

City of Pierre Mosquito Control Program

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West Nile virus was first reported in South Dakota in 2002, and since then, the state has had the highest per capita disease rates in the nation. In 2016, South Dakota reported 151 human cases in 51 counties, with one case in Hughes County. There were six deaths in 2016 from the West Nile virus in South Dakota. In the years following 2002, communities like Pierre purchased equipment, hired personnel, and established mosquito control programs to reduce the risk of their citizens contracting West Nile virus. The City of Pierre is grateful for the partnerships established with the South Dakota Department of Health, South Dakota State University, and the Extension Service to conduct research and provide training and educational opportunities, thereby equipping public mosquito control programs to work most effectively.

The City of Pierre's primary control program is for the citizens residing within the city limits. This can be a formidable task, as the control area spans approximately 13 square miles and serves a population of 13,468. The Parks and Recreation Division is the agency within the City of Pierre responsible for administering the park and recreation control program. The Division has cooperative agreements to provide control measures for the State of South Dakota Buildings and Grounds Division within the city limits of Pierre, Hughes County for the three-mile extra-territorial area adjacent to the City of Pierre, providing larvacide treatment, and with the South Dakota Game Fish and Parks Division for state parks adjacent to the City of Pierre, providing back up support as needed.

The annual appropriation for the control program is approximately \$19,300.00. The majority of the funds are used for the purchase of pesticides. The Division has three licensed pesticide applicators. Each year, the Division hires seasonal staff to assist with trapping, identification efforts, public communication, breeding site location, records management, and control efforts as needed. Staff attend continuing education classes offered by the South Dakota Extension Service and the South Dakota Department of Health.

The City of Pierre utilizes two mosquito foggers that fit in the back of pickup trucks and a third truck to transport chemicals & briquettes. For ground application, the Division operates a self-propelled Toro turf sprayer and an Arctic Cat Prowler (UTV) for hard-to-access breeding sites. Fogging equipment is calibrated annually and is well-maintained.



Pickup-mounted mosquito fogging unit.

The pickup-mounted fogging units are used for adulticiding practices. Adulticiding is the chemical treatment for adult mosquitoes. The pesticide products used by the city are Duet, Anvil, Biomist 3+15, CSI 4-4, and Tempo. The EPA has approved these products, and staff follow the label guidelines when using them.

Larvaciding is a chemical treatment for mosquitoes in the larval stage, before they develop into adults and fly. Staff monitor standing water locations throughout the city and in the extra-territorial area for larval surveillance and, when needed, apply pesticides. Products used meet EPA approval. They are Natular, Altosid, Vectolex and BVA oil. Staff follow label guidelines when applying them.

Division staff use both light- and CO₂-activated traps to count or measure the activity of mosquitoes within the control areas. When the number of mosquitoes reaches a specific number in the traps, this triggers the control staff to begin fogging operations. Fogging, however, is only done in the late evening or early morning hours and only if winds are less than 10 mph. This is the time when mosquitoes are most active and when treatment is most effective.

Division staff may also begin fogging operations if citizen complaints in the community warrant the need. Typically, the number of mosquitoes in surveillance traps alerts staff before citizen complaints, and therefore, fogging operations are conducted to mitigate the West Nile threat.

Mosquito numbers and control applications do not follow a set pattern. Weather patterns, including rains followed by high temperatures in the days to come, tend to influence mosquito hatch. The Division staff use a combination of surveillance methods to determine when it is necessary to larvicide and adulticide (fog) the community. The ideal time to fog for maximum control is from dusk to midnight, with winds of less than 10 mph.

Communications with the citizens in the control area are important. The City utilizes several means of notifying residents that fogging operations will be taking place. They include media; both radio and print, public TV and website.

The public may contact City Hall and visit with the Director of Parks and Recreation to inquire about the control program. The public is encouraged to take control measures of their own to reduce the risk of contracting West Nile virus. The elderly are especially susceptible to the disease and should minimize their risk to exposure to mosquitoes. Parents are encouraged to apply mosquito repellants containing a DEET product to children when outdoors.

For more information about West Nile go to the following web sites:

<http://doh.sd.gov/diseases/infectious/wnv/>