

Mosquitoes

Mosquitoes are a natural part of the environment we live in, but they are a nuisance and can be a health threat because of their ability to transmit several diseases.

Life Cycle and Habitats

The adult female mosquito needs a protein-rich meal to produce eggs, which she gets from the blood of humans, horses, birds, and other animals. While feeding, she may also transfer disease pathogens she may be carrying, such as West Nile virus (WNV). Both male and female adult mosquitoes consume nectar and other sugary fluids.

Mosquitoes go through four life stages—egg, larva, pupa, and adult. The adult female mosquito lays eggs in aquatic or very damp environments typically in the spring and summer. The eggs hatch and the larvae develop in the water. The larvae have specialized mouthparts to filter food particles from the water. The pupal life stage of the mosquito is also aquatic. Mosquitoes can develop from egg to adult in as little as seven days depending on the species and temperature.

More than 45 different mosquito species are found in Colorado. The mosquito species *Culex tarsalis* is the most abundant WNV vector in the state. Peak mosquito season is typically from July through September. Adults of *Cx. tarsalis* and the other WNV vector, *Cx. pipiens* overwinter in protected areas.

Depending on the mosquito species, eggs may be laid in habitats including storm sewers, clogged drains and gutters, play equipment, tires, mud puddles, and the saucer beneath your potted plants. In natural areas, mosquitoes breed in marshes, streamside pools formed from spring floods, irrigated agricultural areas, wetlands and tree hole cavities of hardwoods.



Female mosquito
(Joseph Berger, Bugwood.org).



Adult mosquito
(Jim Occi, Bugwood.org).

Did You Know?

- Mosquitoes can fly about 1 to 1.5 miles per hour.
- A mosquito can smell the carbon dioxide you exhale from 60 to 75 feet away.
- Some people are more attractive to mosquitoes than others. It is not clear why, but probably has something to do with the 300--odd chemicals produced by the skin.
- A mosquito beats its wings 300--600 times per second, making the mosquito buzz sound.



Above Left:
Adult mosquito, male
(Joseph Berger, Bugwood.org).

Above Right:
Products for mosquito control
(Whitney Cranshaw, Bugwood.org).



Managing Mosquitos with Integrated Pest Management

Reducing or eliminating larval sites and controlling the larval stage are the most effective methods to reduce mosquitoes and transmission of WNV. Adult mosquitoes are hard to manage because they can fly great distances, and they rest in protected areas that reduce their exposure to widespread pesticide fogging.

- From spring through summer, keep an eye out for standing water, in birdbaths, tires in play areas, flowerpots, or trashcans and lids. Turn over pails and empty planters or anything that can hold stagnant water. Either empty the water once a week or remove the receptacle. Make sure that rain gutters are clear and flowing; avoid overwatering turf. Maintain the water in ornamental ponds and other receptacles that require water to function.
- Report recurring puddles, standing water, and problematic sprinkler heads to your school facilities department. Maintain screens, windows, and door sweeps, to exclude adult mosquitoes. Don't prop doors open.
- *Bacillus thuringiensis israelensis* (or *Bti*) is a bacterium with insecticidal properties. Commonly known as mosquito dunks, they are placed in aquatic habitats to kill larval mosquitoes and are effective in areas of standing water that can't be drained. *Bti* is a pesticide and should be applied according to label directions.
- Avoid the outdoors during dawn and dusk during peak mosquito months. Wear long-sleeved clothing when outside.
- Use an effective mosquito repellent. DEET and picardin provide long-lasting protection, depending on the concentration. Other products, such as those containing citronella, are also labeled as insect repellents. Read the label carefully before applying mosquito repellents to yourself or a child.

Facts About West Nile Virus

West Nile virus (WNV) is a form of encephalitis—a virus that attacks the nervous system. About 80% of people infected with the virus never get sick. About 20% of those infected will develop a fever and usually another symptom such as headache, body aches, joint pain, diarrhea or rash. Most of these people completely recover within a week¹. Severe symptoms are rare, but may include disease of the nervous system that can result in tremors, encephalitis, meningitis, a form of paralysis and even death.

Humans and horses are “dead end” hosts for WNV; they cannot re-transmit it to another mosquito if bitten. Birds infected with WNV may re-transmit the virus to other mosquitoes that bite them.

The Colorado Department of Public Health and Environment monitors WNV; the number of cases varies from year to year. In 2013, there were 318 WNV disease cases reported in Colorado².

¹University of Colorado Hospital 2014

²U. S. Centers for Disease Control and Prevention

For more info, check out:

Colorado State Univ.: Mosquito Management http://www.ext.colostate.edu/westnile/mosquito_mgt.html

EPA: Insect Repellents <http://cfpub.epa.gov/oppref/insect/>

CDC: West Nile Virus <http://www.cdc.gov/westnile/index.html>

This information was adapted from Mosquitoes. 2014. Jennifer Snyder. Pacific NorthWest Pest Press 12. Reviewed by Boris Kondratieff (Colorado State University), Ryan Davis (Utah State University), Rella Abernathy (City of Boulder) and John Connett (University of Wyoming).

