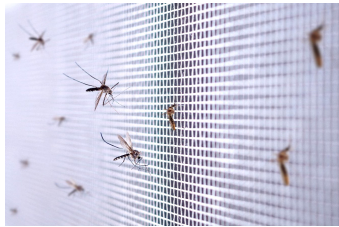


3. Remove unnecessary clutter. Remove household appliances and tires from around your home or drill water drainage holes in them. Store big and small items so they do not collect rainwater including buckets, pots, boats, canoes, and other objects. Keep rain gutters free of leaves. Cover rain-collection barrels with 18 x 18 mesh.



4. Pets and livestock. Empty, scrub and refill water bowls every few days. Add mosquito-eating fish like the top minnow or *Gambusia* to larger water troughs for livestock and horses, that cannot be drained.

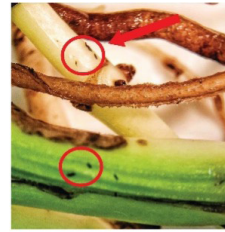
5. Keep mosquitoes out. Install 18x18 mesh window and door screens and avoid propping doors open, especially after dark.



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, indoor plant saucers, fish tanks, pet dishes and flower vases for wriggling larvae. Potted

“Lucky Bamboo” is exceptionally attractive for indoor mosquitoes to develop in, and should be checked for larvae weekly, and drained as needed, and containers scrubbed. *Aedes aegypti* eggs are circled in red.



Orange County Mosquito and Vector Control District

7. Illness. Most people with a mosquito-borne illness recover with rest and treatment at home. A few become very sick and West Nile and St. Louis encephalitis can be deadly. Seek immediate medical attention if any of the following symptoms develop: a fever over 103°F (39.4°C), confusion, coma, physical jerking, weakness, loss of sight, numbness or paralysis.



THE UNIVERSITY OF ARIZONA
Cooperative Extension

AUTHORS

DAWN H. GOUGE
Specialist and Professor – Public Health Entomology

SHUJUAN LI
Associate in Extension – Public Health Entomology

SHAKUNTHALA NAIR
Associate in Extension – Community IPM

MAUREEN BROPHY
Graduate Student, Entomology

KATHLEEN WALKER
Associate Specialist and Associate Professor, Entomology

CHRIS SUMNER
Yuma County Pest Abatement District, retired.

FRANK RAMBERG
Mosquito specialist, retired.

CONTACT

DAWN H. GOUGE
dhgouge@arizona.edu

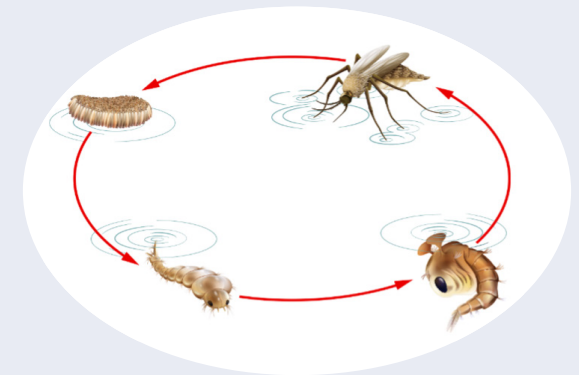
This information has been reviewed
by University faculty.
extension.arizona.edu/pubs/az1912-2021.pdf

Other titles from Arizona Cooperative Extension
can be found at:
extension.arizona.edu/pubs



THE UNIVERSITY OF ARIZONA
Cooperative Extension

Mosquitoes and Disease Concerns



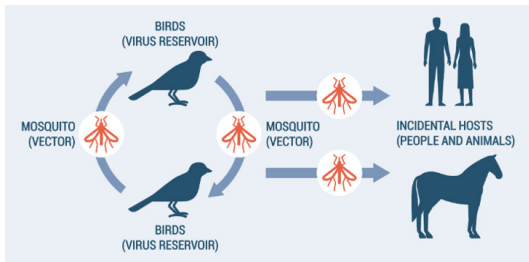
**DAWN H. GOUGE,
SHUJUAN LI, SHAKUNTHALA NAIR,
MAUREEN BROPHY, KATHLEEN WALKER,
CHRIS SUMNER AND FRANK RAMBERG**

**AZ1912
APRIL 2021**

This information has been reviewed
by university faculty.

Mosquitoes can cause health problems. Female mosquitoes feed on blood and some species can transmit certain viruses and other disease-causing pathogens to people and animals. West Nile virus (WNV) is currently the most common mosquito-borne virus causing West Nile Fever 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 generally cause disease in birds and are transmitted between birds by *Culex* mosquitoes.

Although *Culex* feed frequently on birds, they sometimes bite other animals, and can then transmit both viruses to humans and horses. However, horses are rarely affected by SLEV and can be vaccinated against WNV.



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 continental U.S. are in travelers that were infected elsewhere, but locally acquired

dengue occurs increasingly in south Texas border towns and sporadically in other southeastern states. Many states in the U.S. have mosquitoes that can transmit dengue and other pathogens when they are introduced. Dengue is common in the U.S. territories of Puerto Rico, Virgin Islands, and American Samoa and occurs some years in Guam. Dengue is also common in Mexico, Central and South America.

Mosquitoes do not 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 the surface of water, in and on water holding-containers and where temporary flooding occurs after rain events.



Eggs hatch in the water and larvae eat microorganisms and decaying plants and animals. Larvae grow through four stages (instars), then pupate. Pupae



tumble as they move in the water, but do not feed. Many mosquito species have larvae and pupae that go up to the water surface to breathe using tubular siphons that penetrate the surface accessing air directly.

Reducing mosquitoes and related illness:

1. Cover up and use an EPA registered repellent when mosquitoes are around.

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



2. Eliminate standing water.

Check under plant pots, birdbaths, fountains, tarpaulins, plastic wading pools, backyard trampolines and other items. Patio potted plants can be placed on a bed of decorative gravel in the saucer to allow drainage keeping mosquitoes from having water to develop in. Check for pooled and standing water after every rain or at least weekly.

