

Mosquito Problems after a Storm

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After a severe storm, mosquito populations can explode, and the diseases they carry can be a danger to humans. Mosquito problems occur in two distinct waves after a flood. The first to arrive are the flood water mosquitoes, which include the salt marsh (*Aedes taeniorhynchus*, *Aedes sollicitans*) and pastureland mosquitoes (*Psorophora columbiae*, *Psorophora cyanescens*, *Aedes vexans*). These mosquito species deposit their eggs on the soil in areas that are flooded periodically. When flooded, the eggs hatch 5 to 7 days later, resulting in large swarms of mosquitoes during the warmest times of the year.

Most of the common flood water mosquitoes do not cause disease problems. But two of them are a danger—*Aedes aegypti* (yellow fever mosquito) and *Aedes albopictus* (Asian tiger mosquito). They lay their eggs in cans, children's toys, tires, potted plants, or any other container and the eggs hatch in 7 days. These mosquito species prefer to feed on humans and they spread the dengue virus, which is spread between humans by the bite of an infected mosquito. Dengue is found yearly in northern Mexico and has caused several outbreaks in South Texas. The last outbreak in 2005 resulted in 24 confirmed cases of dengue fever and one case of dengue hemorrhagic fever in Texas. In northern Mexico, the same outbreak led to 1,251 cases of dengue fever and 223 cases of dengue hemorrhagic fever.

Symptoms of dengue fever include headache, rash, joint and muscle pain, high fever, and vomiting. Dengue hemorrhagic fever is the more severe form of the disease; its symptoms can include blotchy rash, bleeding from the mouth or nose, shock, respiratory problems, and death.

After flood waters begin to recede and the initial wave of flood water mosquitoes disperses, the second group of mosquitoes moves in. These mosquitoes prefer to lay their eggs in calm, temporary or permanent pools of standing water. Many of the most important disease-vectoring mosquitoes in Texas belong to this group.

The most important standing water mosquito species is the southern house mosquito (*Culex quinquefasciatus*), which transmits West Nile

virus and St. Louis encephalitis. This mosquito species lays eggs in roadside ditches, storm sewers, birdbaths, or any container or depression that holds water. Eggs hatch in 7 days.

West Nile virus (WNV) has two distinct clinical forms known as West Nile Fever (WNF) and West Nile encephalitis (WNE). The symptoms of WNF include fever, headache, fatigue, swollen lymph glands, and occasionally eye pain and skin rash. WNF does not affect the central nerve system. WNE is more severe. It does affect the central nervous system, causing inflammation of the brain, inflammation of the tissue surrounding the brain and spinal cord, or inflammation of both the brain and tissues surrounding the brain and spinal chord. The more severe form of WNV causes fever, headache, seizures, confusion, coma, paralysis, and sometimes death.

The symptoms of St. Louis encephalitis (SLE) are similar to those of WNV in humans. There are no vaccines to protect people from WNV, SLE or dengue virus. Treatment is limited to addressing the various symptoms. The best defense against diseases transmitted by mosquitoes is to practice the four “Ds” of mosquito control.

1. **DEET**—Use DEET or another mosquito repellent (Picaridin, Oil of Lemon Eucalyptus, or IR3535) when outside.
2. **Dusk and Dawn**—Stay indoors during these times of day when mosquitoes are most active.
3. **Dress**—Wear loose-fitting, light-colored, long-sleeved shirts and pants.
4. **Drain**—Empty or cover all containers that can hold water for more than 3 days.

For more information see the publications at <http://www-aes.tamu.edu> or contact Mark Johnsen at m-johnsen@tamu.edu.

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Issued in furtherance of Cooperative Extension Work in Agriculture and Home Economics, Acts of Congress of May 8, 1914, as amended, and June 30, 1914, in cooperation with the United States Department of Agriculture. Edward G. Smith, Director, Texas AgriLife Extension Service, The Texas A&M System.