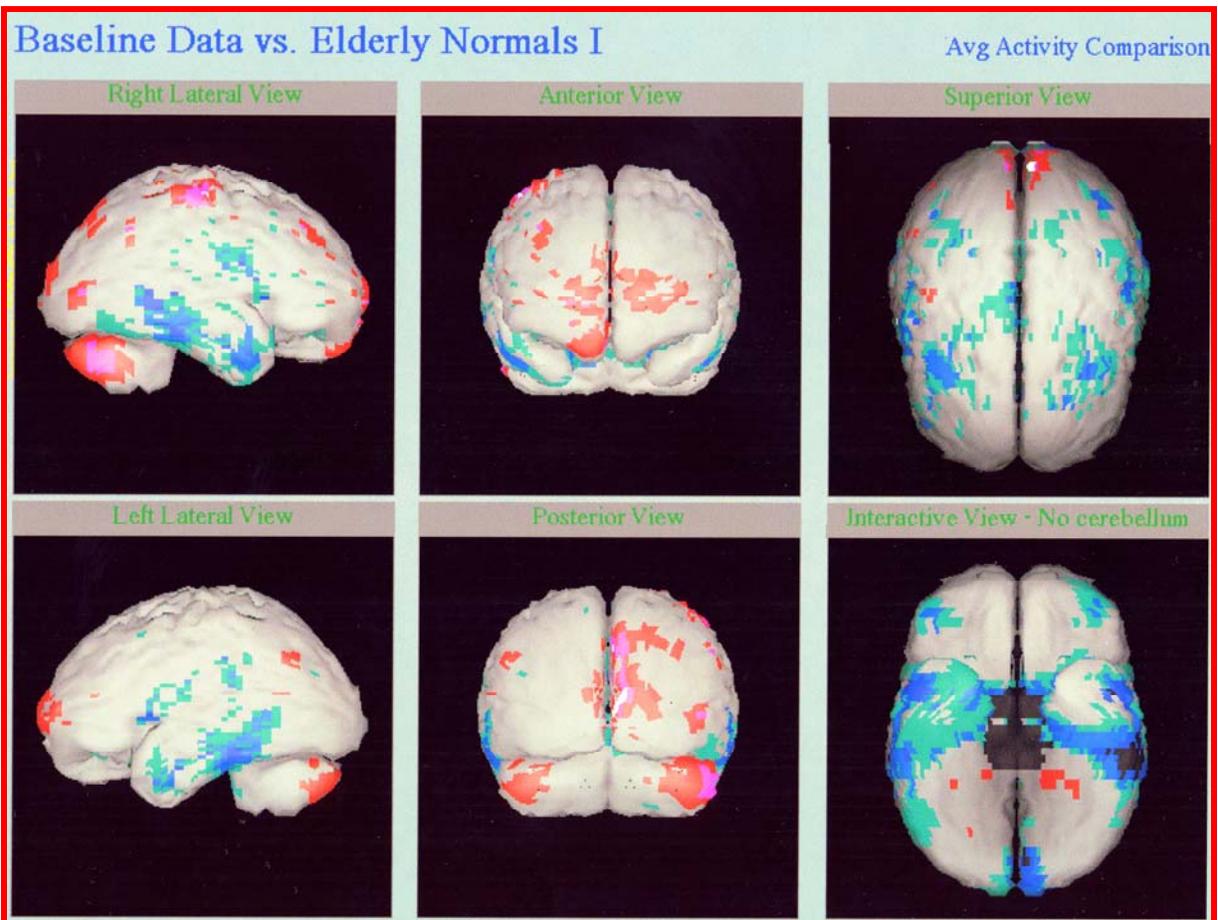


2005 Annual Report Garfield County Mosquito Control Program



October 2005

Colorado Mosquito Control, Inc.

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ON THE COVER:

THIS IS YOUR BRAIN WITH WEST NILE VIRUS.....

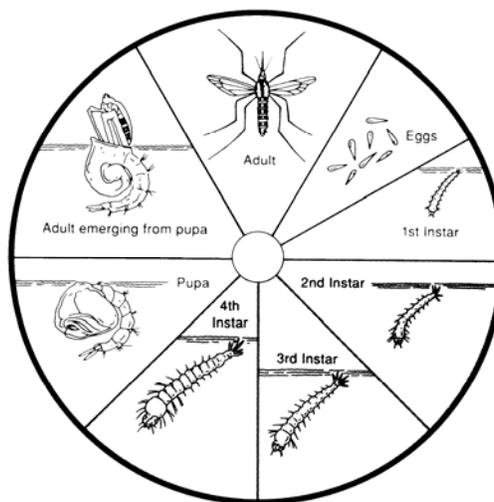
BRAIN SCAN FALSE COLOR IMAGE OF INCREASED (RED) AND REDUCED (BLUE/GREEN) BRAIN ACTIVITY AND BLOOD FLOW IN A PERSON 2 YEARS AFTER INFECTION WITH WEST NILE VIRUS.

BITTEN BY AN INFECTED MOSQUITO IN JULY OF 2003 ON THE COLORADO FRONT RANGE, THIS PERSON WENT FROM A NORMAL, HEALTHY AND ACTIVE ADULT TO BEING UNABLE TO UNDERSTAND AND COMMUNICATE WITH FRIENDS AND FAMILY AND SUFFERED NUMEROUS OTHER SEVERE PHYSICAL AND MENTAL SYMPTOMS. AND NOW TWO YEARS LATER, STILL SUFFERS FROM SIGNIFICANT MEMORY PROBLEMS, SEVERELY REDUCED COGNITIVE STAMINA, FATIGUE, DIFFICULTY IN CONCENTRATING, AND HEADACHES.

DURING THE SUMMER OF 2003, THE STATE OF COLORADO EXPERIENCED THE WORST EPIDEMIC OF HUMAN MOSQUITO-BORNE DISEASE ON RECORD IN THE WESTERN UNITED STATES WITH NEARLY 3,000 CASES AND 63 DEATHS. IN 2004 NEARLY 300 CASES AND 3 DEATHS WERE RECORDED.

AS OF SEPTEMBER 24, 2005 THE RISK OF WNV INFECTION IN COLORADO CONTINUES. 71 HUMAN CASES OF WEST NILE VIRUS HAVE BEEN REPORTED IN COLORADO WITH ONE DEATH, IN MORGAN COUNTY.

THE MOSQUITO LIFE CYCLE



**GARFIELD COUNTY COOPERATIVE
MOSQUITO CONTROL PROGRAM
GARFIELD COUNTY
ANNUAL REPORT 2005**

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***THE GARFIELD COUNTY COOPERATIVE
MOSQUITO CONTROL PROGRAM
MISSION STATEMENT***

The need to protect residents and visitors from the health risks, severe annoyance, and discomfort associated with biting mosquitoes is a chronic problem. The primary objective of the Garfield County Cooperative Mosquito Control Program is to suppress the development of larval mosquitoes in wetland and other sites, to monitor and reduce numbers of adult mosquitoes thereby reducing overall mosquito populations to an acceptable low-biting "annoyance level", while reducing the threat of mosquito-borne disease transmission, all at the least possible cost, and with the least possible impact on people and the natural environment.

CMC OBJECTIVES

Colorado Mosquito Control, Inc. as the contractor for the Garfield County Cooperative Mosquito Control Program will use proven scientific integrated pest management (IPM) methods of survey, inspection, diagnosis, biological/biochemical controls, natural enemies and limited low-toxicity pesticide applications to professionally accomplish the objectives of the Program. All of the methods and materials used have been reviewed and registered by the U.S. EPA, Centers for Disease Control, the Colorado Department of Agriculture and the American Mosquito Control Association.

Integrated Pest Management:

"A process consisting of the balanced use of cultural, biological, and least-toxic chemical procedures that are environmentally compatible and economically feasible to reduce pest and vector populations to a tolerable level"

**2005 Garfield County Cooperative
Mosquito Control Program**

BATTLEMENT MESA

TOWN OF CARBONDALE

GARFIELD COUNTY

CITY OF GLENWOOD SPRINGS

TOWN OF NEW CASTLE

TOWN OF PARACHUTE

TOWN OF RIFLE

TOWN OF SILT

Colorado Mosquito Control, Inc.

Colorado Mosquito Control, Inc. (CMC) is a large-scale contractor specializing in complete integrated mosquito control services. CMC utilizes an aggressive Integrated Pest Management (IPM) approach to controlling mosquito populations within contracted areas. CMC was established in 1986, is the largest private company specializing in mosquito control in Colorado, and is the only company in Colorado offering complete IPM mosquito control services.

CMC currently has programs across the state of Colorado including: Homeowners Associations, Incorporated Cities and Towns, Mosquito Control Districts, Counties, Indian Reservations, and others. Geographically, CMC reaches from the Ute Mountain Ute Reservation in the southwest corner of the state to Fort Morgan in northeastern Colorado. CMC has programs in several mountain areas including the Gunnison Valley, the I-70 corridor, and parts of the upper Colorado River valley.

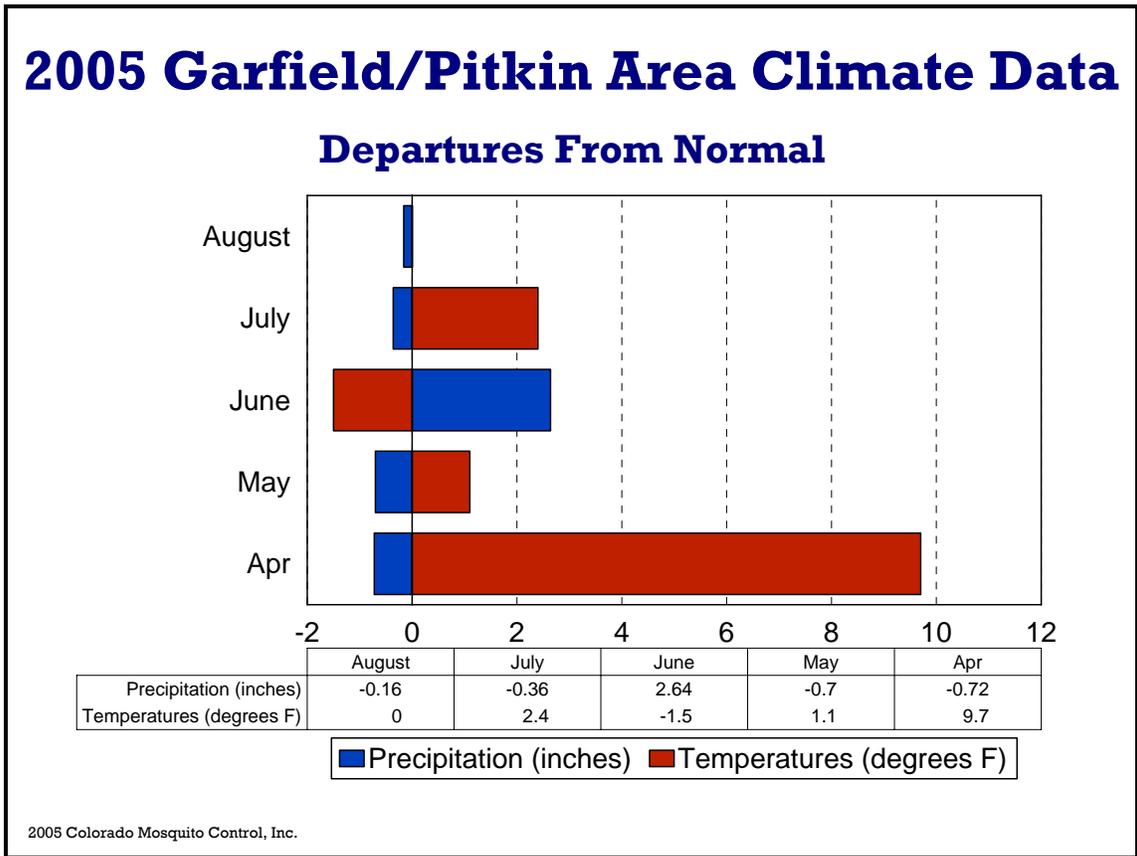
Cooperative Program

Throughout Colorado many counties and communities participated in a cooperative mosquito control program during 2005. During the season, efficacy of these established programs were improved with the inclusion of areas adjacent to or surrounded by previously participating areas, Pitkin County for example. CMC has continued to provide top quality mosquito control programs in communities across the state for over 15 years. In addition, CMC has rapidly expanded to provide service to other municipalities as new mosquito control programs were initiated. CMC will maintain its commitment to provide top quality service, in an effort to minimize the threat of West Nile Virus to citizens throughout Colorado and to reduce mosquito annoyance.

-- 2005 SEASON PERSPECTIVE -----

At CMC we have come to expect each Colorado summer to present a unique set of temperature, precipitation, irrigation, and human interactions that combine to create new and different challenges in both mosquito control and mosquito-borne disease proliferation and control; 2005 was certainly typical in that respect.

The 2005 mosquito season can best be described as a “roller coaster” ride, with striking highs and dramatic lows in both temperatures and precipitation, all having profound effects on mosquito populations. According to the NOAA web site, April was cool yet temperatures were 9.7 degrees above average. May again was cool but dry with rainfalls .7 inches below normal for the month. Just when we thought the drought was returning, June remained cool but was very wet and actually became the 4th wettest June on record with many areas receiving close to 4.0 inches of rain for the month. July provided a dramatic turn and became very hot (2.4 degrees above normal) with still above average rainfall. August was closest to normal but was slightly below average in precipitation.



The vast majority of the mosquitoes with which we must contend are associated with newly applied floodwater via rain or irrigation (*Aedes/Ochleratuttus*) or older standing stagnant water (*Culex*). Thus mosquito population trends are almost always dependent on either heavy rains (over 0.5 in.) or the agricultural flooding of fields for irrigation. In 2005,

Garfield County did receive heavy rains regularly throughout the month of June, and with many rainfalls over 0.5 inch triggering large hatches of floodwater *Aedes*. Also, flood irrigation did occur on a regular basis in areas and resulted in several recognizable broods of floodwater mosquitoes and after-the-fact *Culex* standing water mosquitoes. Understanding and recognizing patterns of agricultural irrigation is still one of CMC's primary goals. Significant strides have been made, but there is still more to do.

As stated above, July saw hot conditions with above average rainfall during the month. This had two profound effects on the mosquito populations. One was that the production of floodwater *Aedes* mosquitoes was still occurring, and two, that many stagnant water sites became producers of *Culex* mosquitoes. These *Culex* mosquitoes of course are the primary vectors of WNV and other mosquito-borne diseases in Colorado. Larval floodwater *Aedes* mosquitoes remained consistent in mid to late August with a some late season irrigation. Late August and early September saw a return to more normal conditions with scattered afternoon thunderstorms and only small localized mosquito problems. The season came to a close on September 13th with the incursion of a large cold front which dropped day time temperatures into the 60's and night time temperatures into the 40's.

2005 Field Activities

Field activities began in late March for the 2005 season. The earliest activity of the season was taking the GIS maps which were updated and revised over the fall and winter and site ground-checking them. In addition, new site identification and mapping were the highest priority. Mapping larval sites is an ongoing process, and in every program citizen reports of new larval sites result in many new sites being added to the existing larval inspection routes. Hiring of seasonal technicians began in March, and continued into late May. As the CMC service area continues to grow, hiring an adequate number of top quality field technicians has become a challenge. For the Garfield/Pitkin office, 4 technicians were hired with nearly 30 being interviewed.

CMC's Annual Field Technician Classroom Training Day took place on Saturday April 23rd with over 75 new and returning field technicians in attendance. Field training by CMC management and veteran employees lasted throughout May, with a few late hires being trained during early June. By early June, CMC was fully staffed and had full daytime and evening shift crews fully trained and in the field throughout the state. During the mid June to mid August time period, field mosquito control operations were in full swing. The final day for larval inspections and control came during early September.

Mosquito trapping was planned through September 23, however windy, cold, and wet weather conditions effectively eliminated the final week of mosquito trapping and associated adult spraying operations. Although small populations of adult mosquitoes remained through the end of September, mosquito annoyance calls declined to zero during the last weeks of the month.

--WEST NILE VIRUS 2005-----

Background

West Nile Virus (WNV) was first identified in Uganda in 1937. Since that time, activity has been documented throughout Africa, Europe, West and Central Asia, and areas of the Middle East. The virus made its first appearance to North America in 1999 when it was documented in New York City. WNV comes from a family of viruses known as Flaviviridae and is closely related to other viruses which can have severe effects on both humans and animals such as Japanese Encephalitis and St. Louis encephalitis.

WNV has a wide range of symptoms which can range from mild flu like symptoms to death. Of humans affected, nearly 80% will show no symptoms at all. The majority of people who do show symptoms will usually suffer from flu like symptoms. However, approximately 1% of people will develop much more severe symptoms including meningitis (inflammation of the linings surrounding the brain and spinal cord), encephalitis (inflammation of the brain), or very rarely poliomyelitis which can cause paralysis in parts of the body.

Since the introduction of WNV to the United States in New York City in 1999, the virus has made a complete westward expansion to the West Coast. Starting in the Northeastern parts of the United States, the virus steadily progressed through the South, the Midwest, the Rocky Mountain region, and now the Western States. WNV activity has been documented in all US states except Alaska and Hawaii.

Colorado first saw activity of the virus late in the summer of 2002. In 2003 Colorado was the hardest hit state compiling 2947 human cases and 63 deaths most of which occurred along the Front Range. By 2004 the majority of the cases shifted to the Western Slope and the state totaled 291 cases with 4 deaths (Mesa County).

WNV Activity 2005

Cases of WNV have been seen throughout a large part of the country. As expected, California has seen significant activity and has confirmed the most cases of any state so far. However, other states such as South Dakota, Texas, Illinois, and Louisiana have seen a large numbers of human cases this year. Some of these numbers represent a rebound in activity from previous years.

In Colorado, activity has been spread throughout the state with no particular clustering in any one region. The first avian case recorded in the state this year came in the form of a positive owl from Weld County in April. The next case was not seen until June when a positive equine case from Adams County was confirmed. Human activity has consisted mainly of West Nile Fever. A number of neuroinvasive cases consisting of both meningitis and encephalitis have been seen as well. However, no deaths have been reported so far. Human cases appeared to have a relatively slow start, but through mid August and early September the number of cases began to steadily increase. Most cases have been observed in adults between the ages of 35 and 65. The state has reported a total of 71 human cases thus far for the 2005 season.

**Clinical Diagnosis Associated with Human
West Nile Virus Infections:
Colorado, 2003 – 2005
As of Sept. 23, 2005**

| TYPE of WEST NILE INFECTION | 2005 % of cases | 2004 % of cases | 2003 % of cases |
|--|----------------------------|----------------------------|----------------------------|
| Fever | 83.1 | 86.1 | 78.9 |
| Meningitis | 11.3 | 8.3 | 13.2 |
| Encephalitis | 5.6 | 5.6 | 7.9 |
| Total | 100.0 | 100.0 | 100.0 |

**Human West Nile Virus Infections:
Colorado, 2003 – 2005
As of Sept. 23, 2005**

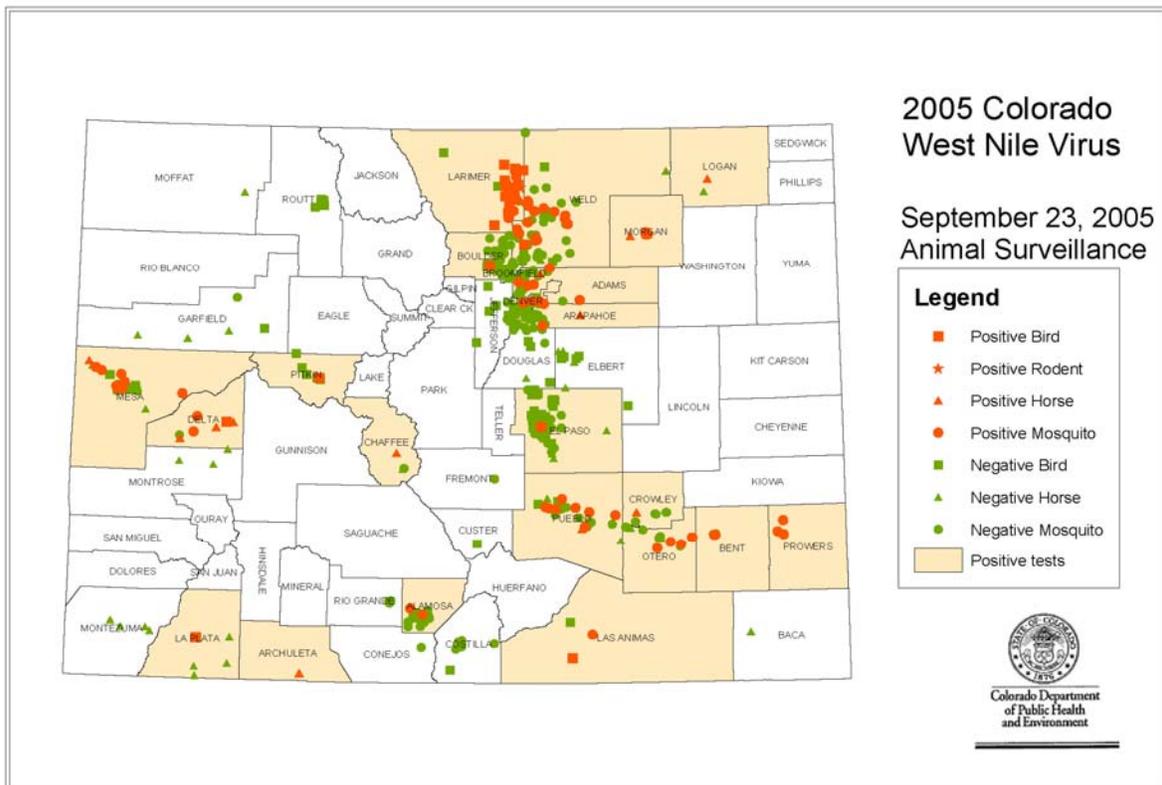
| COUNTY Of RESIDENCE | 2005 Total Case s | 2004 Total Cases | 2004 Total Death s | 2003 Total Cases | 2003 Total Death s |
|------------------------------------|--------------------------------------|---------------------------------|---------------------------------------|---------------------------------|---------------------------------------|
| Adams | 2 | 15 | | 232 | 6 |
| Alamosa | | | | 3 | . |
| Arapahoe | 1 | | | 138 | 5 |
| Archuleta | | 2 | | | |
| Baca | | 1 | | 5 | . |
| Bent | | | | 6 | . |
| Boulder | 5 | 14 | | 421 | 7 |
| Broomfield | | | | 55 | . |
| Chaffee | | | | 7 | . |
| Cheyenne | | | | 4 | . |
| Clear Creek | | | | 1 | . |
| Conejos | | | | 1 | . |
| Crowley | | | | 4 | . |
| Delta | 1 | 27 | | 10 | . |
| Denver | 3 | 3 | | 162 | 9 |

| | | | | | |
|-------------------|----|-----|---|-----|---|
| Douglas | 1 | 1 | | 39 | . |
| Eagle | 1 | | | 1 | . |
| El Paso | 1 | 2 | | 114 | 1 |
| Elbert | | | | 8 | . |
| Fremont | 3 | 4 | | 77 | 2 |
| Garfield | 1 | 5 | | 2 | . |
| Grand | | | | 1 | . |
| Gunnison | | 1 | | | |
| Huerfano | | | | 10 | . |
| Jefferson | 5 | 8 | | 157 | 3 |
| Kiowa | | | | 1 | . |
| Kit Carson | | 2 | | 5 | . |
| La Plata | 1 | 21 | | 14 | . |
| Larimer | 13 | 17 | | 546 | 9 |
| Las Animas | 1 | | | 7 | 1 |
| Lincoln | | | | 8 | 2 |
| Logan | 1 | 5 | | 84 | 2 |
| Mesa | 9 | 127 | 4 | 19 | 2 |
| Moffat | | | | 2 | . |
| Montezuma | | 4 | | 5 | . |
| Montrose | | 11 | | 9 | . |
| Morgan | 2 | 1 | | 61 | . |
| Otero | 1 | | | 28 | 2 |
| Park | | 1 | | 1 | . |
| Phillips | 2 | 2 | | 23 | . |
| Prowers | 1 | 3 | | 43 | . |
| Pueblo | 3 | 3 | | 183 | 6 |
| Rio Blanco | | 1 | | | |
| Rio Grande | | | | 3 | . |
| Saguache | | | | 2 | . |
| Sedgwick | 3 | 1 | | 13 | . |

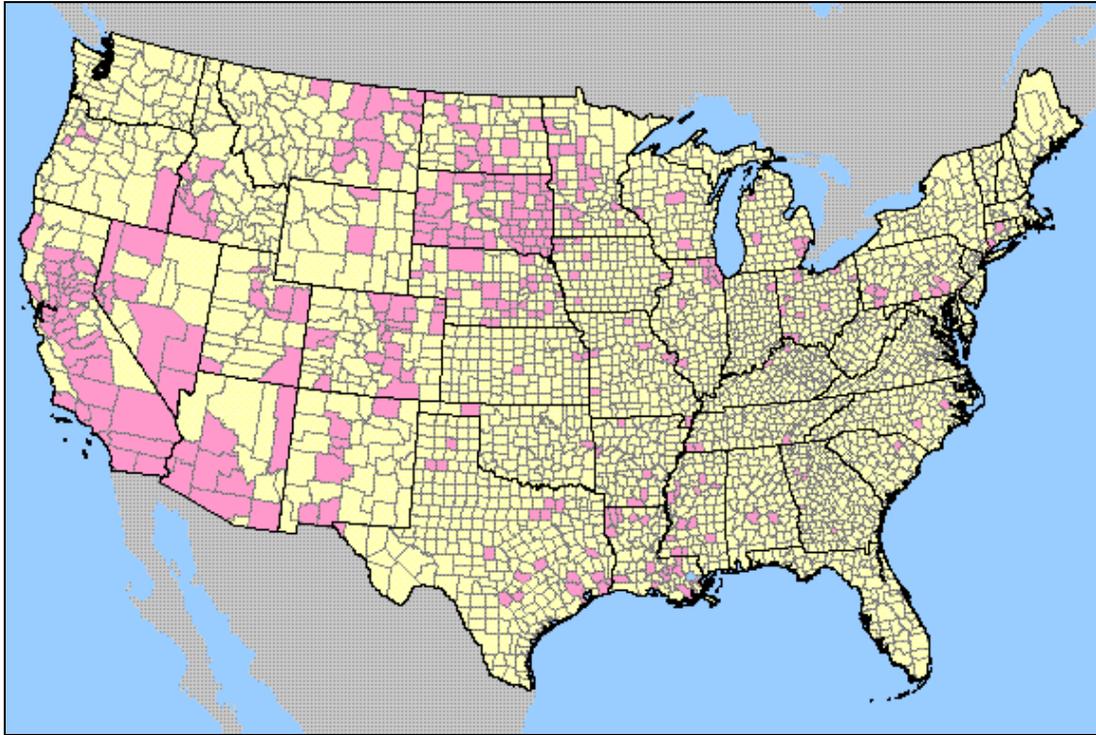
| | | | | | |
|------------------|-----------|------------|----------|-------------|-----------|
| Summit | | | | 3 | . |
| Washingto | | | | 10 | . |
| Weld | 9 | 8 | | 402 | 6 |
| Yuma | 1 | | | 17 | . |
| Total | 71 | 291 | 4 | 2947 | 63 |

Counties Not Listed Have No Verified Human Cases

*(** Data from the Colorado Department of Public Health and Environment website as of September 23, 2005)*



Animal WNV in Colorado 2005



Human WNV in the United States 2005

Source: U.S. Geological Survey http://westnilemaps.usgs.gov/us_human.html (Sept. 23, 2005)

--LARVAL MOSQUITO CONTROL-----

Many years of research and practical experience have shown that the most effective way to control mosquito populations is through an aggressive Integrated Pest Management (IPM) approach. This approach aims at using a variety of concepts, tools, and products to reduce a pest population to a tolerable level. Translating these ideas to mosquito control, it has been found the most environmentally and economically sound approach is through targeting the aquatic larval stage of the mosquito. Targeting this stage prevents the emergence of the adult mosquito and thus the inevitable conflicts of disease and nuisance afterwards. Approximately 90% of Colorado Mosquito Control, Inc. (CMC) operational efforts are focused on larval control.

Larval mosquito control can be achieved in several ways including biological, biochemical, chemical, and mechanical means. Although there are a variety of methods of reducing larval populations some may have greater consequence than benefit. Mechanical or Habitat Modification is a technique which may be used, but the area to be modified and the extent to which the work will affect the surrounding area must be carefully reviewed. Permanent ecological damage may occur if extensive habitat change has taken place.

2004/2005 Inspection & Larviciding Results 2005 Garfield County Mosquito Control Programs

| | Site Insps '04 | Site Insps '05 | Site Trtmts '04 | Site Trtmts '05 | Acreage '04 | Acreage '05 |
|-------------------------|----------------|----------------|-----------------|-----------------|-------------|-------------|
| <i>Battlement Mesa</i> | 226.0 | 162.0 | 15.0 | 20.0 | 62.7 | 41.9 |
| <i>Carbondale</i> | 111.0 | 133.0 | 49.0 | 47.0 | 44.2 | 25.3 |
| <i>Garfield County</i> | 1673.0 | 1066.0 | 454.0 | 352.0 | 455.5 | 448.8 |
| <i>Glenwood Springs</i> | 97.0 | 62.0 | 0.0 | 8.0 | 0.0 | 1.8 |
| <i>New Castle</i> | 117.0 | 96.0 | 31.0 | 38.0 | 13.5 | 35.9 |
| <i>Parachute</i> | 243.0 | 221.0 | 68.0 | 84.0 | 65.4 | 87.4 |
| <i>Rifle</i> | 699.0 | 427.0 | 129.0 | 118.0 | 78.9 | 114.3 |
| <i>Silt</i> | 163.0 | 65.0 | 14.0 | 9.0 | 15.0 | 12.8 |

2005 Colorado Mosquito Control, Inc.

This chart is the confidential work product of Colorado Mosquito Control, Inc and is protected by state and federal statutes.

True biological controls may also have costs which outweigh the benefits or competency of their control capacity. Predatory fish serve as a good example of this. The mosquito fish (*Gambusia affinis*), an introduced species, while an effective predator on mosquito larvae, may have much larger dangers to native fish of Colorado waters. A very

GARFIELD COUNTY COOPERATIVE MOSQUITO CONTROL PROGRAM
GARFIELD COUNTY ANNUAL REPORT 2005

COLORADO MOSQUITO CONTROL, INC.

aggressive eater and rapid reproducer, *Gambusia* often out compete their native counterparts. Due to these factors the Colorado Division of Wildlife (CDOW) has placed restrictions on the stocking and use of the fish. However, this year CMC obtained a limited supply of fathead minnows (*Pimephales promelas*), a native Colorado species. Fish were made available to residents in some local program areas for placement in irrigation or ornamental ponds. In general however, predatory fish and other biological controls such as bird and bats do not provide sufficient control of mosquito populations to be used as the sole mechanism. Other methods must be used as well.

The favored method of larval mosquito control is through bacterial or bio-rational products. The main product used by CMC is a variety of bacteria (*Bacillus thuringiensis* var. *israeliensis*). Bti as it is known has become the cornerstone of mosquito control programs throughout the world. The benefits include its efficacy and lack of environmental impacts. When used properly successful control without impact to aquatic invertebrates, birds, mammals, fish, amphibians, reptiles, or humans can be achieved. A broad label allows for the use of the product in the majority of the habitats throughout the service area.

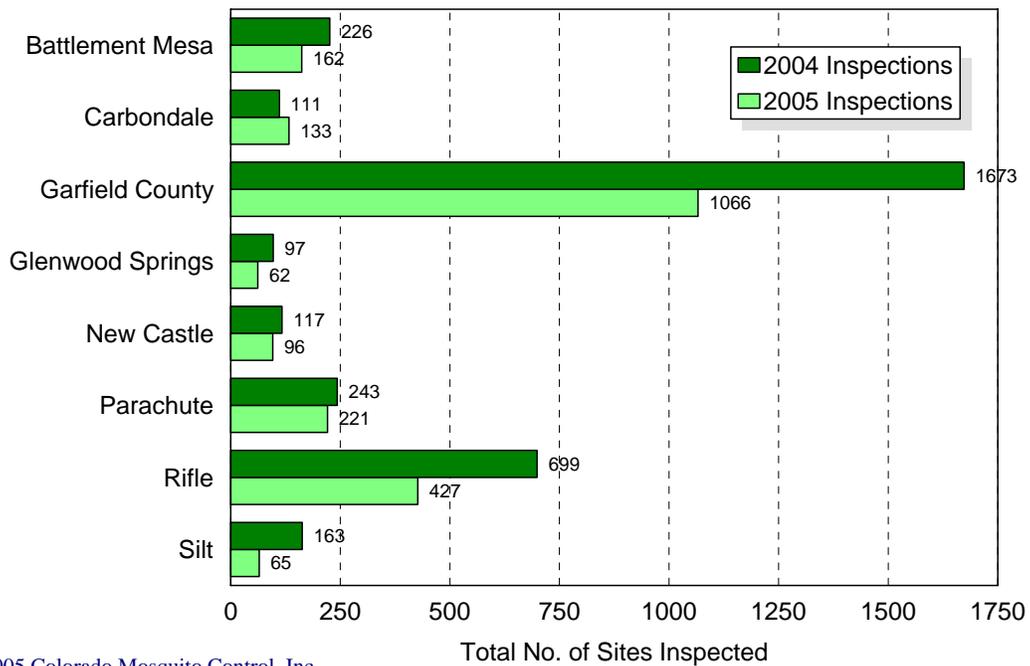
Another bacterial product closely related to Bti is *Bacillus sphaericus* (Bs). In addition to all of the benefits of Bti, Bs is by definition a true biological control agent in that it remains in the system through multiple broods, or generations, of mosquitoes. Unfortunately the residual benefit of the control comes at a cost in price of approximately three times that of Bti.

Other larval control products include growth regulators (methoprene), mineral oil, and an organophosphate (Abate). Methoprene is a synthetic copy of a juvenile growth hormone in larval mosquitoes. The hormone prevents normal development of the adult mosquito in the pupal stage eventually causing death. While a good control product, the cost is prohibitive to be the predominant product in a large scale program. Abate, the one chemical larval control product CMC uses, serves as an effective product, but label restrictions limit its use in many areas. CMC limits the use of chemical larvacides to areas with little biodiversity, such as road side ditches, or areas which chronically produce large amounts of mosquitoes and use them only as a last resort when other solutions are not present. The benefits of these products are the availability of 30 and 150 day formulations. Mineral oil is the only product effective on the pupal stage and therefore is an essential tool when pupae are found.

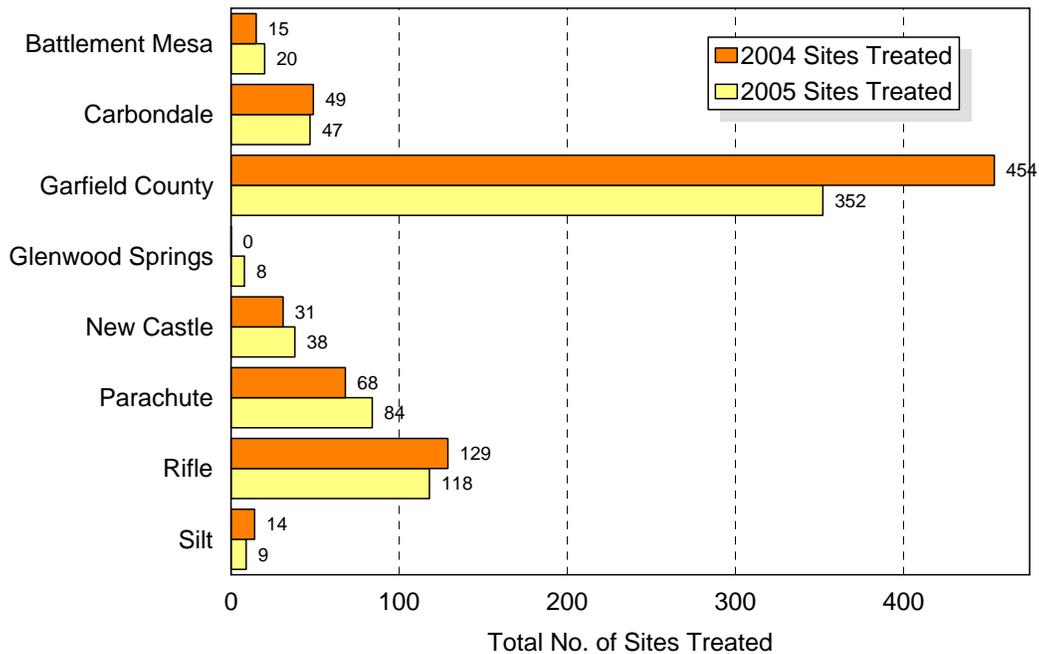
All the fore mentioned methods and products represent the essential ideas of Integrated Pest Management. Mosquitoes are very well adapted animals and can be found in many different habitat types, from a cattail marsh to a cup littered on the side of the road. A variety of tools must be used to prevent resistance and ensure the best method will be available for any given situation.

Larval control began in April and continued though the middle of September. Sporadic rain events and a surplus of irrigation water left more sites 'wet' this year than in previous years.

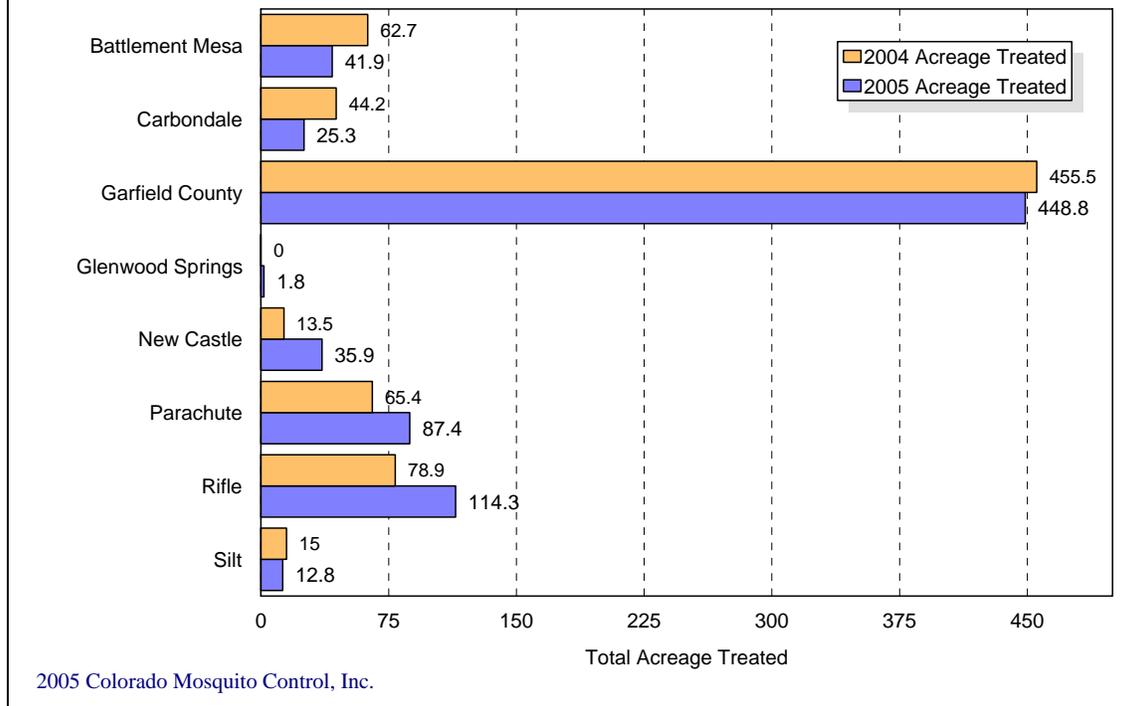
Larval Site Inspections by Service Area 2004/2005 Garfield County Mosquito Control Program



Larval Site Treatments by Service Area 2004/2005 Garfield County Mosquito Control Program



Larval Acreage Treated by Service Area 2004/2005 Garfield County Mosquito Control Program



CMC constantly strives to improve its operations. Historical data is analyzed to refine and identify areas and sites of particular importance. Additionally, a sample of larvae from all sites found to be breeding was collected and brought back to the lab for identification purposes. This allows for a specific knowledge of each site especially in the event of a disease outbreak where a particular species has been found to be the vector. Targeted inspections allow for resources to be allocated efficiently.

--CMC SURVEILLANCE LABORATORY-----

Information about mosquito abundance and species identity is critical to a successful mosquito control program. Colorado Mosquito Control employs two kinds of traps to monitor mosquito populations. The CDC light trap uses carbon-dioxide from dry ice as bait to attract female mosquitoes seeking a blood meal from a breathing animal. Once attracted by the CO₂, the mosquitoes are lured by a small light to a fan that pulls them into a net for collection. The Gravid Trap uses a tub of highly-organic water as bait to



attract female mosquitoes that are looking for a place to lay their eggs. A fan placed close to the water surface forces mosquitoes that come to the water into a collection net. Once back in the laboratory, the contents of the trap nets are counted and identified by technicians trained to recognize the Colorado mosquito species.

In 2005, Colorado Mosquito Control monitored a statewide network of more than 250 weekly trap sites, collecting nearly 400,000 adult mosquitoes that were counted and identified to species by the CMC Surveillance Laboratory. While individual traps provide only limited information, trap data is interpreted in the context of historical records for the same

trap site, going back in time more than a dozen years. Individual traps are also compared to other traps from around the region that were set on the same night and therefore exposed to similar weather conditions. Technicians working in the Surveillance Laboratory at Colorado Mosquito Control, Inc. are trained to provide accurate species-level identification of mosquito specimens, for both adults and larvae. More than 50 mosquito species are believed to occur in Colorado, and 29 of those were identified from samples processed during the 2005 season from across the state.

Specimens and data collected from these traps are used for:

→ Determining effectiveness of larval control efforts. Each mosquito species prefers specific kinds of habitats for larval development. If a trap includes large numbers, it could indicate the presence of an unknown larval habitat and, based on the species identification and known habitat preference for that species, direct field technicians as to possible sources of the mosquitoes collected.



→ Determining where adult control efforts were necessary. While mosquito eradication is impossible, significant population reduction is achievable. In places where larval control was insufficient, especially in neighborhoods where adult mosquitoes migrated in from larval sources outside of the control area, it may be necessary to use adulticide methods such as ULV truck fogging or barrier sprays of nearby harborage areas. Trap counts that were in excess of an acceptable threshold for the area would trigger adult control measures.

→ Surveillance for disease. Historically, CMC efforts were targeted at controlling mosquito nuisance problems. However, since the arrival of the West Nile Virus in Colorado in August of 2002, disease prevention has taken on a more important role. Accurate species identification of the mosquitoes in the traps is important when monitoring species population trends. It also is necessary for evaluating whether a population spike represents an actual increase in disease transmission potential or only an increased nuisance level. Additionally, many of the *Culex* specimens collected in the CMC traps during the 2005 season were sent to the State Health Department laboratory or one of the regional county laboratories to be tested for West Nile Virus and other mosquito-borne diseases. While levels of West Nile Virus were relatively low in 2005 when compared to the unprecedented high 2003 season, it is important to continue to monitor the disease in order to be able to recognize when an epidemic is likely and additional measures may be recommended.

During the 2005 season, the CMC Surveillance Laboratory also began an intensive larval identification program. Over 5,600 mosquito larva samples collected by I&L technicians prior to larviciding were identified to species. The information from this data will be used to better target future mosquito control efforts as we gain a greater understanding of the habitat types preferred by Colorado mosquito species and the seasonality of these habitats as sites for mosquito development.



Over 5,600 mosquito larva samples collected by I&L technicians prior to larviciding were identified to species. The information from this data will be used to better target future mosquito control efforts as we gain a greater understanding of the habitat types preferred by Colorado mosquito species and the seasonality of these habitats as sites for mosquito development.

Surveillance Trivia: *Aedes vexans*, the common floodwater mosquito, accounted for more than 49% of the mosquitoes collected in CMC's light

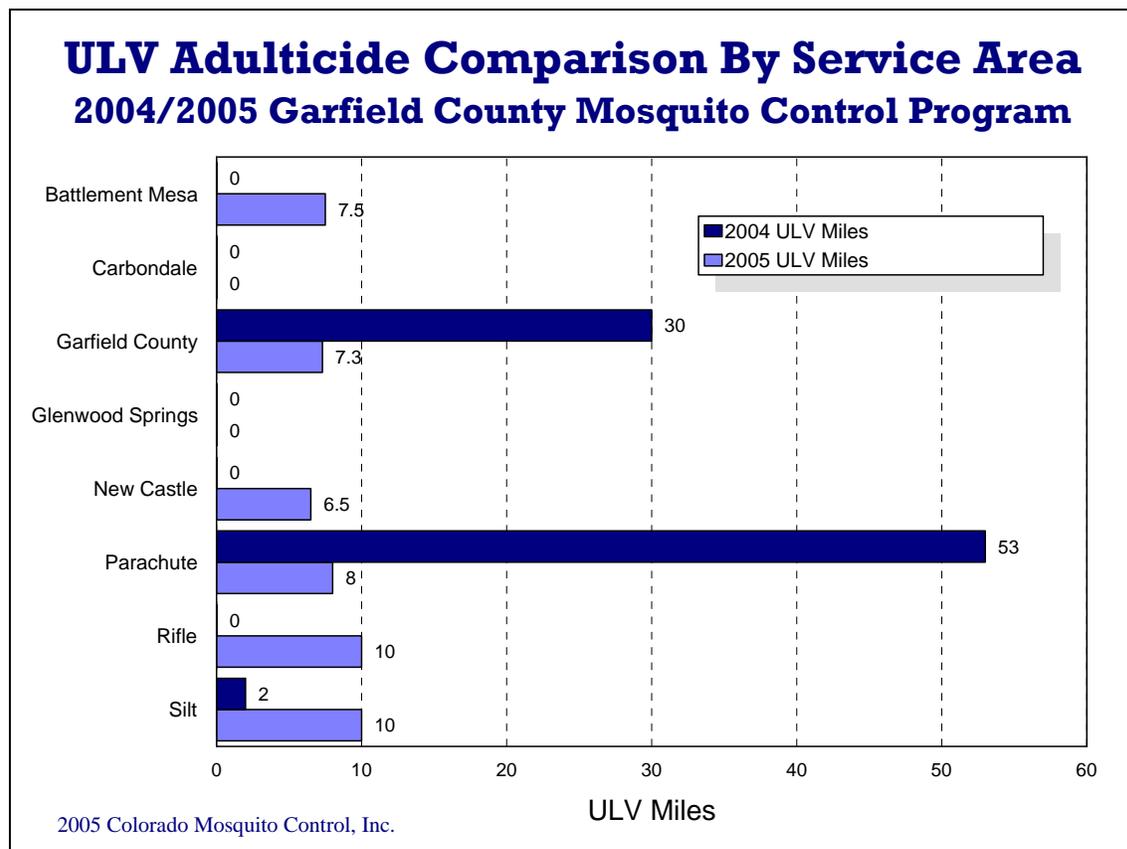
traps around Colorado during the 2005 season. While they are often a major nuisance, readily biting humans for their blood meals, this species is not believed to be a competent vector of the West Nile Virus. The main West Nile Virus vectors are the *Culex* mosquitoes, and they comprised only around 27% of the total mosquitoes trapped in 2005 by the CMC surveillance team.

--2005 ADULT CONTROL-----

Controlling the adult mosquito is an essential component of a fully Integrated Mosquito Management Program. Although the primary focus of our programs is on larval control, adult control methods are used when data shows that adult populations of mosquitoes are present in large numbers. These large adult populations bring with them discomfort, concern, and the possibility of disease transmission.

The Garfield County Mosquito Control Program uses all available data from CDC Light Traps, gravid traps, Mosquito Hotline annoyance calls, and field technician reports to focus adult mosquito control efforts on specific "targeted" areas. In parts of the community where high numbers of mosquito annoyance calls are received, "floater" CDC light traps are set to evaluate the adult population. In most cases a direct link occurs between areas with high complaint calls and high trap counts. While this link allows us to focus adult control in these areas, the emphasis is placed on finding the source of breeding and continued larval control measures.

Colorado Mosquito Control uses state of the art technology, correct application timing, and low toxicity products to minimize all off target impact. All adult mosquito control is accomplished using calibrated Ultra Low Volume (ULV) equipment and performed after dusk. This type of equipment produces droplets averaging 12 microns in diameter and allows for a minimal amount of product to be put into the environment.



These treatments take place in the evening when mosquitoes are flying in greater numbers and non-target activity is greatly reduced. Using this application technique, the overall goal of minimal environmental impact and effective adult control is achieved in the targeted area.

In 2005 we continued to use the water based product AquaReslin for adult mosquito control. Its' active ingredient Permethrin is highly effective against mosquitoes, while the water-base provides a more environmental solution to traditional oil-based adulticides. Results this year have again proven that this is the right choice for the adulticide portion of the Integrated Mosquito Management Program.

Colorado Mosquito Control again offered short term residual backpack barrier treatments for special city and town events such as concerts in the park and festivals, as well as to areas such as walking and bike paths with above average mosquito populations. If the adult mosquito population is moderate, although more labor intensive, it is often more effective to spray a localized harborage area to provide control during an event or for outdoor activities. Barrier treatments are typically effective for a period of 2 to 4 days, and due to the low toxicity to humans and domestic animals, a water based pyrethroid insecticide is used. If the mosquito population is high or the area is too large, barrier treatments are complimented with ULV adulticiding previous to the event.

Our adult spray "notification and shutoff" program was again in place and updated throughout 2005. This service allows residents to request a notification of when adult mosquito control treatments will take place in their area, "shutting off" the sprayer in the vicinity of their address, or both. This service along with daily schedule updates on our website comosquitocontrol.com, allows customers up to date information on when and where spraying will take place.

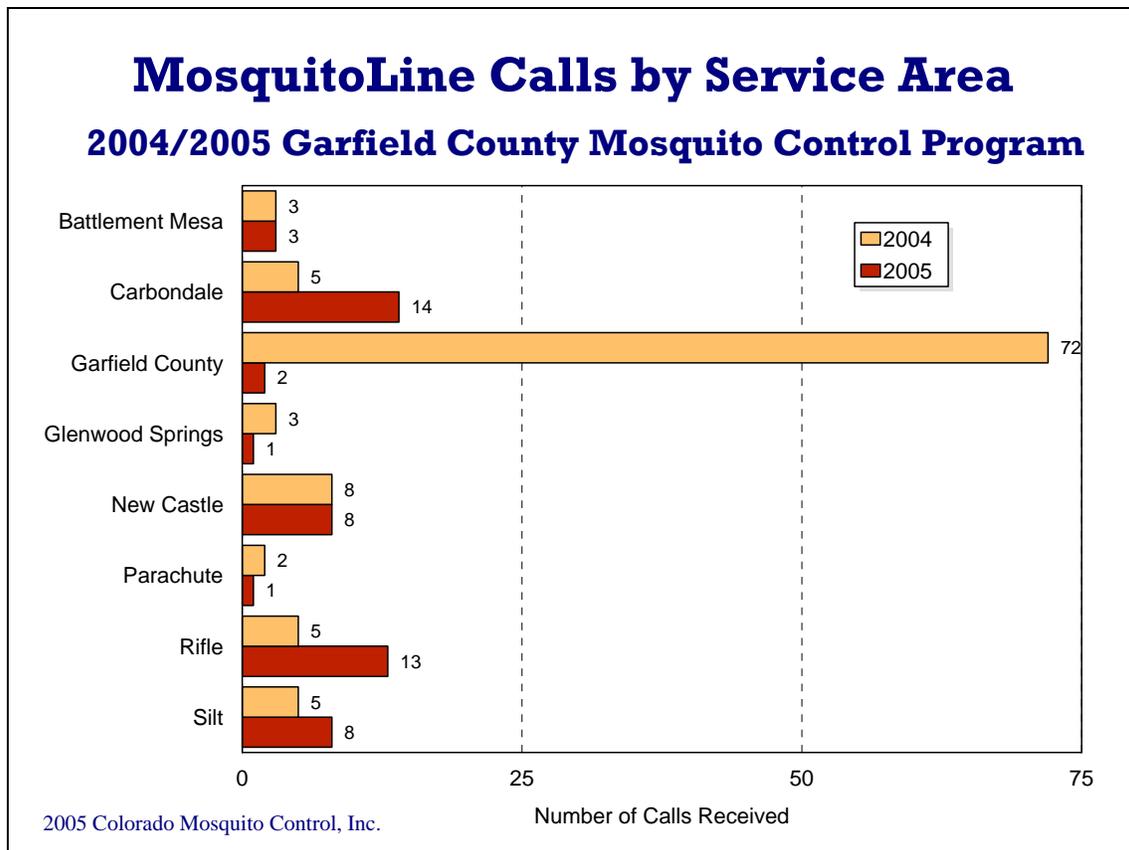
As we look towards the 2006 season, we will continue to evaluate treatment areas, as well as control products on the market, and listen to the goals of our customers so that we will again have an effective program with the least amount of impact to the environment.

--2005 PUBLIC RELATIONS AND EDUCATION-----

Colorado Mosquito Control places a heavy emphasis on public relations, customer service, and community education. With the introduction and continued media coverage of West Nile Virus residents have become increasingly more involved with mosquito control operations. In 2005 our staff focus was on providing area residents and visitors with information on programs, what they can do to help, and offer solutions to localized problems such as mosquito breeding habitats.

Customer Service

Customer service was again a high priority this year. We take pride in training each and every technician so that they can provide our customers with the correct answers to sometimes difficult questions. Each field technician spends part of their day responding to resident concerns in their area. This in-field customer service personalizes each mosquito control program and provides us with valuable information on mosquito activity. Residents are encouraged to call the Mosquito Hotline to report areas with high mosquito annoyance and potential standing water breeding habitat. These calls compliment trap data, allow us to pinpoint problem areas, and ultimately provide another valuable resource for our control efforts.



Another important component of CMC's customer service is the notification and shutoff database. Providing residents with this option has proven to be an effective tool in community relations.

Our database is updated throughout the year to ensure that the names, phone numbers, and addresses are correct before any spraying is planned within a given community. This service is also often seen as another way that their community officials place an importance on understanding and meeting the different needs of each resident.

For the 2006 season we will look to new ways to get our toll free number out to program areas. This will increase program awareness, add potential new breeding sites, and provide valuable data to better our control efforts.

Community Outreach and Education

This year we also focused on community outreach to provide residents and visitors a better understanding of the value and scope of their mosquito control program. Outreach has proven to have a very positive impact on the community. Throughout the summer outreach events were attended such as Farmer's Markets, city council meetings, concerts, and fairs. The feedback we received was extremely positive not only from residents, but from local government attendees as well. These outreach programs provided information and education on all areas of mosquito control. Individual program services were discussed, but an emphasis was also placed on what individuals can do to eliminate standing water on and around their property, how to reach us via phone and website, and even the proper application of mosquito repellents. However, one of the most vital messages conveyed was the importance and minimal environmental impact of larviciding. Many residents often see mosquito control as only "truck spraying." Residents learned that 95% of what their program involves is larval control, and that this provides not only lower environmental impact, but also highly successful mosquito reduction. Because of the positive feedback of these educational outreach programs, we will continue these throughout the upcoming 2006 mosquito control season.

-- SUMMARY -----

The 2005 Garfield County Cooperative Mosquito Control Program once again provided challenges and successes. Fortunately we were correct in our prediction that 2005 would likely see a decrease in West Nile Virus activity in the Western Slope, particularly human cases and associated deaths. We have learned a lot over the past two seasons, and have made some great strides toward improving the program in both the mosquito-borne disease realm, and also on the nuisance side. Work will always continue in the arena of public education, notification and dissemination of information about personal protection and the mosquito control program itself. CMC's website continues to be successful based on the number of "hits", favorable e-mails, and requests for more information received from program residents and others from around the world.

During the 2005 season Colorado Mosquito Control, Inc. continued to effectively serve the residents of the Garfield County and the Garfield County Cooperative Mosquito Control Program using integrated mosquito management technology to reduce mosquito nuisance and the related potential for disease transmission including West Nile Virus. Despite pressure in some areas to abandon larval control and IPM in favor of large scale spraying, CMC continued to promote a responsible IPM approach to mosquito management, fully utilizing all available biological control techniques while minimizing the use of chemical pesticides. CMC has been able to develop both a cost-effective and efficient program in Garfield County over the past seasons and looks forward to the 2006 season and beyond.

CMC is proud of the service it has provided Garfield County residents and we look forward to serving their needs in the years to come. We know that there is always room for improvement and have high expectations for meeting program goals and new successes in future years.



CMMS
Colorado Mosquito Control, Inc.

LARVAL-DATA SUMMARY

by DATE: 1/1/05 to 9/30/05

by COUNTY: Garfield

| Service Area | Total Sites Inspected | No. Wet Sites | Percentage Wet Sites | No. Sites Treated | Percentage Breeding* | Total Acres Treated |
|-------------------------|-----------------------|---------------|----------------------|-------------------|----------------------|---------------------|
| Battlement Mesa | 162 | 80 | 49.38% | 20 | 25.00% | 41.9 |
| Carbondale, Town of | 133 | 92 | 69.17% | 47 | 51.09% | 25.3 |
| Garfield County Unincor | 1066 | 776 | 72.80% | 352 | 45.36% | 448.8 |
| Glenwood Springs, City | 62 | 34 | 54.84% | 8 | 23.53% | 1.8 |
| New Castle, Town of | 96 | 76 | 79.17% | 38 | 50.00% | 35.9 |
| Parachute, Town of | 221 | 145 | 65.61% | 84 | 57.93% | 87.4 |
| Rifle, Town of | 427 | 281 | 65.81% | 118 | 41.99% | 114.3 |
| Silt, Town of | 65 | 14 | 21.54% | 9 | 64.29% | 12.8 |

* (Sites Treated/Sites Wet)

CMMS - Comprehensive Mosquito Management System

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CMMS
Colorado Mosquito Control, Inc.

ADULT TRAP DATA - SPECIES SUMMARY

by DATE: 1/1/05 to 9/25/05
 by COUNTY: Garfield

| Species | Total |
|----------------------------|--------------|
| Aedes (Oc.) cataphylla | 1 |
| Aedes (Oc.) communis | 8 |
| Aedes (Oc.) dorsalis | 178 |
| Aedes (Oc.) hexodontus | 17 |
| Aedes (Oc.) increpitus | 152 |
| Aedes (Oc.) melanimon | 611 |
| Aedes (Oc.) nigromaculis | 44 |
| Aedes cinereus | 128 |
| Aedes vexans | 5347 |
| Aedes-Ochlerotatus species | 62 |
| | 6548 |
| Anopheles hermsi | 213 |
| | 213 |
| Culiseta incidens | 17 |
| Culiseta inornata | 483 |
| | 500 |
| Culex erythrothrox | 327 |
| Culex pipiens | 253 |
| Culex tarsalis | 1421 |
| | 2001 |
| Operational but empty | 0 |
| Trap malfunction | 0 |
| | 0 |

CMMS - Comprehensive Mosquito Management System

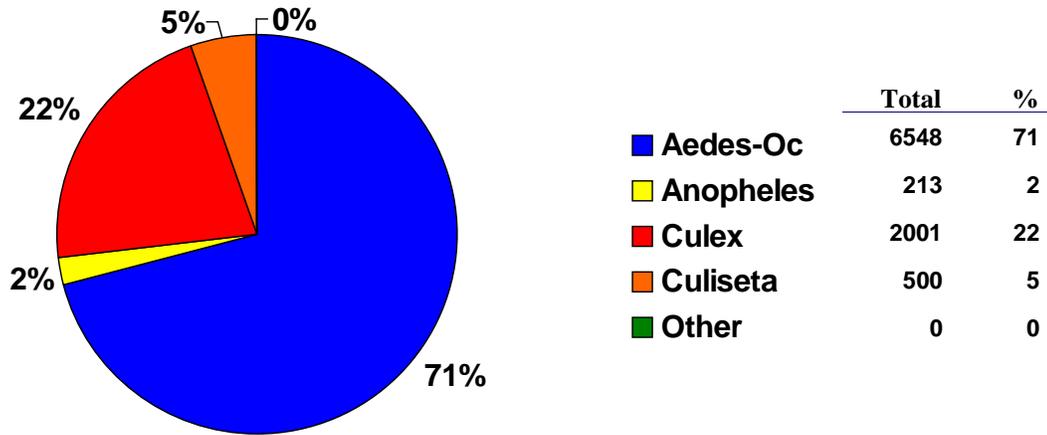
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Species

Total

TOTAL

9262



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2005 Garfield County CDC Light Trap Composite Data

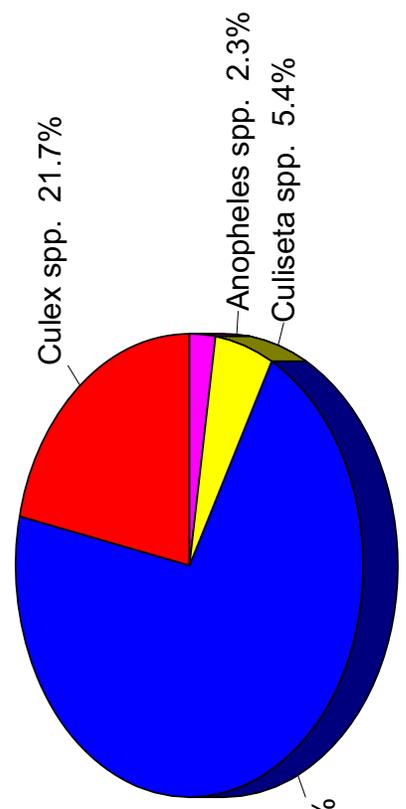
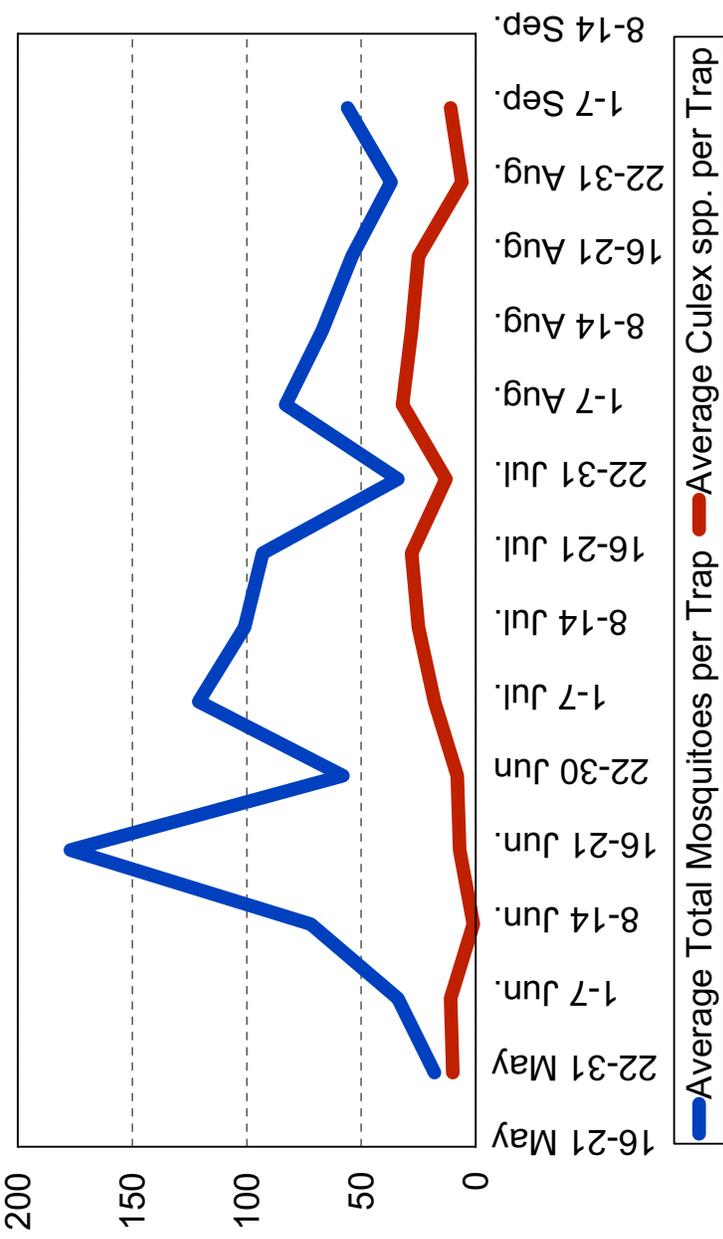
Total number of trap/nights set: 133
 Total number of mosquitoes collected: 9,206
 Average mosquitoes per trap/night: 69

Species collected:

- Aedes (Oc.) cataphylla*
- Aedes (Oc.) communis*
- Aedes (Oc.) dorsalis*
- Aedes (Oc.) hexodontus*
- Aedes (Oc.) increpitus*
- Aedes (Oc.) melanimon*
- Aedes (Oc.) nigromaculis*
- Aedes cinereus*
- Aedes vexans*
- Anopheles hermsi*
- Culex erythrothorax*
- Culex pipiens*
- Culex tarsalis*
- Culiseta incidens*
- Culiseta inornata*

Species abundance:

| Species | Number | Percent of Total |
|----------------------------|--------|------------------|
| <i>Aedes (Oc.) spp.</i> | 6495 | 70.6% |
| <i>Anopheles spp.</i> | 213 | 2.3% |
| <i>Coquillettidia spp.</i> | 0 | 0.0% |
| <i>Culex spp.</i> | 1998 | 21.7% |
| <i>Culiseta spp.</i> | 500 | 5.4% |



BM-01: Battlement Mesa

Season: 2005

Trap Type: Light/CO₂

Location: Battlement Mesa, behind Crown Peak Baptist Church off West Battlement Parkway
GPS: N39° 27.195', W108° 2.055'

Total number of trap/nights set: 14

Total number of mosquitoes collected: 871

Average mosquitoes per trap/night: 62

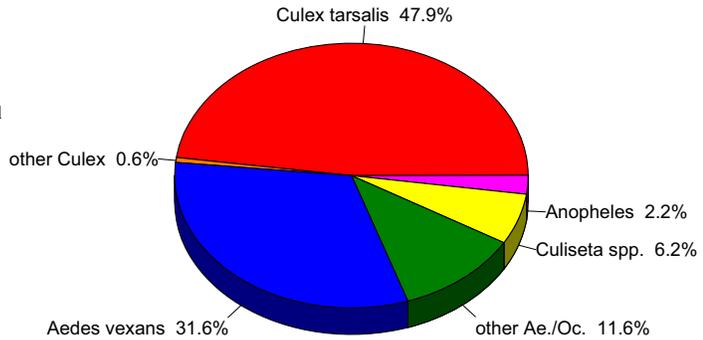
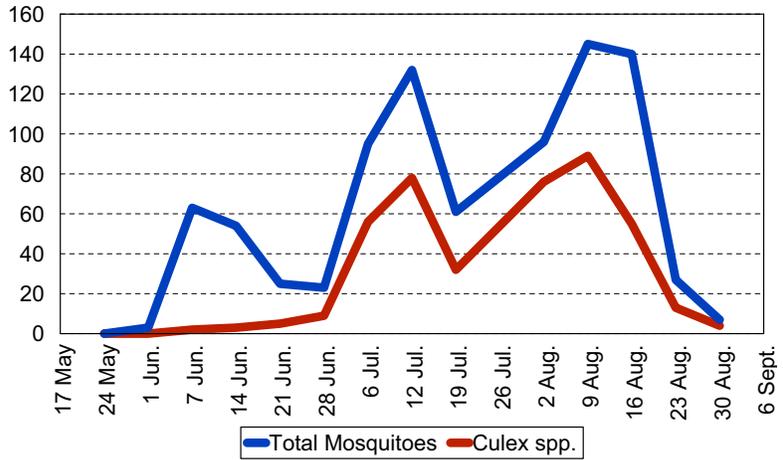
Species collected:

Aedes cinereus
Aedes vexans
Aedes (Oc.) dorsalis
Aedes (Oc.) hexodontus
Aedes (Oc.) inerepitus
Aedes (Oc.) melanimon
Anopheles hermsi
Culex erythrothorax
Culex pipiens
Culex tarsalis
Culiseta incidens
Culiseta inornata

Species abundance:

| Species | Number | Percent of Total |
|---------------------------------|--------|------------------|
| <i>Aedes vexans</i> | 275 | 31.6% |
| Other <i>Aedes/Ochlerotatus</i> | 101 | 11.6% |
| <i>Anopheles hermsi</i> | 19 | 2.2% |
| <i>Culex tarsalis</i> | 417 | 47.9% |
| Other <i>Culex</i> | 5 | 0.6% |
| <i>Culiseta spp.</i> | 54 | 6.2% |

West Nile Virus Testing – No mosquito pools from this trap site tested positive for WNV.



CD-02: Carbondale Beaver Ponds

Season: 2005

Trap Type: Light/CO₂

Location: Carbondale, in Saint Finbar "neighborhood" Behind Aspen Equestrian Center
GPS: N39° 24.229', W107° 9.512'

Total number of trap/nights set: 15

Total number of mosquitoes collected: 312

Average mosquitoes per trap/night: 21

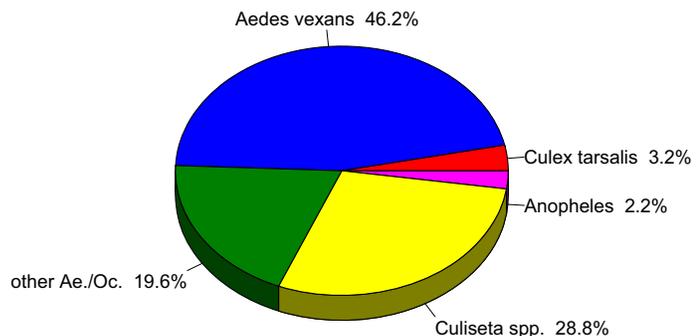
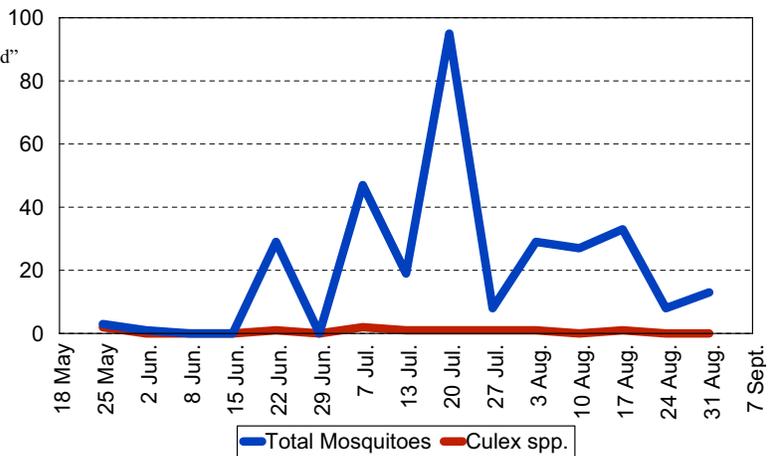
Species collected:

Aedes cinereus
Aedes vexans
Aedes (Oc.) cataphylla
Aedes (Oc.) communis
Aedes (Oc.) dorsalis
Aedes (Oc.) hexodontus
Aedes (Oc.) inerepitus
Aedes (Oc.) melanimon
Anopheles hermsi
Culex tarsalis
Culiseta incidens
Culiseta inornata

Species abundance:

| Species | Number | Percent of Total |
|---------------------------------|--------|------------------|
| <i>Aedes vexans</i> | 144 | 46.2% |
| Other <i>Aedes/Ochlerotatus</i> | 61 | 19.6% |
| <i>Anopheles hermsi</i> | 7 | 2.2% |
| <i>Culex tarsalis</i> | 10 | 3.2% |
| Other <i>Culex</i> | 0 | 0.0% |
| <i>Culiseta spp.</i> | 90 | 28.8% |

West Nile Virus Testing – No mosquito pools from this trap site tested positive for WNV.



CD-08: Carbondale – Johnson Residence

Season: 2005

Trap Type: Light/CO₂

Location: Carbondale, 111 Indica Way

GPS: N39° 32.615', W107° 19.698'

Total number of trap/nights set: 6

Total number of mosquitoes collected: 23

Average mosquitoes per trap/night: 4

Species collected:

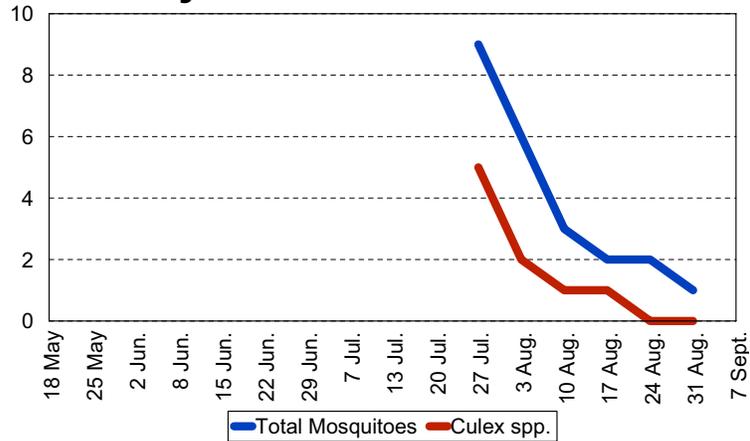
Aedes cinereus

Aedes vexans

Aedes (Oc.) inerepitus

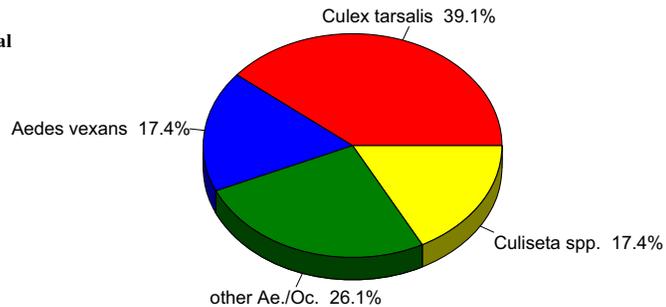
Culex tarsalis

Culiseta inornata



Species abundance:

| Species | Number | Percent of Total |
|---------------------------------|--------|------------------|
| <i>Aedes vexans</i> | 4 | 17.4% |
| Other <i>Aedes/Ochlerotatus</i> | 6 | 26.1% |
| <i>Anopheles hermsi</i> | 0 | 0.0% |
| <i>Culex tarsalis</i> | 9 | 39.1% |
| Other <i>Culex</i> | 0 | 0.0% |
| <i>Culiseta inornata</i> | 4 | 17.4% |



West Nile Virus Testing – No mosquito pools from this trap site tested positive for WNV.

CD-09: Carbondale – Colorado Rocky Mountain School

Season: 2005

Trap Type: Light/CO₂

Location: Carbondale, off Main Street near the Colorado Rocky Mountain School

GPS: N39° 24.398', W107° 13.635'

Total number of trap/nights set: 8

Total number of mosquitoes collected: 25

Average mosquitoes per trap/night: 3

Species collected:

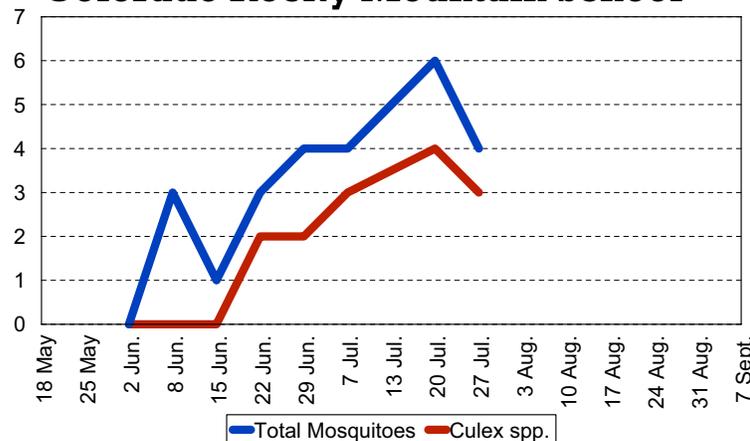
Aedes vexans

Anopheles hermsi

Culex tarsalis

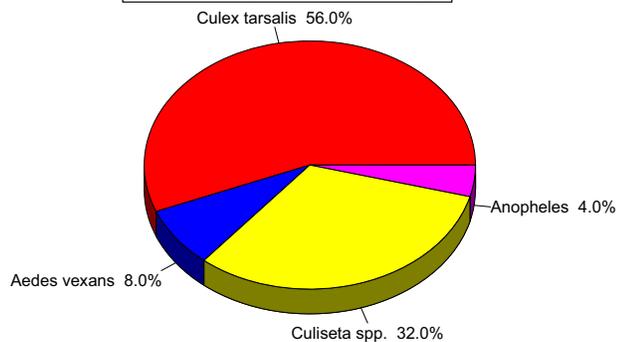
Culiseta incidens

Culiseta inornata



Species abundance:

| Species | Number | Percent of Total |
|---------------------------------|--------|------------------|
| <i>Aedes vexans</i> | 2 | 8.0% |
| Other <i>Aedes/Ochlerotatus</i> | 0 | 0.0% |
| <i>Anopheles hermsi</i> | 1 | 4.0% |
| <i>Culex tarsalis</i> | 14 | 56.0% |
| Other <i>Culex</i> | 0 | 0.0% |
| <i>Culiseta</i> spp. | 8 | 32.0% |



West Nile Virus Testing – No mosquito pools from this trap site tested positive for WNV.

GW-04: Glenwood Springs Public Golf Course

Season: 2005

Trap Type: Light/CO₂

Location: Glenwood Springs, across street from
649 Sunny Acres Road

GPS: N39° 33.998', W107° 21.134'

Total number of trap/nights set: 8

Total number of mosquitoes collected: 7

Average mosquitoes per trap/night: 1

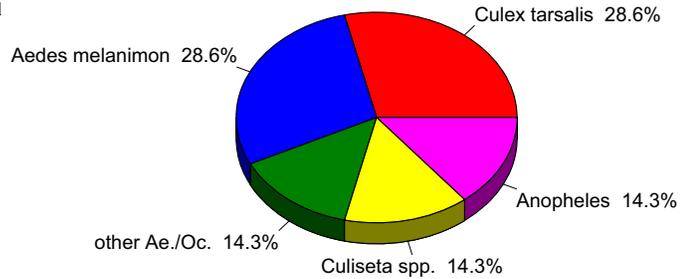
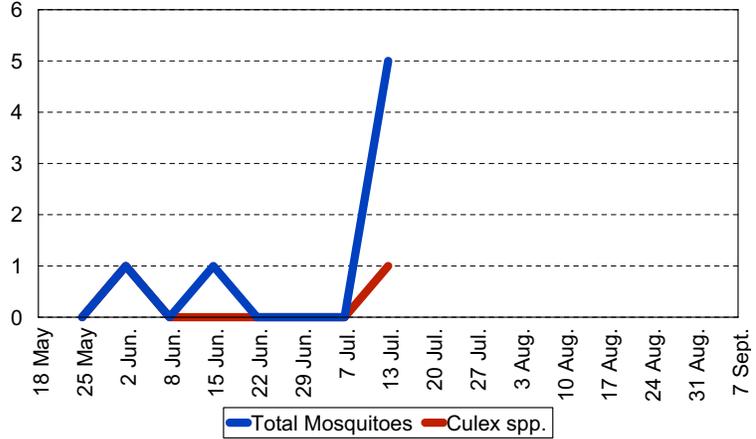
Species collected:

Aedes vexans
Aedes (Oc.) melanimon
Anopheles hermsi
Culex tarsalis
Culiseta inornata

Species abundance:

| Species | Number | Percent of Total |
|---------------------------------|--------|------------------|
| <i>Aedes (Oc.) melanimon</i> | 2 | 28.6% |
| Other <i>Aedes/Ochlerotatus</i> | 1 | 14.3% |
| <i>Anopheles hermsi</i> | 1 | 14.3% |
| <i>Culex tarsalis</i> | 2 | 28.6% |
| Other <i>Culex</i> | 0 | 0.0% |
| <i>Culiseta inornata</i> | 1 | 14.3% |

West Nile Virus Testing – No mosquito pools from this trap site tested positive for WNV.



GW-05: Glenwood Springs River Trail

Season: 2005

Trap Type: Light/CO₂

Location: Glenwood Springs, River Trail along

1053 Meadow Lane

GPS: unavailable

Total number of trap/nights set: 7

Total number of mosquitoes collected: 19

Average mosquitoes per trap/night: 3

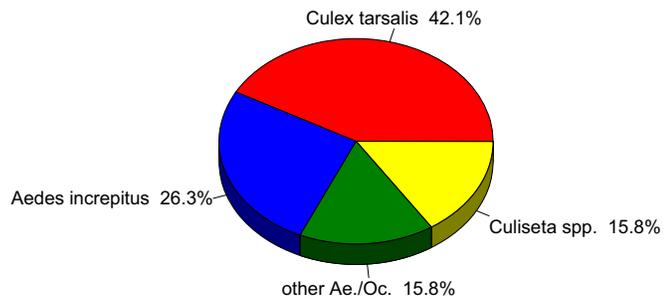
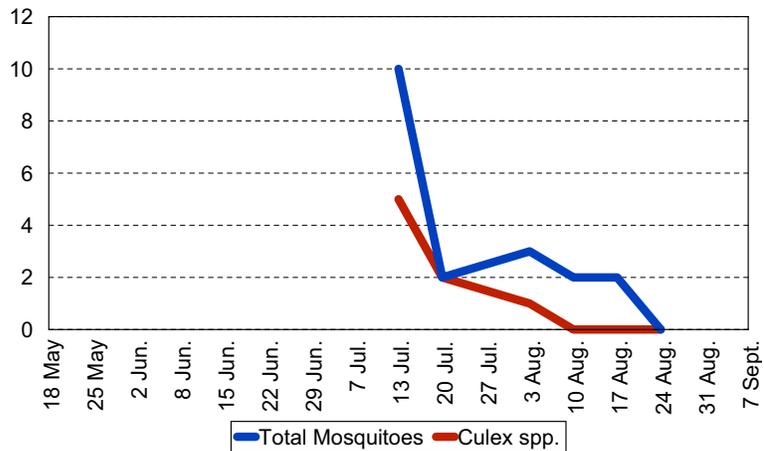
Species collected:

Aedes vexans
Aedes (Oc.) dorsalis
Aedes (Oc.) inorepitus
Culex tarsalis
Culiseta incidens
Culiseta inornata

Species abundance:

| Species | Number | Percent of Total |
|---------------------------------|--------|------------------|
| <i>Aedes (Oc.) inorepitus</i> | 5 | 26.3% |
| Other <i>Aedes/Ochlerotatus</i> | 3 | 15.8% |
| <i>Anopheles hermsi</i> | 0 | 0.0% |
| <i>Culex tarsalis</i> | 8 | 42.1% |
| Other <i>Culex</i> | 0 | 0.0% |
| <i>Culiseta spp.</i> | 3 | 15.8% |

West Nile Virus Testing – No mosquito pools from this trap site tested positive for WNV.



NC-02: New Castle – Mikala Lane

Season: 2005
 Trap Type: Light/CO₂
 Location: New Castle, next to 271 Mikala Lane
 GPS: N39° 34.504', W107° 32.439'

Total number of trap/nights set: 13
 Total number of mosquitoes collected: 301
 Average mosquitoes per trap/night: 23

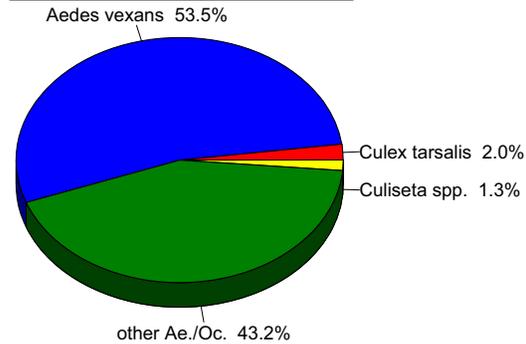
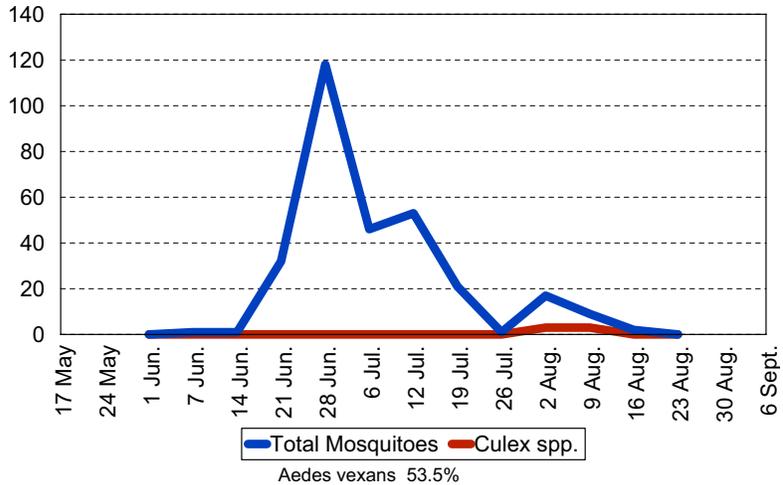
Species collected:

Aedes cinereus
Aedes vexans
Aedes (Oc.) melanimon
Aedes (Oc.) inreptitus
Aedes (Oc.) nigromaculis
Aedes (Oc.) sp.
Culex tarsalis
Culiseta incidens
Culiseta inornata

Species abundance:

| Species | Number | Percent of Total |
|---------------------------------|--------|------------------|
| <i>Aedes vexans</i> | 161 | 53.5% |
| Other <i>Aedes/Ochlerotatus</i> | 130 | 43.2% |
| <i>Anopheles hermsi</i> | 0 | 0.0% |
| <i>Culex tarsalis</i> | 6 | 2.0% |
| Other <i>Culex</i> | 0 | 0.0% |
| <i>Culiseta spp.</i> | 4 | 1.3% |

West Nile Virus Testing – No mosquito pools from this trap site tested positive for WNV.



PR-01: Parachute Cottonwood Park

Season: 2005
 Trap Type: Light/CO₂
 Location: Parachute, west of Cottonwood Park next to fishing/wildlife-watching ponds
 GPS: N39° 26.603', W108° 2.901'

Total number of trap/nights set: 15
 Total number of mosquitoes collected: 1982
 Average mosquitoes per trap/night: 132

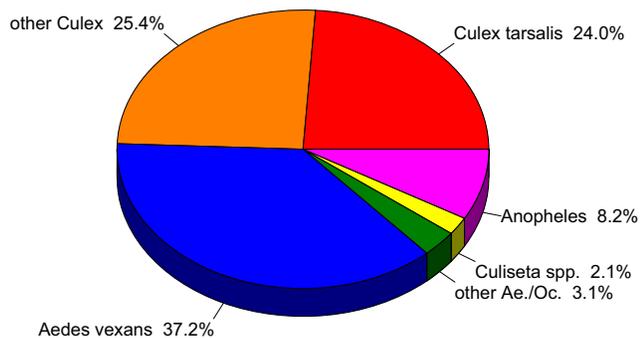
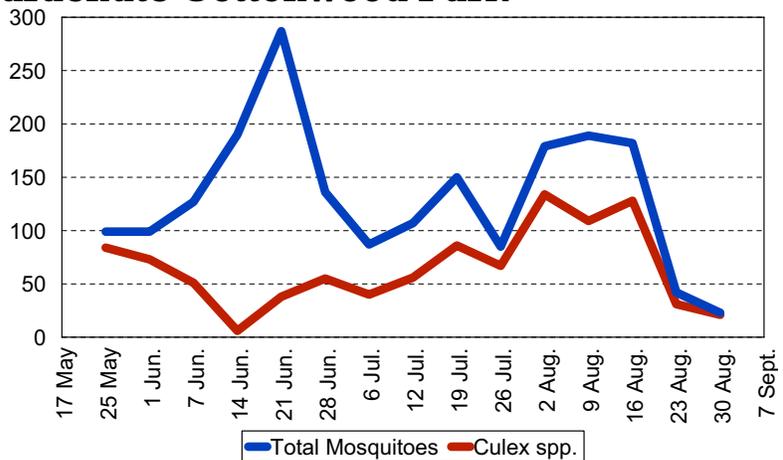
Species collected:

Aedes cinereus
Aedes vexans
Aedes (Oc.) dorsalis
Aedes (Oc.) hexodontus
Aedes (Oc.) inreptitus
Aedes (Oc.) melanimon
Aedes (Oc.) nigromaculis
Anopheles hermsi
Culex erythrothorax
Culex pipiens
Culex tarsalis
Culiseta incidens
Culiseta inornata

Species abundance:

| Species | Number | Percent of Total |
|---------------------------------|--------|------------------|
| <i>Aedes vexans</i> | 737 | 37.2% |
| Other <i>Aedes/Ochlerotatus</i> | 62 | 3.1% |
| <i>Anopheles hermsi</i> | 162 | 8.2% |
| <i>Culex tarsalis</i> | 475 | 24.0% |
| Other <i>Culex</i> | 504 | 25.4% |
| <i>Culiseta spp.</i> | 42 | 2.1% |

West Nile Virus Testing – No mosquito pools from this trap site tested positive for WNV.

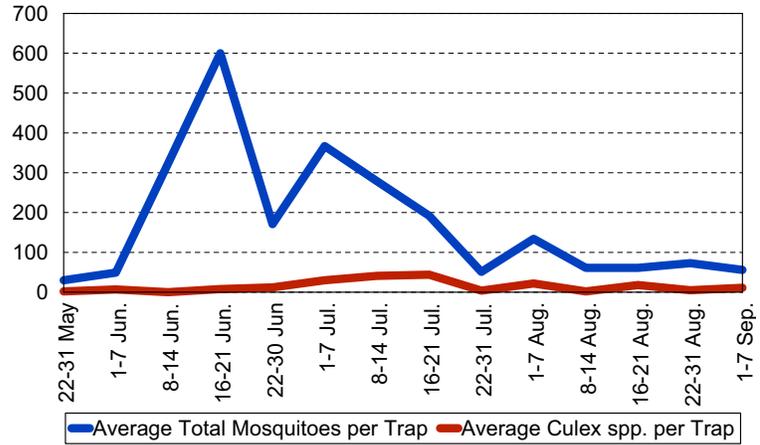


2005 Rifle CDC Light Trap Composite Data

Total number of trap/nights set: 32
 Total number of mosquitoes collected: 4,921
 Average mosquitoes per trap/night: 154

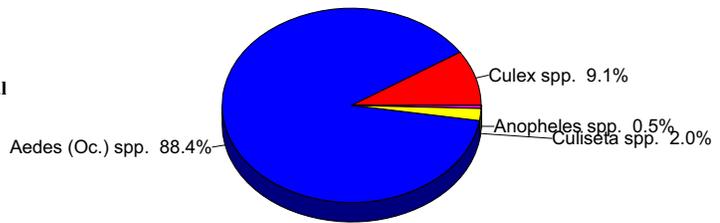
Species collected:

Aedes (Oc.) dorsalis
Aedes (Oc.) hexodontus
Aedes (Oc.) inreptus
Aedes (Oc.) melanimon
Aedes (Oc.) nigromaculis
Aedes cinereus
Aedes vexans
Anopheles hermsi
Culex erythrothorax
Culex pipiens
Culex tarsalis
Culiseta incidens
Culiseta inornata



Species abundance:

| Species | Number | Percent of Total |
|----------------------------|--------|------------------|
| <i>Aedes (Oc.) spp.</i> | 4352 | 88.4% |
| <i>Anopheles spp.</i> | 23 | 0.5% |
| <i>Coquillettidia spp.</i> | 0 | 0.0% |
| <i>Culex spp.</i> | 450 | 9.1% |
| <i>Culiseta spp.</i> | 96 | 2.0% |

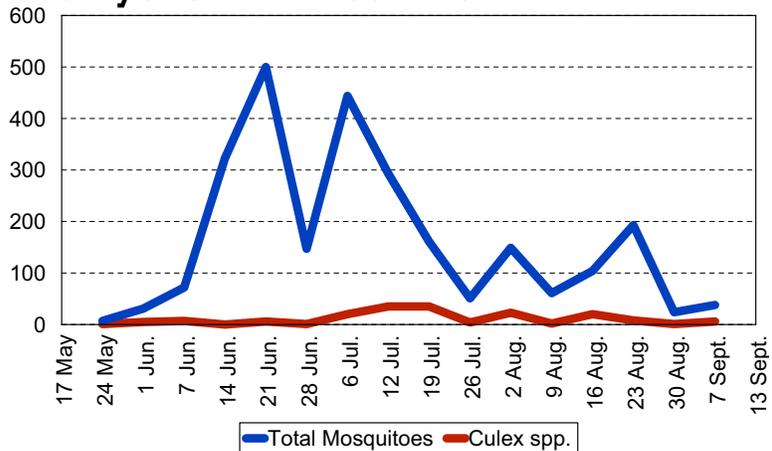


RF-01: Rifle Lyons Park Rest Area

Season: 2005
 Trap Type: Light/CO₂
 Location: Rifle, next to marsh south of Lyons Park Rest Area
 GPS: N39° 31.509', W107° 47.137'
 Total number of trap/nights set: 15
 Total number of mosquitoes collected: 2598
 Average mosquitoes per trap/night: 173

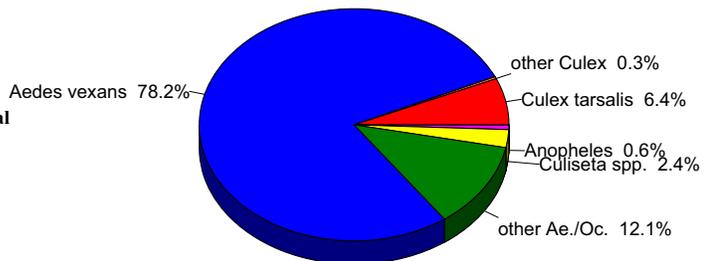
Species collected:

Aedes cinereus
Aedes vexans
Aedes (Oc.) dorsalis
Aedes (Oc.) hexodontus
Aedes (Oc.) inreptus
Aedes (Oc.) melanimon
Aedes (Oc.) nigromaculis
Anopheles hermsi
Culex erythrothorax
Culex pipiens
Culex tarsalis
Culiseta incidens
Culiseta inornata



Species abundance:

| Species | Number | Percent of Total |
|---------------------------------|--------|------------------|
| <i>Aedes vexans</i> | 2031 | 78.2% |
| Other <i>Aedes/Ochlerotatus</i> | 314 | 12.1% |
| <i>Anopheles hermsi</i> | 16 | 0.6% |
| <i>Culex tarsalis</i> | 166 | 6.4% |
| Other <i>Culex</i> | 8 | 0.3% |
| <i>Culiseta spp.</i> | 63 | 2.4% |



West Nile Virus Testing – No mosquito pools from this trap site tested positive for WNV.

RF-02: Rifle White River Avenue at Highway 13

Season: 2005

Trap Type: Light/CO₂

Location: Rifle, next to marsh at White River Avenue and Colorado Highway 13

GPS: N39° 33.041', W107° 46.818'

Total number of trap/nights set: 8

Total number of mosquitoes collected: 1818

Average mosquitoes per trap/night: 227

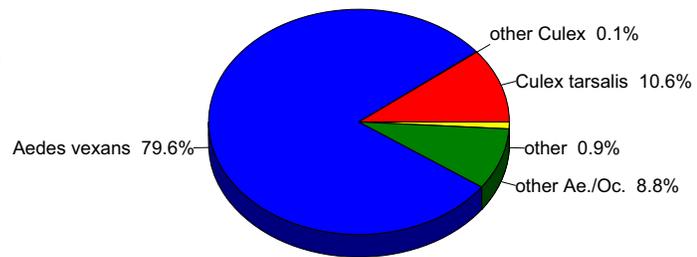
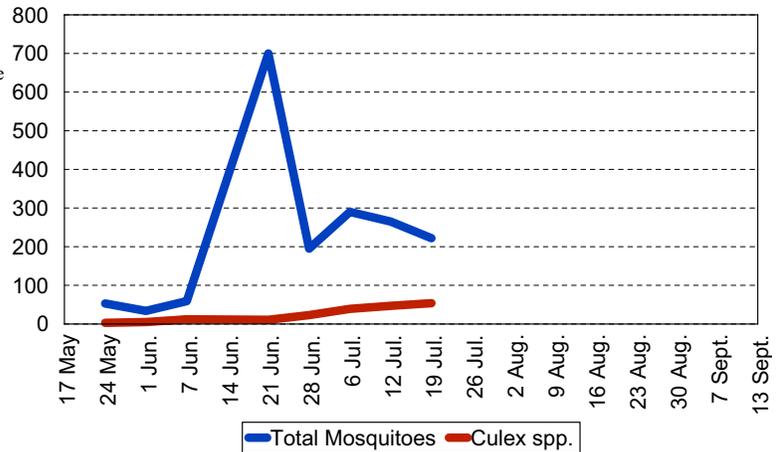
Species collected:

Aedes cinereus
Aedes vexans
Aedes (Oc.) melanimon
Aedes (Oc.) increputus
Aedes (Oc.) sp.
Anopheles hermsi
Culex erythrothorax
Culex tarsalis
Culiseta incidens
Culiseta inornata

Species abundance:

| Species | Number | Percent of Total |
|---------------------------------|--------|------------------|
| <i>Aedes vexans</i> | 1447 | 79.6% |
| Other <i>Aedes/Ochlerotatus</i> | 160 | 8.8% |
| <i>Anopheles hermsi</i> | 1 | 0.1% |
| <i>Culex tarsalis</i> | 193 | 10.6% |
| Other <i>Culex</i> | 1 | 0.1% |
| <i>Culiseta spp.</i> | 16 | 0.9% |

West Nile Virus Testing – No mosquito pools from this trap site tested positive for WNV.



RF-10: Rifle 14th Street Trap

Season: 2005

Trap Type: Light/CO₂

Location: Rifle, near the Fairgrounds on 14th St.

GPS: N39° 32.533', W107° 47.141'

Total number of trap/nights set: 2

Total number of mosquitoes collected: 138

Average mosquitoes per trap/night: 69

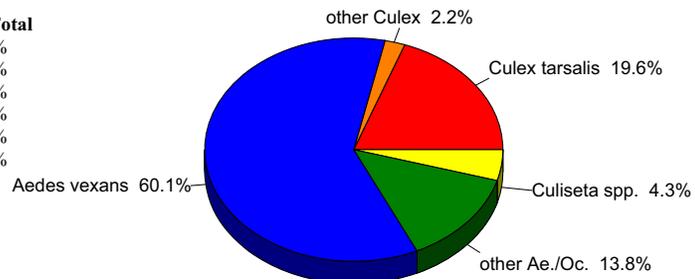
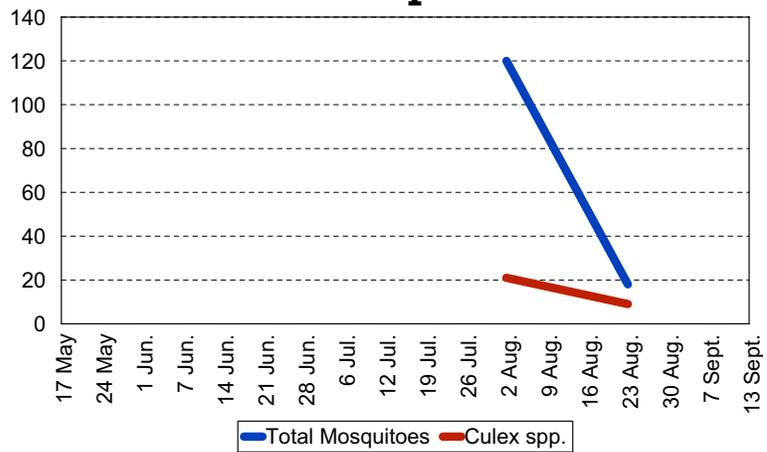
Species collected:

Aedes vexans
Aedes (Oc.) dorsalis
Aedes (Oc.) melanimon
Culex pipiens
Culex tarsalis
Culiseta inornata

Species abundance:

| Species | Number | Percent of Total |
|---------------------------------|--------|------------------|
| <i>Aedes vexans</i> | 83 | 60.1% |
| Other <i>Aedes/Ochlerotatus</i> | 19 | 13.8% |
| <i>Anopheles hermsi</i> | 0 | 0.0% |
| <i>Culex tarsalis</i> | 27 | 19.6% |
| Other <i>Culex</i> | 3 | 2.2% |
| <i>Culiseta inornata</i> | 6 | 4.3% |

West Nile Virus Testing – No mosquito pools from this trap site tested positive for WNV.



RF-15: Rifle Mile Pond Road

Season: 2005

Trap Type: Light/CO₂

Location: Rifle, off Mile Pond Road 0.2 miles from Ardvark Storage

GPS: N39° 32.128', W107° 45.352'

Total number of trap/nights set: 2

Total number of mosquitoes collected: 274

Average mosquitoes per trap/night: 137

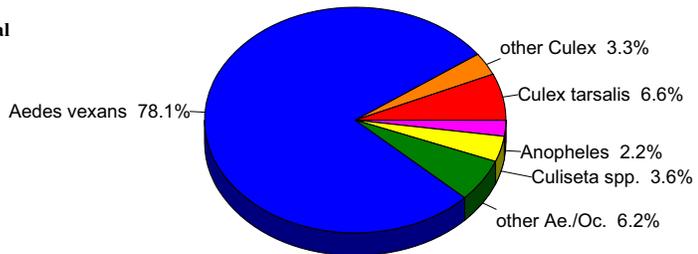
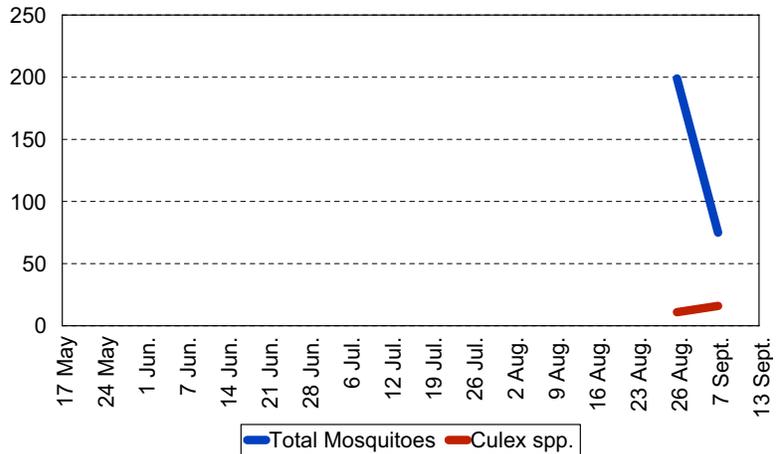
Species collected:

Aedes cinereus
Aedes vexans
Aedes (Oc.) dorsalis
Aedes (Oc.) melanimon
Anopheles hermsi
Culex erythrorax
Culex tarsalis
Culiseta inornata

Species abundance:

| Species | Number | Percent of Total |
|---------------------------------|--------|------------------|
| <i>Aedes vexans</i> | 214 | 78.1% |
| Other <i>Aedes/Ochlerotatus</i> | 17 | 6.2% |
| <i>Anopheles hermsi</i> | 6 | 2.2% |
| <i>Culex tarsalis</i> | 18 | 6.6% |
| Other <i>Culex</i> | 9 | 3.3% |
| <i>Culiseta inornata</i> | 10 | 3.6% |

West Nile Virus Testing – No mosquito pools from this trap site tested positive for WNV.



SI-01: Silt

Season: 2005

Trap Type: Light/CO₂

Location: Silt, along marsh west of Bekins Mini-Storage off U.S. Hwy. 6

GPS: N39° 32.756', W107° 38.950'

Total number of trap/nights set: 15

Total number of mosquitoes collected: 745

Average mosquitoes per trap/night: 50

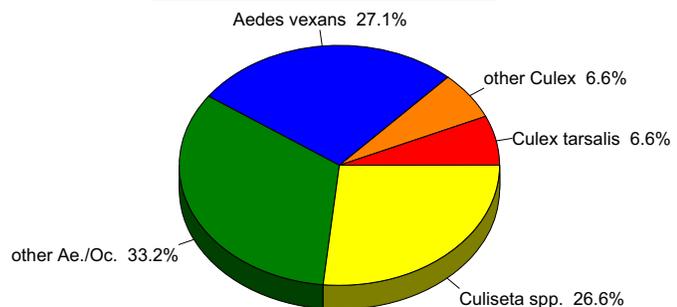
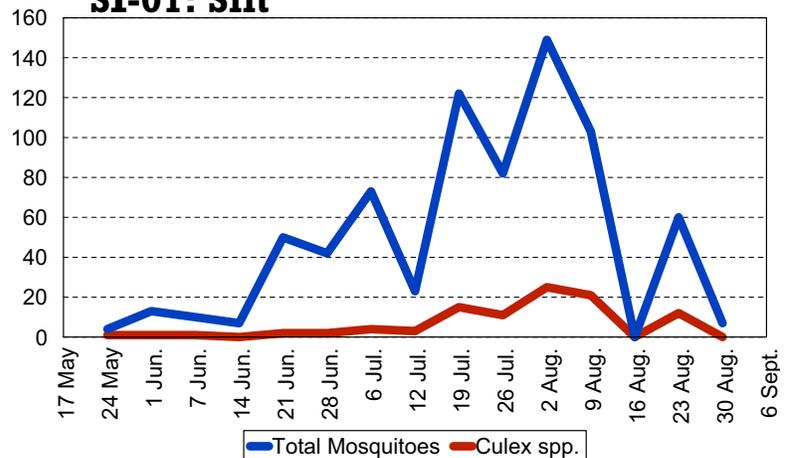
Species collected:

Aedes cinereus
Aedes vexans
Aedes (Oc.) dorsalis
Aedes (Oc.) melanimon
Culex pipiens
Culex tarsalis
Culiseta inornata

Species abundance:

| Species | Number | Percent of Total |
|---------------------------------|--------|------------------|
| <i>Aedes vexans</i> | 202 | 27.1% |
| Other <i>Aedes/Ochlerotatus</i> | 247 | 33.2% |
| <i>Anopheles hermsi</i> | 0 | 0.0% |
| <i>Culex tarsalis</i> | 49 | 6.6% |
| Other <i>Culex</i> | 49 | 6.6% |
| <i>Culiseta inornata</i> | 198 | 26.6% |

West Nile Virus Testing – No mosquito pools from this trap site tested positive for WNV.





CMMS
Colorado Mosquito Control, Inc.

ADULTICIDE - CUSTOMER

by DATE: 1/1/05 to 9/25/05

by COUNTY: Garfield

| | Subdiv/Area | Material | Start Time | End Time | Miles |
|--------------------------------|-------------|--------------------|-------------------------|------------|-------------|
| Battlement Mesa | | | | | |
| Truck ULV | | | | | |
| | 7/12/2005 | RIVERBLUFF RD | AquaReslin | 08:50 P | 08:58 P 1.0 |
| | 7/12/2005 | COUNTY RD 300 | AquaReslin | 09:06 P | 09:13 P 1.0 |
| | 7/20/2005 | COUNTY RD 300 | AquaReslin | 08:25 P | 08:40 P 1.0 |
| | 7/26/2005 | COUNTY RD 300 | AquaReslin | 07:45 P | 07:50 P 1.0 |
| | 8/3/2005 | BATTELEMENT PKWY | AquaReslin | 09:15 P | 09:30 P 3.5 |
| | | | Truck ULV | Sum | 7.5 |
| | | | | Avg | 1.5 |
| | | | | Min | 1.0 |
| | | | | Max | 3.5 |
| Garfield County Unincor | | | | | |
| Truck ULV | | | | | |
| | 7/28/2005 | COUNTY RD 326 | AquaReslin | 07:20 P | 07:23 P 0.6 |
| | 8/8/2005 | GARFIELD AIRPORT | AquaReslin | 09:00 P | 09:06 P 0.7 |
| | 8/24/2005 | AIRPORT OFFICE | AquaReslin | 06:50 P | 06:59 P 1.0 |
| | 8/24/2005 | AIRPORT | AquaReslin | 07:01 P | 07:19 P 2.0 |
| | 8/31/2005 | COTTONWOOD SPRINGS | AquaReslin | 06:30 P | 06:54 P 3.0 |
| | | | Truck ULV | Sum | 7.3 |
| | | | | Avg | 1.5 |
| | | | | Min | 0.6 |
| | | | | Max | 3.0 |
| New Castle, Town of | | | | | |
| Truck ULV | | | | | |
| | 7/14/2005 | PARK AVE | AquaReslin | 08:30 P | 08:45 P 2.0 |
| | 7/28/2005 | PARK AVE | AquaReslin | 07:50 P | 08:05 P 2.0 |
| | 8/3/2005 | PARK AVE | AquaReslin | 07:35 P | 07:50 P 2.5 |
| | | | Truck ULV | Sum | 6.5 |
| | | | | Avg | 2.2 |
| | | | | Min | 2.0 |
| | | | | Max | 2.5 |
| Parachute, Town of | | | | | |
| Backpack Barrier | | | | | |
| | 8/23/2005 | COTTONWOOD PARK | Talstar One | 01:15 P | 01:35 P 0.4 |
| | | | Backpack Barrier | Sum | 0.4 |
| | | | | Avg | 0.4 |
| | | | | Min | 0.4 |
| | | | | Max | 0.4 |
| Truck ULV | | | | | |
| | 6/21/2005 | COTTONWOOD PARK | AquaReslin | 07:36 P | 08:00 P 0.5 |
| | 6/28/2005 | COTTONWOOD PARK | AquaReslin | 08:15 P | 08:30 P 0.5 |

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| | Subdiv/Area | Material | Start Time | End Time | Miles | |
|-----------|--------------------|-----------------|-------------------|------------------|--------------|------------|
| 7/12/2005 | COTTONWOOD PARK | AquaReslin | 09:20 P | 09:35 P | 1.0 | |
| 7/20/2005 | COTTONWOOD PARK | AquaReslin | 08:50 P | 09:00 P | 1.0 | |
| 7/26/2005 | COTTONWOOD PARK | AquaReslin | 07:55 P | 08:10 P | 2.0 | |
| 8/3/2005 | COTTONWOOD PARK | AquaReslin | 08:55 P | 09:20 P | 3.0 | |
| 9/22/2005 | COTTONWOOD PARK | AquaReslin | | | 1.0 | |
| | | | | Truck ULV | Sum | 9.0 |
| | | | | | Avg | 1.3 |
| | | | | | Min | 0.5 |
| | | | | | Max | 3.0 |

Rifle, Town of

Backpack Barrier

| | | | | | | |
|-----------|--------------------|-------------|---------|-------------------------|------------|------------|
| 8/8/2005 | COUNTY FAIRGROUNDS | Tempo Ultra | 01:25 P | 01:48 P | 0.5 | |
| 8/23/2005 | LIONS PARK | Talstar One | 02:45 P | 03:10 P | 0.5 | |
| | | | | Backpack Barrier | Sum | 1.0 |
| | | | | | Avg | 0.5 |
| | | | | | Min | 0.5 |
| | | | | | Max | 0.5 |

Truck ULV

| | | | | | | |
|-----------|---------------|------------|---------|--------------------------|------------|-------------|
| 6/21/2005 | | AquaReslin | 08:37 P | 08:57 P | 1.0 | |
| 6/28/2005 | | AquaReslin | 09:00 P | 09:30 P | 1.0 | |
| 7/12/2005 | LIONS PARK | AquaReslin | 10:00 P | 10:13 P | 2.0 | |
| 7/20/2005 | LIONS PARK | AquaReslin | 09:25 P | 09:30 P | 1.0 | |
| 7/26/2005 | LIONS PARK | AquaReslin | 08:45 P | 08:50 P | 1.0 | |
| 7/26/2005 | COUNTY RD 320 | AquaReslin | 08:30 P | 08:35 P | 1.0 | |
| 8/3/2005 | COUNTY RD 320 | AquaReslin | 08:40 P | 08:44 P | 0.7 | |
| 8/3/2005 | LIONS PARK | AquaReslin | 08:50 P | 08:58 P | 1.0 | |
| 8/8/2005 | LIONS PARK | AquaReslin | 08:35 P | 08:41 P | 1.0 | |
| 8/8/2005 | COUNTY RD 320 | AquaReslin | 08:45 P | 08:49 P | 0.3 | |
| | | | | Truck ULV | Sum | 10.0 |
| | | | | | Avg | 1.0 |
| | | | | | Min | 0.3 |
| | | | | | Max | 2.0 |
| | | | | Grand Total Miles | | 41.7 |

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