

RESOLUTION 2009 - 63

**A RESOLUTION AMENDING AND ADOPTING THE WEST NILE VIRUS PLAN FOR THE CITY OF LARAMIE, WYOMING.**

**WHEREAS**, City of Laramie, Wyoming first adopted a West Nile Virus Plan in 2003 to reduce the risk of human infection from the West Nile Virus.

**WHEREAS**, the West Nile Virus Plan is an essential part of the City's overall Mosquito Control Program, reducing the numbers of both vector and nuisance mosquitoes thereby reducing the risk of human infection from the West Nile Virus.

**WHEREAS**, the City Council amended and approved the West Nile Virus Plan in April of 2005 of which the major revisions were revised recommended guidelines from the Center for Disease Control (CDC).

**WHEREAS**, the City Council amended and approved the West Nile Virus Plan in May of 2007 of which the major revision to the West Nile Virus Plan was the suspension of both ground and aerial application of mosquito control pesticides over the Aquifer Protection Overlay Zone.

**WHEREAS**, the City Council last amended and approved the West Nile Virus Plan in April of 2009 of which the major revision was in the surveillance and virus testing performed by City staff.

**WHEREAS**, this amendment to the West Nile Virus Plan would be the removal of the reference that "no application of adult mosquito control pesticides would be made to the Aquifer Protection Overlay Area".

**NOW THEREFORE, THE CITY COUNCIL OF LARAMIE, WYOMING, RESOLVES:**

**SECTION 1:** That the foregoing recitals are incorporated in and made part of this resolution by this reference.

**SECTION 2:** That City Council adopts the amended West Nile Virus Plan as attached in Exhibit A.

**PASSED AND APPROVED** this, the 21<sup>st</sup> day of July, 2009.

  
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Jodi Guerin, Mayor and President of the  
Laramie City Council, Laramie, WY

**ATTEST**

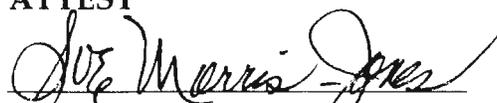
  
\_\_\_\_\_  
Sue Morris-Jones, CMC  
City of Laramie

EXHIBIT A



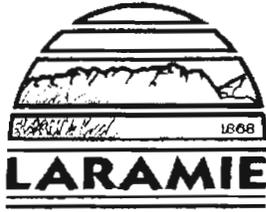
# **WEST NILE VIRUS PLAN**

for the

**City of Laramie, Wyoming**

As Amended and Adopted by the  
Laramie City Council

July 21, 2009



**CITY OF LARAMIE**  
**PARKS & RECREATION DEPARTMENT**  
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## **West Nile Virus Plan**

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The City of Laramie Parks Division, Mosquito Control section has drafted the following plan in accordance with the guidelines set forth by The Centers for Disease Control (CDC) for the prevention of human cases of West Nile virus (WNV). These guidelines were updated by CDC in February of 2003 at a workshop for parties involved with the prevention and control of mosquito borne illnesses. This conference addressed many different forms of surveillance necessary to detect West Nile Virus and then made suggestions for preventative measures to help decrease the risk of infection. The document addressing this process is available online at <http://198.246.96.2/ncidod/dvbid/westnile/resources/wnv-guidelines-aug-2003.pdf>. Much of the information in the document deals with the infrastructure and communications systems necessary to do laboratory analysis of the samples gathered from state and local mosquito control, veterinary, and public health organizations and is of a technical nature. The important message from this conference is that at the present time there is no vaccine available for human prevention of this disease and it may be some time before one is developed. In the interim, "Prevention and control of mosquito borne diseases is accomplished most effectively through a comprehensive, integrated mosquito management program".

The plan currently being implemented by the City of Laramie is a phased response to West Nile virus Surveillance. This plan uses many types of surveillance systems to detect the presence of WNV and places the risk of human infection associated with a positive sample from each of these systems into a hierarchy that corresponds to a particular response. Some of the surveillance systems have been in place as a part of the City's mosquito control program to combat nuisance mosquitoes. Others have been more recently instituted by the City, beginning in 2003. Still others are outside of the scope of mosquito control and will be administered by other agencies such as the State of Wyoming Department of Health, and the Wyoming State Veterinary Laboratory. Each of these organizations has an essential part to play in reducing the risk of WNV.

The City of Laramie nuisance mosquito control program will continue to operate and co-exist with the WNV control program. The strategies and control methods used are similar; however, different thresholds of mosquito activity will trigger control efforts in each program.

The following chart is "The Suggested Guidelines for Phased Response to West Nile virus", and is taken directly from the CDC document. This is a very broad outline and the following pages will identify specifics for the City of Laramie Program.

**Suggested Guidelines for Phased Response to West Nile virus – Set forth by the  
Centers for Disease Control**

**City of Laramie West Nile Virus Plan**

<b>Risk Category</b>	<b>Probability of Human Outbreak</b>	<b>Definition</b>	<b>Recommended Response</b>
0	None	Off-Season : Adult vectors inactive; climate unsuitable	Develop West Nile Virus response plan. Secure surveillance and control resources necessary to enable emergency response. Initiate community outreach and public education programs. Conduct audience research to develop/target education & community involvement. Contact community partners.
1	Remote	Spring, Summer or fall; areas anticipating West Nile Virus (WNV) epizootic based on previous WNV activity in the region; no current surveillance finding indicating WNV epizootic activity in the area.	Response as in category 0, plus; conduct entomologic survey (inventory and map mosquito populations, monitor larval and adult mosquito density); initiate source reduction; use larvicides at specific sources identified by entomologic survey and targeted at likely amplifying and bridge vector species; maintain avian mortality, vector and virus surveillance; expand community outreach and public education programs focused on risk potential and personal protection, and emphasize residential source reduction; maintain surveillance (avian mortality, mosquito density/infection rate, human encephalitis/meningitis and equine illness).
2	Low	Summer or fall; areas with limited or sporadic WNV epizootic activity in birds and/or mosquitoes. No positives prior to August.	Response as in category 1 plus; increase larval control, source reduction and public education emphasizing personal protection measures, particularly among the elderly. Enhance human surveillance and activities to further quantify epizootic activity (e.g. mosquito trapping and testing). Implement adulticide application if vector population exceeds locally established threshold levels, emphasizing area where surveillance indicates potential for human risk to increase.
3	Moderate	Spring, summer, or fall; areas with initial confirmation of epizootic WNV in birds before August; a horse and/or a human case; or sustained WNV activity in birds and/or mosquitoes	Response as in category 2, plus: intensify adult mosquito control in areas where surveillance indicates human risk; initiate adult mosquito control if not already in progress; initiate visible activities in community to increase attention to WNV transmission risk (speaker, social marketing efforts, community mobilization for source reduction, etc.); work with collaborators to reduce risks to elderly (e.g., screen repair).
4	High	Spring, summer, or fall: quantitative measures indicating WNV epizootic activity at a level suggesting high risk of human infection (e.g., high dead bird densities). In early summer sustained high mosquito infection rates, multiple positive mosquito species, horse or mammal cases indicating escalating epizootic transmission, or a human case and high levels of epizootic activity. Areas with early season positive surveillance indicators where WNV epidemic activity has occurred in the past.	Response as in category 3, plus; expand public information program to include TV, radio, and newspapers (use of repellants, personal protection, continued source reduction, risk communication about adult mosquito control); increase visibility of public messages, engage key local partners (e.g., governmental officials, religious leaders) to speak about WNV; intensify and expand active surveillance for human cases; intensify adult mosquito control program, repeating application in areas of high risk or human cases. Re-schedule public outdoor events (e.g. sports events, block dances, concerts, etc.) to periods of minimum mosquito activity.
5	Outbreak in progress	Multiple confirmed cases in humans; conditions favoring continued transmission to humans (e.g., persistent high infection rate in mosquitoes, continued avian mortality due to WNV).	Response as in category 4, plus; intensify emergency adult mosquito control program repeating application as necessary to achieve adequate control. Enhance risk communication about adult mosquito control. Monitor efficacy of spraying on target mosquito populations. If outbreak is widespread and covers multiple jurisdictions, consider a coordinated widespread aerial adulticide application; emphasize urgency of personal protection through community leaders and media; and emphasize use of repellent at visible public events.

**Level 0  
No risk of  
Human  
outbreak**

**This level of risk requires no specific action to control mosquito larvae or adults for WNV prevention. At this level WNV transmission risk is zero because mosquitoes are inactive during the winter season. Planning and training are the important tasks to be undertaken at this level.**

General mapping of larval mosquito sites has been an ongoing process for the City of Laramie program for over 15 years. Currently over 1,500 sites are cataloged. This data is necessary for both nuisance and disease control. Sites range from backyard fountains to 1,000-acre hay meadows. Most of these sites are outside the City Limits. The use of a GPS database was implemented during 2004 season

Personnel have been trained in surveillance techniques for WNV and other mosquito borne illnesses at specialized training offered by CDC in 2002 and at the National West Nile conference in 2004. Training is conducted during state and regional meetings annually.

The adult mosquito surveillance trapping program was instituted in 2004 for virus detection. It has enhanced our ability to predict and respond to immediate threats. Surveillance is planned to follow the 2004 protocols utilizing two different kinds of traps over a wide geographic area.

Mosquito control larviciding and adulticiding equipment and programs are already in use for the City's nuisance mosquito control program. The same equipment and control strategies will be utilized for control of vector (disease transmitting) mosquito species.

Community outreach will be ongoing including: newspaper articles, radio interviews, informative signs, and public informational meetings.

The City Chemical Hotline has been in place for years, providing daily city wide information on Mosquito Control applications as well as City Parks Division Integrated Pest Management applications on City properties. The application schedules are updated at 4pm daily during the appropriate seasons. Call 721-5056 for a recording of planned applications.

The City of Laramie will apply for grant funding through the State Department of Agriculture to fund surveillance supplies, technicians and mosquito control chemicals to help further protect our citizens. This funding source has been available since 2002 but is not guaranteed and must be approved by the legislature each biennium. Available State funding for the 2009 season has been reduced by 10 percent. The City of Laramie grant proposal has been funded at the 90% level accordingly.

**Level 1  
Remote  
risk of  
human  
outbreak**

**Risk Level 1 is established each spring as infected female mosquitoes leave winter hideaways in search of blood meals. WNV has become established in our region and it is anticipated that the potential for animal and human infections will recur on an annual basis. City of Laramie responses to level 1 are as follows: Continue activities of risk level 0, plus:**

**Surveillance of avian species** for WNV has been an important diagnostic tool since 2002. Federal funding for this program was cut during the 2007 season leaving this surveillance tool in the hands of state and local agencies. City of Laramie will continue to evaluate dead birds for laboratory analysis and pick up potentially useful specimens for testing. Birds from the Corvid family (crows, magpies, and jays) are especially desirable. Birds that test positive with the City's Rapid Analyte Measurement Platform (RAMP) will be submitted to the Wyoming State Veterinary Laboratory for confirmatory testing. Call mosquito control at 721-5258 to report dead birds.

**Surveillance of equine species** for WNV has been conducted by the Wyoming State Vet Lab each summer since 2002. Positive test results on horses are reported to the animal owner and health officials in the local area when appropriate. Many of the state's horses have been vaccinated over the recent years. This vaccination program has decreased the number of horses that could potentially be infected and has lessened the usefulness of equine infections as a sentinel of disease transmission. The Wyoming State Veterinary Laboratory still reports on equine cases through the State Health Department's WNV website [www.badskeeter.org](http://www.badskeeter.org) when infections do occur. Mosquito control will monitor any equine infections reported within Albany County and include that data in assessing the risk of human infection. Contact your veterinarian for information on horse vaccinations and testing of suspected WNV cases.

**Human Surveillance** has been conducted by Wyoming Dept. of Health each summer since 2002. General information regarding human infections is reported at the State Health Department's WNV website [www.badskeeter.org](http://www.badskeeter.org), and at the Center for Disease Control website- [www.cdc.gov/ncidod/dvbid/westnile](http://www.cdc.gov/ncidod/dvbid/westnile)

**Adult mosquito surveillance** will be used to track the numbers of potential disease carrying mosquitoes and determine if those mosquitoes are infected with WNV. Mosquito surveillance has become the standard for virus detection over the last few years due to the decrease in the availability of other surveillance methods. Two types of mosquito traps will be used to sample mosquitoes at 21 permanent locations in and around Laramie as well as utilizing multiple roving traps at experimental sites. Sample populations will be tested with the City's RAMP system to

determine if WNV is being transmitted within the mosquito-bird cycle. Samples that test positive with RAMP will be confirmed by PCR at the Wyoming State Vet Lab. Mosquito species other than the known vectors may also be tested to determine if other species are involved in the transmission cycle. Samples will also be tested from surveillance sites operated by the Big Laramie Mosquito Control District, the Little Laramie Mosquito Control District and the Town of Rock River. This broadened surveillance area will enhance the safety of many Albany County residents and provide the City with greater advanced warning of vector populations that could migrate into the City. Timely detection of virus in vector mosquito populations will allow pre-emptive targeted applications to prevent widespread infections.

**Inventory and mapping of specific larval sites** containing *Culex tarsalis* mosquitoes was begun in the 2002 season and is ongoing. *Culex tarsalis* is considered the key vector for the Laramie area. Surveillance to determine if other important vector species live in the Laramie will also be conducted.

**Source reduction** is a mosquito control method, which eliminates larval habitat. This can range from something as simple as a homeowner dumping rainwater out of an empty bucket, to an irrigation project costing millions of dollars. Source reduction is the most permanent and cost effective form of mosquito control long term but often sources cannot be eliminated due to wetland preservation laws and costs associated with large projects on private lands. Source reduction will be specifically targeted at sites that are known *Culex tarsalis* habitats.

**Larval control** will be employed as a normal part of nuisance mosquito control especially during the spring floodwater and irrigation season. Larval control is recommended by CDC and the Environmental Protection Agency (EPA) for many reasons: Environmentally friendly treatments are available for larval control, it is more efficient to control mosquitoes in confined larval habitats rather than the huge acreages that require treatment once mosquitoes emerge and disperse, and larval control lessens the risk of adult mosquitoes spreading disease. Larval control targeted at nuisance mosquitoes will also control vector mosquitoes when they share larval habitats. Larval control will be directed specifically at vector species later in the season when floodwaters recede.

**Community outreach** includes public appearances at the annual Ag Expo (reaches all 3<sup>rd</sup> grade students in Albany County), public meetings and club events as requested by the public. Signage that relates the current risk of WNV infection and suggestions for prevention are placed in City recreation areas, golf courses and at the Albany County Public Health office. Articles and press releases with information to educate citizens about risks and benefits of an integrated mosquito control program and personal protection are published weekly.

**Level 2  
Low risk  
of human  
infection**

**Risk Level 2 is reached when there is limited or sporadic WNV activity in birds and/or mosquitoes after August 1st. This may be demonstrated by positive WNV samples from both dead birds that are normally found in the area and positive samples of mosquitoes that are known to feed on birds. The risk associated with this level is low because the virus transmission cycle occurs naturally in birds and mosquitoes but may not move to other hosts outside that cycle. Responses to level 2 are as follows:  
Continue activities from levels 0, 1 plus:**

**Increased larval control and source reduction** including exploring for new sources within the flight range of vector species of mosquitoes. Many species travel over ten miles when seeking a host to feed upon. It is likely that mosquitoes will migrate into the City from areas outside our area of control. (Currently the City does not have the resources to provide larval control to all areas within the flight range of our local mosquito species.) Larval control measures will be more intensely targeted at vector species habitat during risk level 2.

**Public education** at this stage will be directed towards information that will help citizens understand the risk and emphasize personal protection measures that will reduce the risk of contact with infected mosquitoes. This could include press releases on repellents, clothing, window screens and changing activities or schedules to avoid peak mosquito activity times. This information is especially important for the elderly since they are the group most likely to have serious illness associated with WNV infection.

**Adult mosquito control** may be considered at sites that have large numbers of vector mosquitoes or areas where positive WNV samples from birds or mosquitoes were obtained. These areas could be rural or urban areas. Adult mosquito control for nuisance mosquitoes may already be in operation if the threshold limit for control has been met. These applications for nuisance mosquitoes will augment control of vector mosquitoes.

**Level 3  
Moderate  
risk of  
human  
infection**

**Risk level 3 is reached when: a case of WNV is confirmed in a local bird before August; Confirmation of a horse and/or a human infection; or sustained WNV activity is found in birds and/ or mosquitoes. The risk is rated moderate because single cases of WNV infection do not necessarily indicate the advance of an epidemic. Single cases may originate from a small single source of mosquito-bird activity that is in close proximity to horses or humans. Infections before August are important though, because the potential for multiple blood feedings and therefore increased chance of virus transmission is likely through a longer season. Responses to Level 3 are as follows  
Continue activities from level 0, 1 and 2, plus:**

**Residential adult mosquito control** if surveillance indicates there is a likely potential for human risk to persist or increase. This control will include city wide applications of Biomist adult control insecticide from truck mounted ultra-low volume foggers. This is the same method and chemical presently used to control nuisance mosquitoes. The object of these applications is to limit mosquito numbers and break the cycle of mosquito-bird virus transmission. The City is divided into three zones that can each be treated during an evening shift. (South of Grand and east of the Union Pacific Railroad tracks, North of Grand and east of the Union Pacific Railroad tracks, and West of the Union Pacific Railroad tracks.) The applications will be made to each of the three zones of the City on a rotating basis every 72 hours, until each zone has received three treatments. This level of application is normal and used for nuisance mosquitoes as well. Surveillance traps in each area will be closely monitored to determine if the treatment is having the desired effect.

**Aerial adult mosquito control in rural areas** may be considered if surveillance shows large numbers of vector mosquitoes in areas adjacent to the City. The object of this application would be to extend a buffer zone around the City that would reduce the number of vector mosquitoes that could easily migrate into the City. This application would also be designed to break the cycle of mosquito-bird virus transmission in the area and lower the risk of infection. Malathion would be applied aerially at the ULV rate of 3 oz. per acre. This treatment and rate of application is also commonly used when reducing the number and migration of nuisance mosquitoes. ~~No application would be made to the Aquifer Protection Overlay area.~~ Surveillance traps will be monitored to determine the effect of the treatment.

**No-Spray** zones may be suspended if surveillance indicates that the risk of infection is not reduced by these treatments.

**Level 4  
High risk  
of human  
infection**

**Risk Level 4 is reached when surveillance indicates that WNV activity is at a level that suggests a high risk of human infection. These surveillance factors include: a human infection, high dead bird densities, sustained high mosquito infection rates, multiple horse/mammal positives, multiple positive mosquito species and abundant vector mosquitoes. The risk is rated high because all factors are present that indicate transmission is likely to occur outside the natural bird-mosquito cycle.**

**Responses to Level 4 are as follows:  
Continue with all activities in levels 0, 1, 2, and 3, plus:**

**Residential adult mosquito control** applications would be increased to include each of the three zones once every 36 hours. Biomist adult mosquito control insecticide would be applied from truck mounted ultra-

low volume foggers using extra trucks on the evening shift. It is possible that nuisance control and vector control will overlap in the same time frame. This will not however result in multiple applications. Surveillance traps will be monitored to determine the effect of the application. The threshold to suspend or reduce this application level will be when surveillance indicates that the risk factors have decreased.

**Aerial adult mosquito control to rural areas** targeting areas of high vector mosquito numbers as outlined in level 3. ~~No application would be made to the Aquifer Protection Overlay area. (This response may have been enacted in level 3)~~

**Public information and education is expanded** to include television, radio, newspapers, and any other avenues available. Information may be broadcast using city Channel 11 to keep citizens up to date on current events, pesticide applications and infection prevention strategies. Mailings may be included with city utility bills.

**Consider cancellation or rescheduling of City sponsored events** at times that correspond with peak mosquito activity. (Examples: Evening softball and baseball games).

**Suspension of No Spray Program** to insure complete coverage of all areas within the City limits. (May have been enacted in level 3)

<p>Level 5 Outbreak In Progress</p>
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**Risk Level 5 is reached when multiple local human cases are confirmed and surveillance indicates conditions are still favorable for transmission to humans despite all previous control efforts. This level would be considered an epidemic outbreak in progress. It requires the highest possible level of mosquito control, public awareness and multi-agency teamwork to immediately decrease the risk of infection. Responses to level 5 are as follows:**  
Continue all activities from level 0, 1, 2, 3, 4, plus:

**Aerial application of adult mosquito control chemicals** may be necessary to break the transmission cycle and eliminate vector transmission to human and animal hosts. This application would be made using Biomist adult control insecticide in a blanket coverage pattern to establish control citywide. This type of application must be pre-approved by the FAA and a flight plan must be on file before the application can be made. The FAA requires strict guidelines be followed regarding citizen notification of the operation and sets rules regarding pilot and aircraft certification for safety. This type of control measure would be a last choice alternative when faced with serious health risks to Laramie citizens.

~~Consideration would also be given to Biomist application in the Aquifer Protection Overlay area.~~ This type of application requires constant monitoring of all surveillance systems to determine when the risk has been reduced.