

# Work done behind the scenes to prevent West Nile bug in Utah

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MAGNA — While most of us try to avoid all contact with a mosquito's wiry legs and sharp pinch, some make their living as they spend their days hunting the insects down.

And this is the busiest time for Utah's mosquito abatement districts after a long, wet spring gave the insects extra time to breed.

"Mosquito abatement's main mission, we are supposed to control mosquitoes, but really our main focus is public health. Because mosquitoes potentially carry so many different diseases, ultimately, our underlying mission is to control them so we can keep people healthier, happier," said Sean Amodt, Utah's Southwest Mosquito Abatement and Control manager.



Spenser Heaps, Deseret News

*Ryan Lusty, district manager of the Magna Mosquito Abatement District, conducts PCR testing on captured mosquitos at the district's office in Magna on Tuesday, July 23, 2019. The testing detects West Nile Virus and other mosquito-borne diseases.*

Though they may be tiny, mosquitoes cause more human deaths every year than any other living creature, according to the [World Health Organization](#). Utah has seen its share of mosquito-caused deaths from West Nile virus.

Sevier County recently found its first mosquitoes carrying the virus near the small city of Aurora, county health officials said Friday.

"It's something that we haven't seen much in Sevier County in our mosquito pool. So this is something that's a little more rare for us in our county," said Nate Selin, deputy director for the Central Utah Health Department.

Moab saw the state's first mosquitoes infected by West Nile this summer. Other districts, meanwhile, are on high-alert for the bug.

"This year with the water being really high and a lot of extra snowpack and stuff, of course the mosquitoes have been quite prevalent. And so it's been an exciting year to deal with the extra amounts of water and therefore the extra amounts of mosquito larvae in the water," Amodt said.

Mosquito abatement workers aren't the only ones out to fight mosquito-borne illnesses in the Beehive State.



*Spenser Heaps, Deseret News*

*Ryan Lusty, district manager of the Magna Mosquito Abatement District, shows off a vial of approximately 50 dead mosquitos that will be tested for West Nile Virus and other diseases at the district's office in Magna on Tuesday, July 23, 2019.*

Researchers at Utah-based Co-Diagnostics, after helping officials in South and Central American countries identify mosquitoes with Zika and other vector-borne illnesses, turned its attention to West Nile virus in Utah and the U.S.

Usually, when sent to state labs, abatement districts learn whether their mosquitoes test positive for West Nile within one to two weeks. But Co-Diagnostics has developed a test, called NAM-W, that the company says uses technology in a faster, more affordable way, allowing districts to get results within a day. It tests for West Nile, Western equine encephalitis and St. Louis encephalitis.

"We view that the sooner you know what mosquitoes are carrying and where they are, the sooner you can take action and use your resources in the right way to combat these diseases," said Seth Egan, international sales manager for Co-Diagnostics.

In Washington County, the district first treats water where larvae reside with bacteria that target the larvae and do not harm anything else in the water.

"If we're able to do that, then we have less of them emerge as adults. And once they emerge as adults, they fly all over and it's a little harder to control them, but if we have do, we use an adulticide," Amodt explained. If they need to spray, they'll do it at night to prevent harming other beneficial insects.

The adult mosquitoes with West Nile feed on birds, which serve as reservoirs for the virus, Amodt said. Later in the season when the birds migrate, the mosquitoes "tend to just find any kind of blood source for their egg production. So they will start feeding on horses and humans and just anything. They're opportunistic at that time."



*Spenser Heaps, Deseret News*

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Every week, mosquito abatement districts around the state trap thousands of mosquitoes and workers take them to the office, where they sort the mosquitoes into species and count them — oftentimes each and every tiny one — before testing the variety that carries the disease.

At Southwest Mosquito Abatement and Control, they then put up to 100 of the bugs in a vile, add some liquid and crush them up,

among other preparations, before they extract RNA to test for the virus. Ten years ago, they purchased a machine — the most widely used in the U.S. — so they could test the insects themselves, and developed a manual process.

As a mosquito district manager, "there's something new every day that I can learn, and, in our district, we're always trying to come up with something different, something unique that we can test, that we can try," Amodt said.

About two years ago, Co-Diagnostics combined efforts with the southern Utah district in testing its technology on the machinery the district already had, Amodt said.

The company also collaborated with the Centers for Disease Control and Prevention and other mosquito abatement districts to develop the technology, Egan said.



*Spenser Heaps, Deseret News*

*A Co-Diagnostics PCR testing machine, which is used to detect West Nile Virus and other mosquito-borne diseases, is pictured at the Magna Mosquito Abatement District in Magna on Tuesday, July 23, 2019. The machine has brought down the cost of PCR testing to the point that smaller mosquito abatement districts can afford to do their own testing, rather than sending samples out to external testing sites.*

Now, the Magna Mosquito Abatement District is using Co-Diagnostics' NAM-W test. It is the

district's first time being able to test mosquitoes on its own, said Ryan Lusty, Magna Mosquito District manager. The district has always wanted to have its own testing but the machinery traditionally was "too expensive for us."

"Me, personally, I kill mosquitoes. That's my job. But when it comes to being able to find out if we have a virus in our mosquitoes and close by, and we can know where can go treat them and stuff, it's nice to have your own so you can get same-day results to be able to treat and find mosquitoes where the virus is showing up," Lusty said.

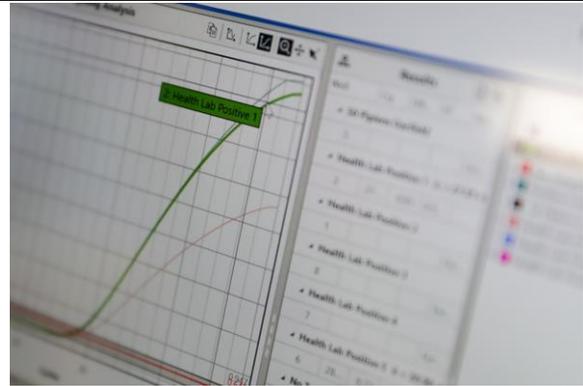
But since Co-Diagnostics launched its NAM-W this spring, the district has begun testing mosquitoes itself. So far, no mosquitoes in the Magna district's area, which also covers parts of West Valley City and Kearns, have tested positive for West Nile.

Egan says Co-Diagnostics hopes it can bring its technology to abatement districts across the country and continue helping developing countries identify vector-borne illnesses.

There are no vaccines or treatments for West Nile virus. About 1 in 150 people who contract it develop a serious — sometimes fatal — illness, according to the Centers for Disease Control and Prevention.

Eleven Utahns contracted the virus last year, with one of them dying from it, according to the Utah Health Department.

Symptoms include fever, severe headache, disorientation and stiff neck. If you experience those symptoms, the state health department urges you to contact a health provider immediately.



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