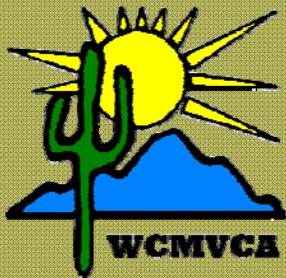


Bugs Eye View

of the West Central Mosquito and Vector Control Association



Special Interest Articles:

- The 36th Annual Meeting of the WCMVCA will be February in Fort Collins, Colorado.

Individual Highlights:

Annual Meeting	2
Calendar	3
State Reports	4-5
Program	
Submissions	6-10
Call for Papers	11

Message from the President

Keith Wardlaw, City of Laramie, Wyoming

Congratulations to all of you who have struggled through another season to keep your constituents free from the various nuisance mosquitoes that inhabit your region. More importantly it appears that your efforts, combined with a dose of cool weather through out the summer, has kept West Nile virus infections to a minimum. Over the last two seasons you have helped to keep the number of human infections under 100 in each of our member states. This is a great accomplishment when compared with the seasons from 2002 & 2007.

Here in the Mountain West and Northern Plains each season has brought new challenges. This year the challenge greater than weather or even the legal issues with the Clean Water Act may have been the economy. Hopefully your revenue sources are stable and operations continued unabated. If you are experiencing a cutback then you will not be alone in looking for some reasonable alternatives to help stretch your budget dollars. I would welcome members to share strategies that have helped you to keep a high level of service while watching the bottom line as presentations at our annual meeting in Ft Collins on February 26th and 27th.

Welcome to Edward Horvath our new editor for the e-newsletter. Ed has recently moved to Colorado from his previous position as Director of Seminole County Mosquito Control in Sanford, Florida. He is currently employed by Ottertail Environmental in Wheat Ridge, Colorado. *(continued on page 2)*

Dengue Fever confirmed in Florida Keys

Edward Horvath, Lakewood, Colorado

August 2009- As if we don't have enough to worry about with West Nile and Swine Flu; health officials have now confirmed 3 cases of Dengue Fever originating in South Florida.

Dengue is a mosquito-borne virus, typically transmitted by *Aedes* mosquitoes after feeding on an infected person.

Symptoms of Dengue include the sudden onset

of an extremely very high fever, headache, pain behind the eyes, backache, joint pains and a body rash.

According to the CDC, the mosquito that spreads dengue fever is now found throughout the central and southern US, however this disease is typically found in the tropics and sub-tropics.

Although most cases are probably imported from

outside the US, since 1977, there were almost 4000 such cases suspected. Experts feel that many more cases probably go unreported each year because surveillance in this country relies on doctors recognizing the disease, asking where the individual has traveled, getting proper samples to make the diagnosis and then reported the case to the CDC.

MESSAGE FROM THE PRESIDENT (CONTINUED)



My season in Laramie was heavily influenced by the coldest wettest spring we have seen in many years. Our mountain snowpack was above average and irrigators had water available to flood every possible acre all at once. Our floodwater mosquito numbers were high even with the aerial application of larval control to large tracts. When the wind, rain and snow finally allowed us some windows of good weather to apply aerial and ground based ULV applications the phones were mercifully silenced. A few pools of *Culex tarsalis* tested positive for WNV early in the season and kept us on edge for a while waiting for a major outbreak that never came. I emerged unscathed from a T-bone crash in one of our fogging trucks in August to round out another exciting summer. I hope yours was less eventful!

2010 Annual Meeting of the WCMVCA

The 36th Annual Meeting of the West Central Mosquito and Vector Control Association is scheduled to be held in Fort Collins, Colorado, February 24-25, 2010 at the **Fort Collins Hilton**, 425 West Prospect Road, Fort Collins, Colorado.

Fort Collins is located at the foothills for the Rocky Mountains, with great fishing, beautiful views/hikes and great food.

Plan on visiting the **New Belgium Brewery** for a fun filled tour and FREE beer.

The registration fee for this **two-full day** conference has been set at \$125 per person.

The WCMVCA welcomes speakers to attend and present papers related to mosquito and vector control.



Editorial Notes

For more than 25 years, the WCMVCA has tried to get a newsletter out to the membership. For the last month or so, I have begged for articles and finally received enough to put together the Association's second newsletter, but still working on the technical, software issues.

Whether it be the American Mosquito Control's **Wing Beats**, or any other publication, editors around the mosquito world have one thing to complain about, "it is like pulling teeth to have an article submitted"

for our colleagues to read.

One manager told me "why should I spend time to submit an article, it will only end up on the back of the toilet." In fact, this may be true, but should not be considered a bad thing. Most of my least interrupted reading is spent in a locked restroom.

In order for the WCMVCA's Newsletter to be successful, there must be sharing of ideas and stories with others in the region. I would like to challenge you to help

me by submitting an article about a new or existing program or an idea you have brought into your program. This should be your chance to brag about what you have done.

Vendors, submit advertisements for your businesses and products.

The WCMVCA's Executive Board has adopted the "Bugs Eye View" as the new name for the Newsletter of the WCMVCA, which was proposed by Meredith Hatterman of the Tri County Health Department.

Mark Your Calendar

Upcoming Events

October 4-6, 2009

UMAA 62nd Annual Meeting
Bryce Canyon City, UT

October 11-15, 2009,
5th International SOVE
Conference
Belek-Antalya, Turkey

November 7-11, 2009
Florida Mosquito Control
Association, Tampa, Florida

February 24-25, 2010
WCMVCA Annual Meeting,
Fort Collins, Colorado

March 28 - April 1, 2010,
AMCA Annual Meeting,
Lexington, Kentucky

Become a Sustaining Member

For as little as \$125 a year, you can become a Sustaining Member of the West Central Mosquito and Vector Control Association.

Most companies join as **SUSTAINING MEMBERS**, with additional employees joining as **REGULAR** members. Companies usually designate a representative who is eligible to vote and to hold office. The Sustaining membership includes one regular registration at the annual meeting.

2009 Sustaining Members

ADAPCO, Inc



Colorado Mosquito Control, Inc.



Williston Area VCD

Nebraska Mosquito and Vector control Association

Tom Janousek, Omaha, Nebraska

Did you know?

Association meetings are great for networking and for earning Continuing Education Credits.

Ensure that your state applicator licensing authority knows of any conference you attend and be sure you request CEUs.

The **Nebraska Mosquito & Vector Control Association** held its 35th Annual Meeting on Oct. 1-2 in Bellevue, NE. The Meeting had 19 presentations on a variety of topics including mosquito program updates, surveillance, new products, mosquito diseases, pesticide safety, equipment and media relations. Other presentations included rodent control, snakes of Nebraska and malaria control in Chad, Africa. It was reported that Nebraska has had 33 human cases of West Nile Virus,

seven blood donors and 72 positive mosquito pools as of October 1, 2009.

A survey conducted at the Meeting indicated 81% of the participants conducted adulticiding this past year, 87% larvicided and 69% conducted some form of surveillance. The NMVCA Meeting was well attended and has averaged 90 participants over the past 5 years.

The NMVCA has Spring Workshops at 4 locations throughout the state. The Annual Meeting is rotated to different locations each year.

North Fork MAD in Colorado shuts down operations early

The NFMAD is curtailing its operations early this year "due to lagging and uncertain property tax collections," board director Rosemary Bilchak reports.

Citing Delta County Treasurer Jim Ventrello, approximately \$17,500 due the district has yet to be paid into the county's coffers. "When the largest taxpayer in the county is having trouble, everyone feels it," Ventrello said. "Not only the mosquito district, but school districts, fire districts, cemetery districts and the like all suffer."

NFMAD's original program called for a field crew of four to work through September, when mosquito activity is normally winding down. But because of the budget shortfall, two crew members were released on Aug. 7. The remaining two workers will be retained through Aug. 28. Bilchak added financial

constraints will also force the mosquito abatement district to layoff field manager Elizabeth Collins a month ahead of schedule. Collins said, "It's especially unfortunate that we have to close down our program early because West Nile Virus was recently found in a mosquito population in Delta. But that's the reality of the situation, so we're going to use the remaining funding on our highest priority areas."

Earlier this month, citing lack of funds, the state health department closed down their laboratory facilities for testing mosquito samples for West Nile virus.

According to NFMAD's Kevin Parks, district revenues are 15 percent lower than projected at the beginning of the year. Parks maintains that the district has had a very successful year

despite budget constraints. "We located and treated over 500 breeding sites this summer, and mosquito counts are down compared to last year in most areas in the district," Parks said. "That is a significant achievement." Parks said that the information gathered this year will be added to the district's growing database, and will make the job of eradicating breeding sites easier for field crews in succeeding years. "We're continuing to build a solid foundation for a sustainable science-based program," he said.

Board president Kris Kropp expressed regret that such a successful season had to end prematurely. "We're very proud of the hard work and accomplishments of the crew," he said. "The limited funding makes their accomplishments even more awesome."

Mosquito Research in North Dakota

Scott Hanson, Turtle Mountain Community College

Dr. Scott Hanson, a biology instructor at Turtle Mountain Community College in Rolette County, North Dakota, has involved undergraduate students in mosquito-borne virus surveillance each year since 1997.

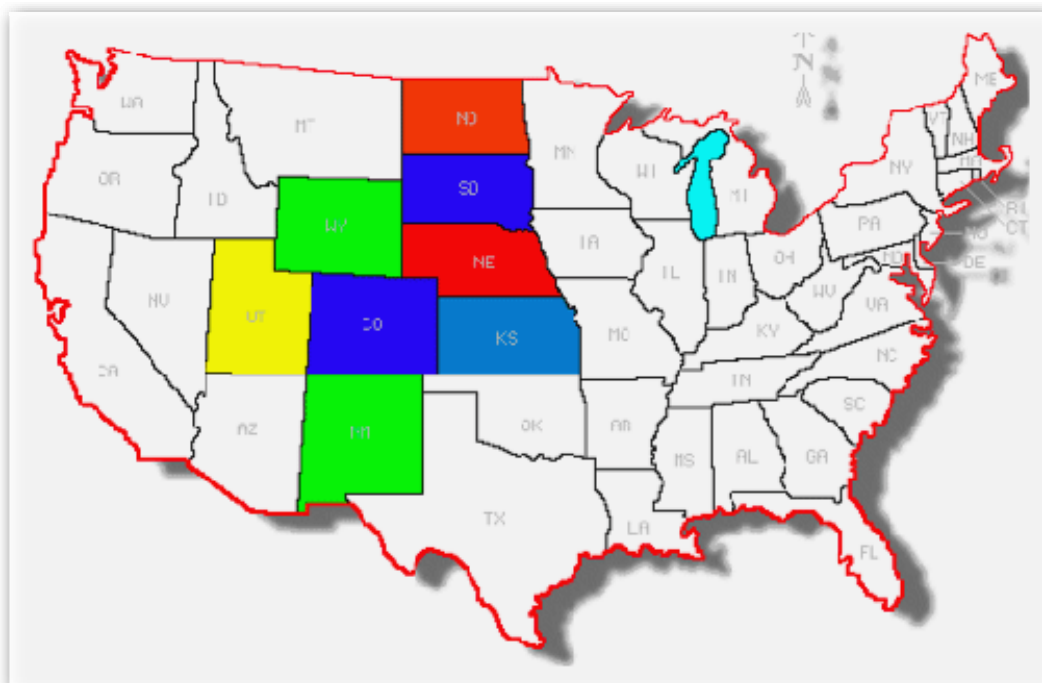
From 1997 to 2004, they monitored mosquito populations for Western Equine Encephalomyelitis virus, and from 2002 to the present, they have monitored mosquito populations for West Nile virus. They never found Western Equine Encephalomyelitis virus in mosquitoes. However, in 2006, 2 *Culex tarsalis* pools were positive for West Nile virus.

Through both larval and adult collections, they have documented the presence of 34 mosquito species in Rolette County. Most adults have been captured by CDC light traps baited with either dry ice or octenol.



What does the West Central Mosquito and Vector Control Association do?

Promotes the efficiency of mosquito abatement, vector control and related activities through the encouragement of research, development of procedures, and interchanges of information within Colorado, Kansas, Nebraska, New Mexico, North Dakota, South Dakota, Utah and Wyoming.



The Importance of GeoPro,

Allan McCormick, Senior Software, Engineer at ADAPCO

Many vector control agencies rely on a variety of legacy tools to manage their activities, yet too often these tools are developed to address only specific needs. Therefore, they can be difficult to adapt beyond their initial purpose to effectively fit an overall mosquito control program.

In contrast, decision support systems are designed as a top-down approach to help decision makers identify and solve problems, and make solid decisions. This is how ADAPCO's GeoPro is designed – to help users make critical decisions with knowledge and confidence.

GeoPro is a Geographic Information System (GIS) based, knowledge-driven platform for vector control professionals. GeoPro is web-based, providing a secure repository for transferring a wide range of information over a secure connection. As a professionally hosted solution, GeoPro offers anytime access with 99.9% uptime reliability from dedicated servers.

GeoPro is designed to provide a simple means of single point data entry to manage

applications, generate service requests, track product inventories and record lab results. Field collected information uploads from hand held devices or application monitors to complete surveillance activities, treatment records and record weather data. A member management section provides complete control of permissions by the director. Data inputs are stored as facts, rules and procedures and tailored through user customization, then delivered in a tabled and map summary format.

Decision-making is further enhanced by an interactive map. GeoPro automatically codes related data for viewing over a variety of backgrounds and resolutions. The map tool is reinforced through the use of charts, graphs and reports. Apart from the traditional role in record keeping, reports are easily customizable and designed to provide better understanding of decision alternatives.

GeoPro represents ADAPCO's ongoing commitment to technology innovation, through the development of geographic

information systems that work hand-in-hand with GPS guided aerial and ground system products. ADAPCO's GIS-based Decision Support System helps customers run a more effective mosquito control program, to better protect the public health of the communities in which they operate.

If you have any questions on how GeoPro can improve your operation, please contact Derek Wright at (800) 367-0659 or DWright@MyADAPCO.com.



The City of Fort Collins' Larval Surveillance Program

Jessica Schurich, Colorado Mosquito Control, Chet Moore, Colorado State University, and Mike Calhoun, City of Fort Collins

The City's Integrated Pest Management program focuses on utilizing naturally occurring soil bacteria, larvicides, to control mosquitoes in the larval stage, instead of relying entirely on application of pesticides in the form of fogging materials. The program primarily utilizes applications of *Bti*, a stomach toxin, which is target-specific to larval mosquitoes. This naturally occurring bacteria is activated by a specific pH within the larval gut and disrupts the larvae's ability to consume and digest food resources.

When properly carried out, by trained applicators, IPM programs return beneficial results in reduced pesticide use, reduced frequency of pesticide resistance, and reduced exposure to pesticides by the environment. The Mosquito Management Program for the City of Fort Collins follows successful IPM principles for cost effective, scientific methods of survey/inspection, evaluation,

diagnosis, application and record keeping of materials used.

The larval coverage area for the City of Fort Collins includes approximately 109 square miles of private and public lands, where permission has been granted. There are 1,283 larval mosquito habitats are included in the Larval Surveillance Program. Field technicians methodically inspect larval habitats twice a week, weekly, bi-weekly or post rainfall, as deemed necessary based off of historical data. Once the presence of mosquito larvae is confirmed, larvicides are applied.

The goal is to reduce the amount of vector mosquitoes before they have the chance to become infected with West Nile Virus and possibly infect the residents of Fort Collins. This objective will ideally aid in keeping the infection rates in mosquitoes low, and hopefully offset the future need for large scale mosquito adulticides or a public health emergency associated with

West Nile Virus risk.

The City of Fort Collins also incorporates the following items into their programs:

- Stocking of residential ponds with fathead minnows (native species east of the Divide) for larval mosquito control by contractor
- Reminders in utility billing to dump standing water and keep residents informed about mosquitoes
- A public outreach employee who attends outdoor community events to distribute repellents, informational brochures, and answers questions about West Nile Virus
- A residential backyard inspection program
- A storm drain inspection program
- Interactive reporting and webpage access to operational data and locations of West Nile infected mosquitoes.

A New Approach to a Biting Problem

Jessica Schurich, Colorado Mosquito Control, Chet Moore, Colorado State University, and
Mike Calhoun, City of Fort Collins

The City of Fort Collins faces similar problems that many agricultural driven communities do. Much of the land use practices that surround the City of Fort Collins involve flood irrigation for grass hay and alfalfa harvests. In addition, proximity to the Continental Divide causes the water table along the Poudre River corridor to become saturated during snow melt runoff. The resultant water often sits stagnant for much of May and June, thereby creating the perfect habitat for *Culex tarsalis* mosquitoes every season. Fort Collins strives to be a progressive community, focused on green practices. Therefore, the community philosophy and city council's direction support a modified approach to managing mosquitoes and West Nile Virus risks.

In 2003, early spring rains and warm temperatures made the perfect conditions for West Nile Virus to amplify early in the vector population, *Culex tarsalis*. In 2003 Larimer County led the country in human case counts (546) of West Nile Virus infection. Larimer County Department of Health and Environment (LCDHE) deemed aerial spraying across much of the populated portions of the County necessary in August 2003 to suppress the vector

populations. Prior to 2003, the City of Fort Collins had not performed any larval or adult mosquito surveillance monitoring. Many of the residents became accustomed to living with the annoyances incurred by mosquitoes. Resident feedback in 2004 supported the option of larval mosquito control efforts, but did not support mosquito adulticiding, unless a pending health emergency was present.

In 2004 the City of Fort Collins adopted an aggressive larval and adult mosquito surveillance monitoring program. The primary objective of the City of Fort Collins Mosquito Management Program is to employ trained field biologists to suppress populations of larval mosquitoes in aquatic habitats. CMC technicians utilize bacterial larvicides that reduce mosquito populations without harming non-target organisms. Additionally, surveillance trapping of adult mosquitoes performed in the City of Fort Collins provides data used to assess West Nile Virus Infection Rates, as well as the need for adult mosquito control measures.

Fort Collins City Council approved resolution 2008-062 to adopt a New West Nile Virus Policy on July 1, 2008. Reassessment of the

resources, tools, and thresholds used in the management program was performed by a Technical Advisory Committee. The recommendations and conclusions were presented before City Council for approval. The Technical Advisory Committee and City Council deemed it necessary that in *some* years targeted ULV adult mosquito control may become needed in order to avert a public health emergency. Policy 2008-062 leaves the final decision for adult mosquito control applications with the city manager. Decisions for ULV spraying will assess the public health risk based off of numerous context variables.

The final decision by the city manager will also consider recommendations from the Director of the Larimer County Department of Health and Environment and members of the Technical Advisory Committee. The variables used in the evaluation for public health risk and need for adult mosquito control will include; Vector Indices, vector population data, blood donor data from the State blood bank, human case counts, and historic data for epidemic and non epidemic years. The City of Fort Collins does not have an active adult mosquito control program to date.

Mosquito Surveillance trapping Operations

Jessica Schurich, Colorado Mosquito Control, Chet Moore, Colorado State University, and Mike Calhoun, City of Fort Collins

Data on mosquito abundance and species identity is critical in the operation of a successful mosquito management program. The City of Fort Collins funds surveillance trapping at 37 permanent surveillance light trap locations (approximately 1 trap per square mile) weekly throughout the summer. This trapping network is more extensive than most Mosquito Abatement Districts in the country and generates ample data for individual area assessments. The mosquitoes are collected daily, sorted to species, vector samples are prepared for testing and the data is input into a database. The City of Fort Collins mosquito trap data can be accessed daily on

the interactive website for weekly, monthly or annual comparison to follow species trends. The City has learned over the years that identifying, packaging, and sending *Culex* mosquito pool samples weekly to the CDC/CSU labs for West Nile Virus testing has become critically important in the battle against West Nile Virus and other mosquito-borne diseases.

The purpose of the City of Fort Collins adult mosquito surveillance program is to be an early warning system and provide causation for any mosquito adulticiding that is

performed. Elevated infection rates in mosquitoes can isolate areas of the city that may pose more risk than others, thereby limiting the frequency and breadth of area that may warrant mosquito adulticides.

In 2009, the City of Fort Collins contracted with Colorado State University to test mosquito samples on a weekly basis from each of the 37 surveillance locations. Specimens are pooled in groups of up to 100 females by trap site, species, and collection date. This creates a large sample size of mosquito being tested from the City of Fort Collins on a weekly basis.

West Nile Virus Surveillance Operations

Jessica Schurich, Colorado Mosquito Control, Chet Moore, Colorado State University, and Mike Calhoun, City of Fort Collins

During the summer of 2009, testing of mosquito pools from Fort Collins for West Nile virus was performed by the Arthropod-borne & Infectious Diseases Laboratory (AIDL) at Colorado State University. Each week's collection of *Culex* pools were delivered to CSU/AIDL on Friday, where they were sorted and stored at -20° C. On Monday and Tuesday, the pools were processed and tested for WNV antigen by reverse-transcription polymerase chain reaction (RT-PCR). On Wednesday, the data were checked and entered into the database, and reports were prepared and distributed to CMC, City of Fort Collins, CDC, Larimer County Health

Department, and CDPHE.

Between June 4 to September 17, a total of 18,887 *Culex* mosquitoes (3,851 *pipiens*, 15,036 *tarsalis*) were tested in 941 pools. The two figures above show the results of WNV testing for the 2009 season. Average numbers of females per trap night were generally within the norm (5-year average) for both *Culex pipiens* and *Cx. tarsalis*. Infection rates were generally low, with the combined Vector Index (VI) for *Cx. pipiens* and *tarsalis* at or below 0.3. An unusual early-season "blip" occurred in week 23, when one of three *Cx. pipiens* pools, each consisting of a single female, tested

positive for WNV. This gave a VI of 0.33, but the small sample size rendered the figure basically meaningless. The utility of VI over either infection rate or numbers per trap night alone is obvious from the graphs. For example, infection rates in late-season *Cx. tarsalis* showed a steady rise that could cause concern. However, numbers per trap night continually decreased (largely because emerging late-season adults are not seeking blood and are not caught in the CDC traps). The VI, because it combines the two values, appropriately indicates a decline in the likelihood of disease risk.

Introducing Sentinel GIS Surveillance

Ryan Pierson, Electronic Data Solutions, Jerome, Idaho



Electronic Data Solutions is pleased to announce the release of the latest Sentinel GIS software application – Sentinel GIS Surveillance. This latest software application designed for the vector control professional allows users to record all field surveillance activities and track collected samples through the laboratory processes. In addition, Sentinel GIS Surveillance provides powerful reporting tools used in analyzing field and laboratory data. Sentinel GIS Surveillance software integrates seamlessly with the other Sentinel GIS software tools designed specifically for the Vector Control professional in recording all ULV Adulticiding, Larviciding, and Customer Service Request activities. Whether setting mosquito traps, retrieving dead birds, collecting blood samples from sentinel flocks, or submitting mosquito pools for laboratory testing – Sentinel GIS Surveillance software

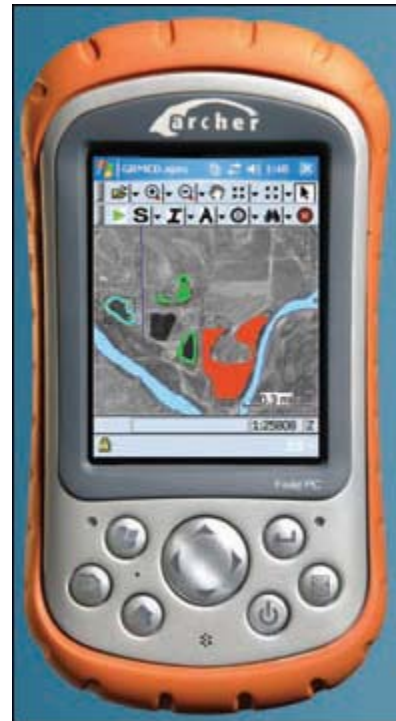
provides simple tools for recording, managing, and analyzing critical data.

Sentinel GIS software applications are built upon the industry standard Geographic Information Systems (GIS) software from ESRI. Sentinel GIS extends the functionality of ESRI GIS software to support the specific activities of Vector Control professionals. By deploying Sentinel GIS software solutions, users can easily maintain maps of all field activities in addition to managing collected data for analysis and customizable report generation.

By deploying Sentinel GIS software solutions, organizations streamline the field data collection process by accurately recording all field activities using simple software tools. This information is then automatically transferred from the field data collection devices and merged with the ESRI GIS database, updating all maps simultaneously. Tools on the desktop PC allow supervisors to quickly review field work, analyze

collected data, and generate reports based upon criteria defined by the user.

Organizations using Sentinel GIS software solutions typically streamline the entire field data collection process and save time in analyzing data and generating reports. Sentinel GIS software applications have proven to increase efficiency and to reduce operational costs for the organization.



West Central Mosquito and Vector Control Association's 2010 Annual Meeting 1st Call for Papers



You are invited to submit a title for a paper to be presented at the 36th Annual Meeting of the West Central Mosquito and Vector Control Association, to be held at the **Fort Collins Hilton, 425 West Prospect, Fort Collins, Colorado February 24th and 25th, 2010.**

Type or print the following exactly the way they are to appear on the Program. If more than one author is listed, place an asterisk after the name of the author who is to present the paper. Send this form to Tony Stillwell at tstilwell@bgchem.com.

Deadline: January 11, 2010

1) **Title:** 15 words or less

2) **Abstract:** 200 word maximum. Abstracts will be printed in proceedings. Please be specific and informative.

3) **Duration of Presentation:** ___ 10 min ___ 15 min ___ 20 min

4) **Author(s):**

a. Name(s): _____

b. Phone number: _____

c. Fax number: _____

d. E-mail address: _____

e. Organization(s): _____

f. Mailing address: _____

g. Audiovisual equipment needed: _____

h. Will you bring a CD or other digital storage device? _____

i. What type: _____



WCMVCA Newsletter

Editor:

Edward S. Horvath, M.P.H.
12364 W Nevada PI, #304
Lakewood, CO 80033

PHONE:

(303) 955-4752

E-MAIL:

eshorvath@hotmail.com

We're on the Web!

See us at:

<http://www.westcentralmosquitoandvector.org>

2009 WCMVCA Officers

President

Keith Wardlaw,
City of Laramie
Laramie, Wyoming
(307) 721-5258
kwardlaw@ci.laramie.wy.us

1st Vice President

Tony Stilwell
B & G, Inc.
California
(214) 243-7898
tstilwell.bqchem.com

2nd Vice President

Brian Hougaard
South Salt Lake Valley MAD
Sandy, Utah
(801) 255-4651
brian_hougaard@yahoo.com

Past President

Janet McAllister
Centers for Disease Control &
Prevention
Fort Collins, Colorado
(970) 225-4239
JVM6@CDC.GOV

Secretary

Sara Evans
Weld County Dept. of Public Health
& Env.
Greeley, Colorado
(970) 304-6415 Ext. 2201
sevans@co.weld.co.us

Treasurer

Steve DeFeyter
Mesa County Health Dept
Grand Junction, Colorado
(970) 248-6978
Steve.DeFeyter@mesacounty.us

Executive Board Members

Kristine Bennett
USDA/ARS/ABADRL
Laramie, Wyoming
(307) 766-3601
kristine.bennett@ars.usda.gov

John Holick
Teton County MAD
Jackson, Wyoming
(307) 733-1896
jholick@tcweed.org

Zane McCallister
Grand River MAD
Grand Junction, Colorado
(970) 257-0191
grmcd1@acsol.net



WCMVCA NEWSLETTER
12364 W Nevada PI, #304
Lakewood, CO 80228

