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Wet spring, high mosquito numbers could mean more West Nile virus

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Scientists at Colorado State University have detected a notably high number of Culex mosquitoes in northern Colorado this season, which could translate into high infection rates of West Nile virus. But so far there is no indication that the virus is spreading quickly from mosquito populations to birds, horses or people.

A wet spring and summer and the resulting large mosquito population create high potential for the spread of the virus, but to date it has turned up in only a small number of mosquito samples, according to a CSU expert.

Still, public health agencies advise precautions. Key steps include draining standing water in the yard and garden; wearing long sleeves and pants, especially from dusk through dawn, 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.

The year's first human case of the disease in Colorado was detected in a Mesa County man on July 8. On July 24, the CSU Veterinary Diagnostic Laboratories confirmed the state's first two equine cases of West Nile virus, in horses from Boulder County and Alamosa County.

Greg Ebel, director of CSU's Arthropod-Borne and Infectious Diseases Laboratory, said the number of Culex mosquitoes trapped in Larimer County during the first few weeks of testing this summer was higher

than it has been seen since 2007, a severe year for the virus. Culex is a family of mosquitoes that spreads the virus through bites. Two Culex mosquito species, which are prevalent in Colorado, have been found to be particularly effective vectors.

Ebel's lab, which performs testing for the city of Fort Collins, first detected the virus in a mosquito on July 2; it has been found in limited numbers every week since.

"Just because there are a lot of mosquitoes, it doesn't necessarily mean a higher risk of West Nile virus. Currently, the risk is measurable, but relatively low," he said.

Ebel said there are many variables that affect the spread of West Nile, including rainfall, temperature, and the bird population. Birds harbor the virus, which is commonly spread when mosquitoes bite infected birds and then seek blood meals from mammals, such as horses and people.

For instance, flooding could scour some sites of mosquito eggs. If the weather becomes hot and dry, mosquitoes will have shorter lifespans. If birds enjoy a baby boom, there would be a higher host population, potentially causing the virus to spread farther and faster.

There are no vaccines to prevent West Nile virus infection in people. However, horses may be vaccinated against the disease, and owners are encouraged to innoculate their animals annually. Horses that have been vaccinated in past years will need an annual booster shot. Horses that were not vaccinated in previous years will need a two-shot series of vaccine within a three- to six-week period.

In addition to vaccinations, horse owners are advised to reduce the mosquito populations and their possible breeding areas. Recommendations include removing stagnant water sources, using

mosquito repellents and keeping animals inside during the bugs' feeding times, typically early in the morning and evening.

"Strict insect control is an important factor to inhibit the transmission of West Nile virus," said state veterinarian Keith Roehr.

Horses infected with West Nile virus show symptoms including head tilt, muscle tremors, stumbling, lack of coordination, weakness of the limbs and partial paralysis. The clinical signs of the virus are consistent with other neurological diseases such as equine encephalitis, rabies, and equine herpes virus, so it is important to work with a veterinarian to get an accurate diagnosis through laboratory testing.

Most people infected with West Nile virus do not develop symptoms, according to the 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 2014, a total of 118 human cases of West Nile virus were identified in Colorado in 24 different counties. The majority of cases were uncomplicated fever, but 24 percent of people infected developed meningitis and 15 percent developed encephalitis. Four deaths were reported during the 2014 season, from Alamosa, Denver and Pueblo counties.

The virus first appeared in the United States in 1999 and soon spread across the country, hitting Colorado hardest in 2003.

Provided by Colorado State University