

# MOSQUITO PATROL

A fog truck sprays a residential street in McNary. The driver constantly monitors sidewalks and houses for open windows and people outside so that they are not sprayed.

## West Umatilla Mosquito Control District began operations in 1972 and covers a 515-square-mile area on the western edge of Umatilla County

STORY AND PHOTOS  
by BEN LONERGAN  
*East Oregonian*

HERMISTON — When Randy Gerard started working as a seasonal intern at the West Umatilla Mosquito Control District more than two decades ago, he couldn't walk through parts of the district without getting swarmed by mosquitoes. Now Gerard is the manager of the district and mosquito populations are down to 20 to 25% of where they were in the 1990s.

"In the 1990s it was not uncommon to have to treat some of these areas four to five times per week; now we can do them once or twice a season and have a better result," Gerard said. "I believe the decline in mosquito population is linked directly with improvements to technology and funding."

The West Umatilla Mosquito Control District began operations in 1972 and covers a 515-square-mile area on the western edge of Umatilla County. The program operates on an approximately \$800,000 annual budget funded through a special property tax district.

Within the district, mosquito control can be broken down into four main categories: the mosquito surveillance program, which catches and monitors sources and population spikes; the larvicide program, which aims to kill mosquito larvae before they become an issue; the lab testing aspect, where disease testing occurs; and the adulticide program, which utilizes chemicals to kill off adult mosquitoes.

"People are often most familiar with the adulticide program, the trucks driving around city streets and your property at night," Gerard said. "However, it is really our last resort; our goal is to use other programs to eliminate mosquitoes before it gets to that point."

The West Umatilla Mosquito Control District monitors approximately 980 documented larval habitat sites and more than 1,200 catch basins and storm drains on a weekly basis to help catch and kill mosquito larvae.

Rylie Smith has been working for the district for seven years in both the larvicide and adulticide programs. During peak mosquito season Smith begins work at about 5 a.m. to maintain existing mosquito sources and search out new sources. Each day he checks up on reported outbreaks and treats infested areas with a variety of chemicals.

"When I arrive for the day, I try to find a place where I can access as many sites as possible. I'll check to see when I last sprayed and check dip cups for larvae," Smith said. "Everyone is pretty accepting of us coming out to work; the only real issues come up when property changes hands."

One of the leading sources of



**CLOCKWISE, FROM TOP LEFT:** Randy Gerard monitors wind speed prior to beginning his spray route. Factors, such as temperature and windspeed, play heavily in when and where fogging trucks can spray. ♦ A mosquito trap hangs from a tree near Hermiston. The traps use sublimating dry ice to create CO<sub>2</sub>, which attracts mosquitoes. Mosquitoes are then sucked in by a fan and captured in a vessel for testing. ♦ Andrew Ross (left) and Rylie Smith use dip cups to check a small body of water for mosquito larvae. ♦ A dip cup holds mosquito larvae found on a farm property just outside of Hermiston. The newly discovered body of water is added to mapping software so that it can be monitored and treated more regularly.

mosquito habitat in the district is flood irrigation. When landowners flood fields it often leaves behind standing water that can provide a perfect habitat for mosquito larvae. While the district makes some effort to educate people about pressurized irrigation systems, they lack the funding to help secure or subsidize grants to make improvements more affordable.

"Being in the desert as we are, the primary sources of water are artificial sources, flood irrigation, ponds, and poorly maintained swimming pools," said Gerard. "We use the results of our surveillance program to help find and treat outbreaks before the mosquitoes become adults."

The district utilizes a network of about 100 mosquito traps, 28 of which are set at the same locations while the other 72 rotate through the coverage area on a weekly basis. The traps consist of blocks of dry ice in an insulated container that vents CO<sub>2</sub> to attract mosquitoes. Mosquitoes are then swept up by a small fan into a collection con-

tainer to be tested. Traps are typically set and collected two times per week in an effort to monitor populations of *Culex* mosquitoes.

*Culex* is a specific genus of mosquito that, while not usually the ones seen swarming outside, are the primary disease-carrying mosquitoes. By catching *Culex* mosquitoes the district can test them for West Nile virus, St. Louis encephalitis and Western Equine encephalitis, as well as monitor their prevalence in a given area.

While the testing can be done in house by the district, or through Oregon State University, positive results must be sent to OSU to be retested before a case can be confirmed. The district prefers to test in-house so that results can be acted on more quickly, with a 3- to 5-day turnaround to send to the lab. With this lead time, the district can get a jump on fogging or aerial spraying to attempt to kill off *Culex* mosquito populations in areas where a positive result has surfaced for one of the diseases.

Although the district was

founded to deal with Western Equine encephalitis, they shifted their focus primarily to the monitoring and treatment of West Nile virus in 2005. According to Oregon Health Authority, roughly one in five people infected with West Nile virus may show signs of the disease, with the most severe risk posed to individuals over the age of 50 and people with immune-compromising conditions.

Once an outbreak of adult mosquitoes has been established, fogger trucks equipped with specialized spraying technology are driven through affected areas to spread a mosquito control chemical called Sumithrin. Sumithrin, paired with the spray technology run by the district, is specifically targeted for mosquitoes, however, precautions are taken to avoid exposure for other animals, according to field supervisor Andrew Ross.

"We do our best to track down organic farming operations and work with them to establish management plans," said Ross. "Addi-

tionally we do everything we can do to avoid bees and bee boxes by not spraying near them and spraying when bees are not active."

Spraying typically starts at sunset and takes into account wind speed and temperature to decide both when and where trucks can spray. The district has a fleet of four trucks equipped with the spray technology that roam city streets, country roads and farm property at dusk.

Recently, the district has purchased and begun exploring the use of unmanned aerial vehicles (UAVs) to add to their adulticide fleet. While the district is still working on the permitting and training to put drones into circulation, they see promise in the use of the technology to reach difficult locations.

"Parts of our coverage area are densely covered and we are unable to get trucks in, and we are forced to use planes to spray adulticides," Gerard said. "UAVs offer the ability for us to access these areas in a cheaper and more targeted manner."