

# Researcher warns West Nile virus could have a bite this summer

June 23 2014, by Jeff Dodge

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Chet Moore, a CSU expert in mosquito-borne viruses, hangs a trap to help track West Nile virus.

(Medical Xpress)—Plentiful spring snow and rain, combined with recent hot temperatures on the Front Range, set the stage for an unusually high number of mosquitoes this summer – and potentially high rates of West Nile virus infection among birds, horses and humans, a Colorado State University expert says.

Chet Moore, who has studied mosquito-borne diseases for more than 50 years, noted that the combination of above-average precipitation and high temperatures is a recipe for a large mosquito population that could quickly transmit West Nile [virus](#) far and wide.

These conditions make prevention important. Key steps include: draining standing water in the yard and garden; wearing long sleeves and pants, especially at dawn and dusk when [mosquitoes](#) are most active; and using insect repellent with DEET. For more tips, visit the Colorado Department of Public Health and Environment's "Fight the Bite" website, [www.fightthebitecolorado.com](http://www.fightthebitecolorado.com).

The virus first appeared in the United States in 1999 and soon spread across the country, hitting Colorado hardest in 2003. Birds harbor the virus, and it is commonly spread by mosquitoes that bite infected birds and then seek blood meals from mammals, such as horses and people.

Two Culex mosquito species that are prevalent in Colorado have been found to be particularly effective vectors.

Most people infected with West Nile virus do not develop symptoms, according to the federal Centers for Disease Control and Prevention. Others have flulike symptoms, including fever, vomiting, headaches and body aches. In severe cases of infection – typically about 1 percent of the total reported nationwide – people develop serious neurologic illness, such as encephalitis or meningitis; this illness is sometimes fatal.

In 2013, there were 322 reported cases of West Nile [virus infection](#) among humans and seven deaths in Colorado; most illness was reported on the northern and central Front Range. Nationwide, there were 2,469 reported cases of illness and 119 deaths, according to the CDC.

There are no vaccines available to prevent West Nile virus infection in

people. However, horses can be vaccinated against the disease, and owners are encouraged to vaccinate their animals annually.

Moore believes Front Range municipalities that opt for mosquito spraying to prevent the spread of virus should not wait until the first human cases of West Nile virus infection are confirmed. That's because it might take two weeks for symptoms to appear, plus additional time for test results, he said, and during that time the virus can spread significantly. Timing of preventative measures to support [public health](#) should be based on surveillance of the virus in mosquito populations, he advised.

Moore has overseen West Nile mosquito surveillance in northern Colorado for the past five years, and has sent weekly reports to health officials with Larimer County, the Colorado Department of Public Health and Environment, and the CDC.

Moore was "hooked on bugs at an early age" thanks to an uncle who was an entomologist, and he soon learned the dangers posed by mosquitoes.

"Mosquito-transmitted diseases are among the biggest problems globally in terms of human disease and mortality," he said.

The buzzing insects transmit a number of viruses that can cause potentially fatal diseases. In addition to West Nile, these include Dengue fever, Rift Valley fever and malaria. "Someone dies from malaria every 30 seconds around the world," Moore noted.

There are a number of weather variables that could influence mosquito populations and the spread of West Nile virus this summer. For instance, flooding could scour some sites of mosquito eggs. If the weather becomes hot and dry, mosquitoes will have shorter lifespans. If bird species enjoy a baby boom, there would be a higher host population,

with the potential for the virus to spread farther and faster.

One thing is clear: West Nile virus is much less prevalent in Colorado's high country. That's because the Culex mosquitos that carry the virus stick to lower elevations. "They're more flatlanders," he said.

To monitor the spread of West Nile virus, Moore and a team of fellow researchers in the CSU Department of Microbiology, Immunology and Pathology test mosquito specimens collected by a contractor. Specimens come from 53 traps that attract mosquitoes using light and dry ice, which mimics human breath by emitting carbon dioxide, or using trays containing fermented hay.

"Everybody has their own recipe for the hay infusion," Moore said. "Some add yeast powder and liver powder. A lot of it is witchcraft."

Provided by Colorado State University

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