THESIS

# A NEW SYNOPSIS OF THE MOSQUITOES (DIPTERA: CULICIDAE) OF COLORADO

Submitted by

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ABSTRACT

A NEW SYNOPSIS OF THE MOSQUITOES (DIPTERA: CULICIDAE) OF COLORADO

Harmston and Lawson (1967) provided the most recent comprehensive review of the mosquitoes of Colorado, reporting 42 species in six genera. Over the last 48 years, a number of important studies that included mosquitoes of Colorado have been completed enhancing the knowledge of this medically important group of flies. To date, the number of Colorado mosquitoes has increased to 54 species in seven genera. Additionally, mosquito vectored pathogens of humans and animals have shifted in Colorado from primarily Western equine encephalitis virus and St. Louis encephalitis virus to primarily West Nile virus. The objective of the current project is to provide an up-to-date synopsis of the species and genera known to occur in Colorado including distributions at a county scale. The study also provides up-to-date illustrated keys to the adult females, fourth instar larvae, and a summary of the important taxonomic characteristics that allow separation of species for both adult females and fourth instar larvae. The species summary includes relevant biological notes and comments on each species such as its phenology, overwintering stage, larval habitat, host preference, medical importance and unique behaviors.

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# CHAPTER ONE INTRODUCTION

To date, there are 3,601 named mosquito species recognized worldwide, representing the diverse and medically important fly family Culicidae (Wilkerson et al. 2015). The family Culicidae based on molecular and genetic information, is a monophyletic family with two divergent subfamilies Anophelinae and the Culicinae (Pawlowski et al. 1996, Miller et al. 1997). The Culicidae are part of a large group of primitive lower Diptera, the nematocerans, currently placed in the infraorder Culicomorpha (mosquitoes, biting and non-biting midges, and black flies). The mosquitoes radiated are part of a larger radiation of fly diversity that occurred approximately 225 million years ago (Pawlowski et al. 1996, Miller et al. 1997, Wiegmann et al. 2011). Many adult female mosquitoes have the ability to become infected with a variety of pathogens and other causative agents that can be transmitted to humans and other animals during blood feeding, vectoring many important diseases.

In Colorado, 54 mosquito species are currently recorded, where larvae occupy diverse types of aquatic habitats throughout the state (Rose et al. 2015). The mosquitoes of Colorado are important both as a seasonal biting nuisance and as a vector of pathogens causing diseases such as West Nile virus (WNV) (Kilpatrick et al. 2006, Bolling et al. 2007, Shaman et al. 2005). Historically in Colorado, two major pathogens, Western equine encephalitis virus (WEEV) (Blackmore and Winn 1956, Cockburn et al. 1957, Smith et al. 1993) and St. Louis encephalitis virus (SLEV) (Cockburn et al. 1957, Giddings et al. 1959, Tsai et al. 1987, Tsai et al. 1988, Tsai et al. 1989) were transmitted by mosquitoes, primarily by species of *Culex* in Colorado. Harmston and Lawson (1967) reported various historic epidemics and outbreaks recorded in Colorado from 1936 through 1956, with thirty-nine counties experiencing major or an unusually high number of confirmed human cases. Since Harmston and Lawson (1967), the major landscapes of Colorado, the plains, the mountains, and the plateaus (Chronic and Chronic 1972) have been impacted primarily by agriculture, mining, and urbanization (Abbott 2013). These kinds of anthropogenic landscape changes affect patterns and processes of mosquito-borne diseases (Ezenwa et al. 2007).

Derraik and Slaney (2007) speculated that humans causing environmental change are the primary means of the resurgence of arboviruses in New Zealand, and with implications for a similar situation on other locations with population growth worldwide. That being said, it is important to note first that the human population has increased in Colorado, especially along the Front Range (Veblen and Lorenz 1991) as far north as Fort Collins and Pueblo to the south. Colorado's population density is not only restricted to the eastern slope. Since the 1970s, Colorado mountain communities and rural areas such as Grand Junction on the western slope, along with many other counties and towns, are growing in size and population due to people moving into the state, taking advantage of its beautiful and ever engaging recreational areas (Riebsame et al. 1996). In 1970, Colorado's population was 2,209,596 residents; whereas 45 years later the population has more than doubled, estimated at approximately 5,456,574 residents in 2015 (population estimates n.d. census.gov retrieved 28 March 2016). With an increasing population, especially within or near major drainage basins such as along the Arkansas, South Platte, and Colorado river basins, as well as on the periphery wildlands in mountainous areas (Riebsame et al. 1996, Theobald et al. 1996), human exposure to mosquitoes will rise, potentially increasing the likelihood of humans being exposed to pathogens vectored by mosquitoes.

An increase in the population throughout the state has also resulted in developing more resources to feed, house, and provide water to the residents of Colorado. Vitousek (1994) reported that nearly ⅓ to ½ of the world's land not covered with ice or glaciers has been altered for human use changing the natural land cover. This is an important element of change because these actions can either create new habitat for mosquitoes or decrease biodiversity regionally and locally, possibly reducing populations of natural predators of mosquitoes. Eisen et al. (2008) discussed the mosquito species richness, composition, and abundance relative to habitat-climate-elevation gradients in the northern Colorado Front Range. Twenty-seven species were collected at that time, and the study revealed that the plains habitat in or near irrigated agricultural plots supported the most diverse fauna. Plains habitat bordered or near irrigated agriculture provides suitable oviposition sites where the larvae can develop into the adult stage. Additionally, two medically and economically important species, *Ae. vexans* and *Cx. tarsalis* were negatively correlated with increasing elevation, where the abundance decreases dramatically with the increase in elevation (Eisen et al. 2008). These changes have continuously reshaped the state's landscape with more lands utilized for irrigated agriculture, detention ponds, reservoirs, and catch basins to re-direct and hold water for Colorado's residents. The augmentation of the land listed above, specifically irrigated agricultural lands, has created more habitats for mosquitoes to exploit for oviposition and larval development into an adult mosquito, thereby increasing the abundance of mosquito populations throughout the state, and the risk of pathogen transmission (Gates and Boston 2009, Eisen et al. 2010, Schurich et al. 2014).

In addition to a changing landscape, globalization and the proliferation of commodities traded both domestic and foreign, as well as the rise of domestic and foreign travel relating to business and recreation, has increased the risk of introducing invasive mosquitoes that vector harmful pathogens to Colorado (Gubler 2002). Colorado's increasing population, land use alteration/land cover changing, and the rise in people/goods moving throughout the world are not the only changes that have occurred in Colorado that may be creating greater exposure to mosquitoes. Vitousek (1994) reported that there are three main drivers of global climate change as follows: increase in atmospheric $CO_2$ concentration due to emissions, alteration of the global nitrogen cycle, and land use/land cover change, all human-induced changes in the natural ecosystem leading to global warming. Changing climate trends are shifting weather patterns and isotherms in which arthropods such as mosquitoes are sensitive to potentially increasing the risk of invasive species and vector-borne diseases moving into new environments and exploiting novel habitats (Patz et al. 1996, Epstein et al. 1998, Gubler et al. 2001). All of these ecological changes combined potentially increases exposure to invasive mosquito species. Increased exposure to invasive mosquito species could result in a greater risk of contact transmission of pathogens such as WNV, SLEV, chikungunya virus (CHIKV), dengue virus (DENV), yellow fever (YFV), and Zika virus (ZIKAV) resulting in short-term epidemics or long-term disease changes (Githeko et al. 2000, Reiter 2001, Hales et al. 2002). Annual infection of arboviruses such as WNV, and the risk of pathogen transmission to both animal and humans by mosquitoes, have resulted in an increase in attention given to the importance of the identification of mosquitoes in the state, hence the need to update the primary available Colorado taxonomic resource, Harmston and Lawson's 1967 treatment of the mosquitoes of Colorado.

## LITERATURE REVIEW

### ***Species Historically Reported From Colorado***

Harmston and Lawson (1967) cited Tucker (1907) as the first report of mosquito species from Colorado, including four species in two genera: *Aedes vexans* (Meigen), *Ae. excrucians* (Walker), *Culex pipiens* L., and *Cx. tarsalis* Coquillett. After this paper, Cockerell (1918) provided the first overview of the mosquitoes of Colorado, listing fifteen species. Cockerell and

Scott (1918) examined specimens in the Colorado State Agricultural College (now Colorado State University's C. P. Gillette Museum of Arthropod Diversity) collection assembled by C. P. Gillette, the first state entomologist of Colorado, and added *Ae. cinereus* Meigen to the list of Colorado mosquitoes. Dyar (1924a) listed twenty-one species in three genera for Colorado, but omitted *Anopheles quadrimaculatus* Say formally reported by Cockerell (1918), a known vector of malaria. Matheson (1933) added *Ae. klotsi* Matheson as a new record for Colorado. Subsequently Richards (1956) recognized Matheson's taxon as a junior synonym of *Ae. (Ochlerotatus) melanimon* Dyar.

In the 1940's there were several important additions to the knowledge of the mosquitoes of Colorado. James (1942) completed a two-season light trap study of mosquitoes occurring in Fort Collins. The study was conducted to determine relative mosquito species richness in the area. He determined that *Cx. tarsalis* and *Ae. vexans* were the most abundant species at that time. His records of *Ae.* (*Och.*) *trivittatus* (Coquillett) and *Psorophora signipennis* (Coquillett) were the first report of these species from the state. New records for Fort Logan (now part of Englewood in Jefferson County) and Colorado Springs (El Paso County) were included by Portman (1943). Portman reared larvae during 1941 and 1942 from both locations, adding *Cx. territans* Walker to the Colorado list of mosquitoes. Olson and Keegan (1944a, 1944b) collected seven species of mosquitoes from Colorado, of which six are common species in the state, but these authors also reported collecting the uncommon *Ae.* (*Och.*) *stimulans* (Walker). Laskey (1946) made numerous collections over the course of two seasons during 1944 and 1945 at Fitzsimmons General Hospital in Adams County. Not only was the study conducted because of public interest, but also a number of these collections were directly related to the military's concern for potential infections occurring in active duty personnel. Laskey (1946) listed eighteen species in four genera.  Harmston (1949) published an annotated list of mosquitoes of Colorado, providing records for forty-five species in six genera.

Breland (1960) elevated *Ae.* (*Protomacleaya*) *hendersoni* Cockerell to full specific rank, using material collected in Boulder, Colorado, and Texas.  He compared *Ae.* (*Pro.*) *triseriatus* (Walker) collected in Texas with the specimens collected in Boulder and determined the two species to be significantly different based on the morphological characteristics.  *Aedes* (*Pro.*) *hendersoni* replaced *Ae.* (*Pro.*) *triseriatus* on the Colorado list, as they were no longer considered synonymous.  Baker (1961) collected twenty-one of the forty-two recorded species listed from Colorado, and reported *Ae.* (*Och.*) *schizopinax* Dyar from Boulder County as a new state record. Finally, Harmston and Lawson (1967) provided the first comprehensive review of the mosquitoes of Colorado, treating forty-two species in six genera.  Identification keys for adult females, larvae, and adult males based on male genitalia were included.  These authors also presented the biology and distribution of each species known from Colorado at that time.

Since Harmston and Lawson (1967), several publications have added to the taxa known from Colorado.  Maloney (1980) collected a specimen of *Uranotaenia sapphirina* (Osten Sacken) in Pueblo.  Jakob et al. (1989) studied the occurrence of *Cx. erythrothorax* Dyar in southeastern Colorado.  West et al. (1994) provided a new state record for *Cs. morsitans* (Theobald).  Bennett et al. (2005) noted a population of *Ae. albopictus* Skuse in Weld County. The source of this transitory population appears to be a tire storage site, where the species were likely introduced in tire shipments.  Important ecological and molecular studies of Colorado mosquitoes have also been completed in Colorado, including Hayden et al. (2001) who studied a population of *Anopheles* originally thought to be *An. freeborni* Aitken.  They determined that these populations are actually *An. hermsi* Barr and Guptavanij based on molecular evidence.

Unpublished genetic studies carried out by Dr. Robert Hancock and others at Metropolitan State University of Denver were conducted during 2015 and early 2016 to determine whether both *An. freeborni* and *An. hermsi* exist in Colorado and the preliminary results indicate that both species do occur in the state (Hancock, personal communication). The results implied that the species are separated geographically, with populations of *An. freeborni* occurring in northeastern Colorado, and *An. hermsi* being more south and west in the state. Rose et al. (2015) published new state records of mosquito species reported from Colorado. These authors reported on *Ae.* (*Och.*) *niphadopsis* Dyar & Knab, *Ae. (Och.) spencerii spencerii* (Theobald), *Ae.* (*Och.*) *canadensis canadensis* (Theobald), *Ae.* (*Stegomyia*) *aegypti* (Linnaeus), and *Ur.* (*Pseudoficalbia*) *anhydor syntheta* Dyar & Shannon as a result of collection trips and examination of museum specimens, bringing the total number of taxa to 51 species, representing 7 genera. As part of the current study in 2015, additional examination of specimens from the Center of Disease Control and Prevention, Fort Collins (CDC), the National Ecological Observatory Network, Boulder (NEON), and the C. P. Gillette Museum of Arthropod Diversity at Colorado State University, Fort Collins, yielded records of *Ae.* (*Pro.*) *triseriatus* (Say), *Ps. discolor* (Coquillett), and *An. barberi* Coquillett. With these three new records, 54 species in seven genera are now recorded from Colorado.

***Mosquito Nomenclature***

Reinert (2000) affected mosquito nomenclature with elevating subgenus *Ochlerotatus* Lynch Arribálzaga to generic rank based upon the differences in male genitalia, insula of female genitalia and larval seta 12-I between *Aedes* and *Ochlerotatus*. Reinert (2001) again listed *Ochlerotatus* at the generic rank, and consequently Darsie and Ward (2005) recognized *Ochlerotatus* as a genus. However, because the female insula is not visible without dissection and the male genitalia require specialized slide mounting, Savage and Strickman (2004) suggested that adult mosquitoes should be identifiable at least to the generic level with the common dissecting microscope.  Enabling identification to the generic rank with a dissecting microscope leads to efficient separation, and discussion of medically important groups of mosquitoes with less confusion among researchers associated with vector control, ecology, and medical entomology.  These authors argued that there are three character traits that are shared by all the species of *Aedes* including those placed in *Ochlerotatus*.  These include the egg chorion structure, eggs not being deposited directly on the surface of water, and the characteristic sinusoidal swimming motion of the larvae.  Savage and Strickman (2004) suggested that *Ochlerotatus* should be retained as a subgenus of *Aedes*.  More recently, Wilkerson et al. (2015) reinstated the traditional classification established by Knight and Stone (1977) of the tribe Aedini.  These authors sought to provide a system that is useful for an operational community, enhances the ability to classify a species, maintains progress toward a natural classification based on monophyletic groups of species, and enhances the ability to correct the current classification system as new species are described and previously known species are more systematically defined in future studies (Wilkerson et al. 2015).  For the present study, the rationale of Savage and Strickmann (2004) and Wilkerson et al. (2015) is accepted, and *Ochlerotatus* is recognized as a subgenus of *Aedes.*

### *A Brief Report on the Viruses of Concern in Colorado*

Pathogens vectored by mosquitoes that cause diseases such as neuroinvasive and non-neuroinvasive encephalitis, meningitis, and fever affect Colorado residents.  Historically arbovirus-related epidemics have occurred intermittently throughout Colorado, especially along the Front Range, and areas within major drainage basins such as Grand Junction in Western

Colorado. Three viruses of concern have caused diseases in humans and animals that have been well documented. Initially, SLEV (Cockburn et al. 1957, Giddings et al. 1959, Tsai et al. 1987, Tsai et al. 1988, Tsai et al. 1989) and WEEV (Blackmore and Winn 1956, Cockburn et al. 1957, Smith et al. 1993) were the major viruses of concern. Currently in Colorado, WNV is endemic and the state experiences seasonal epidemics with some years worse than other years. The Center of Disease Control and Prevention has reported 5,112 disease cases in Colorado as of 2014 (http://www.cdc.gov/westnile/statsmaps/cummapsdata.html retrieved on 30 March 2016). Many humans and other animals have been infected or killed by these viruses. A brief review of these studies is required, in order to have a better understanding of the importance mosquito identification and control serve in Colorado.

Blackmore and Winn (1956) collected hibernating female *Cx. tarsalis* from mines located in the Colorado foothills during the winter of 1953-54. Some of these were found to contain WEEV, suggesting a possible overwintering mechanism for the pathogen. Cockburn et al. (1957), reported on the isolation of WEEV and SLEV in northern Colorado during the first five years of a long-term study initiated in 1949 regarding the ecology of the two viruses. Western equine encephalitis virus was of most concern because of an outbreak in humans and animals during 1949. The study indicated that WEEV was widespread, and young fowl, turkeys, and wild birds were the primary reservoirs. *Culex tarsalis* was indicated as the primary vector; however, WEEV was also isolated from *Ae. dorsalis* and *Ae. nigromaculis*. In addition to WEEV detected during this study, Cockburn et al. (1957) also reported the isolation of SLEV in humans and animals. Jakob et al (1989) reported isolating WEEV in 1988 from both *Cx. tarsalis* and *Cx. erythrothorax* in Las Animas (Bent County). They also isolated SLEV, Hart Park virus (HPV), Turlock virus (TURV), and a Bunyamwera group virus from those mosquitoes. Smith et al. (1993) reported on the isolation of WEEV in northern Colorado. The study was conducted during 1987 that the authors reported as an epizootic year, and a non-epizootic year in 1991 for comparison along with continued arbovirus surveillance in Larimer County and neighboring areas. Smith et al. (1993) tested *Culex* spp. mosquitoes for virus isolates resulting in the isolation of WEEV detected in *Culex* mosquitoes both years. *Culex tarsalis* was again implicated as the primary vector, with the majority of pools that tested positive composed of this species (Smith et al. 1993). However, *Culex pipiens* also tested positive for WEEV isolates, and was also implicated as a vector of WEEV in Colorado in this study. A number of different arboviruses were also isolated by Smith et al. (1993) including SLEV, HPV, TURV, and Jerry Slough virus (JSV) (a variation of Jamestown Canyon virus (JCV)).

Colorado has also experienced sporadic epidemics of SLEV, and there are several important studies that have described the details of each epidemic. As reported above, Cockburn et al. (1957) reported isolation of SLEV antibodies in humans and animals from northern Colorado. Later in the 1980's Mesa County including the city of Grand Junction experienced an epidemic of SLEV. Tsai et al. (1987) reported a SLEV outbreak in Mesa County in 1985 where 17 human cases occurred as well as one death. These authors found a tendency that females were of higher risk, and based off an extrapolation of numbers collected from a survey of Grand Junction residents, it was approximated that there could have been an occurrence of greater than 1,000 infected individuals (Tsai et al. 1987). It was also apparent that the infection rate observed by Cockburn et al. (1957) 30 years earlier and infection rate observed in the 1985 study indicated no change over that period of time (Tsai et al. 1987). After the 1985 epidemic, surveillance of vector species occurred in Grand Junction during 1986. There were no human cases reported in 1986; however, *Culex tarsalis* and *Cx. pipiens* tested positive for SLEV (Tsai et al. 1988). It was determined that *Cx. pipiens* could have had a greater role in the transmission of SLEV near urban areas in Grand Junction, and *Cx. tarsalis* served as a greater role in the transmission of SLEV in rural areas of Mesa County (Tsai et al. 1988). Tsai et al (1988) also reported that *Cx. tarsalis* infection rates were greater than *Cx. pipiens*, however after the month of August *Cx. pipiens* had greater infection rates, likely due to a diminishing abundance of *Cx. tarsalis*. In 1987 continued surveillance of vector species occurred in the Grand Junction (Mesa County) area. Tsai et al. (1989) reported results that were similar to the previous season, such that *Cx. tarsalis* was not the only vector of SLEV in that area and *Cx. pipiens* were more abundant in late season when the transmission of SLEV usually would take place. To date, SLEV and WEEV cases have decreased in Colorado and throughout the United States; however, a new virus of concern has emerged in the U.S. and Colorado specifically-WNV.

West Nile virus was first isolated in North America, specifically in New York City during the summer of 1999 (Nash et al. 2001, Roehrig et al. 2002), and since its initial isolation the virus has spread westward, now endemic throughout the continental U.S., including Colorado. West Nile virus is primarily spread by a naive mosquito feeding on an infected bird, and then the infected mosquito will build a viremia level to where the virus can then be transmitted to a naive human or domestic animal, usually horses (Hayes et al. 2005). Komar et al. (2003) reported that the most competent species of birds that were able to serve as a reservoir and infect naive mosquitoes are passerine birds. The five most competent birds species that were able to reservoir WNV are Blue Jays (*Cyanocitta cristata* (L.)), Common Grackles (*Quiscalus quiscula* (L.), House Finches (*Carpodacus mexicanus* (Müller)), American Crows (*Corvus brachyrhynchos* Brehm), and House Sparrows (*Passer domesticus* (L.)) (Komar et al. 2003). The primary transmission cycle is between birds and *Culex* spp. mosquitoes in the U.S., including

Colorado. Kilpatrick et al. (2006) reported that feeding behavior largely dictated the infection rate in humans, relating to *Cx. tarsalis* and *Cx. pipiens* feeding on competent American robins (*Turdus migratorius* L.). The increase in infection rates in humans coincide with a shift that occurs in late summer and early fall when the primarily ornithophilic mosquito shifts from feeding on birds, due to the migratory robin leaving the area, thereby seeking a blood meal from a different animal, in this case humans (Kilpatrick et al. 2006). Kent et al. (2009) also reported seasonal variation in blood feeding by *Cx. tarsalis* during the 2007 season in Wed County, Colorado. They also noted a preference for American robins in June (nearly 60%), making them an important reservoir for WNV early in the season, but observed a decline as the season progressed to around only 1% of the blood meals from mammals, including humans, in July and August. Mourning doves (*Zenaida macroura* (L.)) were also an important sournce of blood meals throughout the season (Kent et al. 2009).

West Nile virus was first reported in Colorado in 2002 with 6 neuroinvasive cases, 8 non-neuroinvasive cases and zero deaths reported that year (West Nile virus 2002 available from cdc.gov/westnile/resources/pdfs/data/2002wnvhumaninfectionsbystate.pdf). The virus quickly spread throughout Colorado, and 2003 was the worst year since the virus was discovered in Colorado, as the Center of Disease Control and Prevention reported 621 neuroinvasive cases, 2,326 non-neuroinvasive cases, and 63 deaths (West Nile virus 2003 available from cdc.gov/westnile/resources/pdfs/data/2003wnvhumaninfectionsbystate.pdf). To date, the CDC has reported a total of 5,213 total disease cases and 110 deaths in Colorado. Since WNV is now endemic in Colorado and the United States, mosquito control programs focus much of their protocol targeting and testing species of mosquitoes that vector WNV. As mentioned previously, the increase in transmission of pathogens such SLEV, WEEV, and WNV in Colorado are linked to areas with growing human populations, irrigated agriculture, and with urban forests that support bird populations and provide harborage (shade) for mosquitoes during the hot summer days. The infrastructure that is being developed to support an ever-growing human population such as sewers, catch basins, ponds, canals, and lakes, all provide additional habitat for *Culex* spp. to exploit and increase its fitness, becoming ever more abundant in Colorado, thereby increasing the risk of pathogen transmission.

**OBJECTIVE**

The primary objective of this study is to update Harmston and Lawson (1967) by providing new illustrated identification keys for adult females and fourth instar larvae of genera and species currently known from Colorado. Illustrations are included with each couplet of the keys for ease of identification. The identification keys are supported by synoptic descriptions, illustrations of the morphology, notes on the biology, comments regarding behavior and status in Colorado, and distribution in North America and Colorado for each species. Since several municipalities in Colorado attempt to actively mitigate mosquito borne diseases, there is a brief section on the medical importance of each species included in the biology section of the species summary. An important element of this publication is to provide up-to-date information regarding the distribution of the known mosquito species of Colorado. The county distribution records for all of the currently known species of Colorado mosquitoes has been expanded with additional collections made during this study and updated maps presented. Many counties in Colorado are characterized by an altitudinal gradient of several thousand feet. The habitat along gradients can vary, as well as the species that potentially occupy different habitats. For example, county records for a Great Plains species such as *Ps. signipennis* or *Ae. vexans* in Larimer County are likely restricted to the elevations less than 7,000 ft. (2,134 m.), whereas records for montane species such as *Ae. hexodontus* and *Ae. pullatus* are likely restricted to elevations greater than 7,000 ft.

The Appendix includes specific label data for museum specimens that were examined or newly collected during this study, as well as the repository of the specimens. The Appendix should assist future taxonomic studies in Colorado, allowing researchers to more easily track down and verify museum specimens that were examined during the current study.

## MATERIALS AND METHODS

Adult mosquito trapping and larval collections were undertaken during the 2013, 2014, and 2015 summer trapping seasons. Adult mosquitoes were collected utilizing the standard Center of Disease Control (CDC) $CO_2$-baited miniature light trap (BioQuip Products Catalog #2836BQ (www.bioquip.com) or equivalent). Other methods that were used for collecting included larval dipping, sweep nets for tall grasses, and Reiter gravid traps (BioQuip Products Catalog #2800S or equivalent). A representative collection of adult female mosquitoes each season has been deposited at the C. P. Gillette Museum of Arthropod diversity.

Museum specimens were examined at institutional collections and Colorado Mosquito Control Districts (MCD). Colorado mosquito specimens examined during this study are deposited in the C.P. Gillette Museum of Arthropod Diversity, University of Colorado Museum, Denver Museum of Nature and Science, University of Wyoming Insect Museum, Walter Reed Biosystematics Unit/Smithsonian Institution National Museum of Natural History collections, National Ecological Observatory Network collection, Colorado Mosquito Control records (voucher specimens of which have been deposited at CSU), and the collection at the Center for Disease Control and Prevention collection in Fort Collins, Colorado. Additional collections and records were included (if available), which were provided from cooperating mosquito control districts in Colorado, including the Grand River MCD (Mesa County), Delta County MCD, Boulder County MCD, Florida MCD (La Plata County), and Animas MCD (La Plata County).

The identification keys for both the adult females and fourth instar larvae that are presented are inclusive of Colorado mosquitoes in order to promote efficiency in the lab, decrease confusion, and misidentification of morphologically similar species that do not occur in Colorado. Both keys are modified from Darsie and Ward (2005) and Nielsen et al. (2002). The species summaries include a synopsis of both the adult female and fourth instar larva morphological characters that are useful for separation of each species. The morphological descriptions are modified from both Carpenter and Laccases (1955) and/or the author of the species original description which is indicated in each species summary.

**Table 1. List of Culicidae recorded from Colorado by genus, subgenus, and specific epithet.**

**Genus: *Aedes* Meigen**
**Subgenus: *Aedes* Meigen**
*cinereus* Meigen 1818
**Subgenus: *Aediomorphus* Theobald**
*vexans* (Meigen, 1830)
**Subgenus: *Stegomyia* Theobald**
*aegypti* (Linnaeus, 1762)
*albopictus* (Skuse, 1895)
**Subgenus: *Ochlerotatus* Lynch Arribalzaga**
*campestris* Dyar & Knab, 1907
*canadensis canadensis* (Theobald, 1901)
*cataphylla* Dyar, 1916
*communis* (de Geer, 1776)
*dorsalis* (Meigen, 1830)
*epactius* Dyar & Knab, 1908
*excrucians* (Walker, 1856)
*fitchii* (Felt & Young, 1904)
*flavescens* (Müller, 1764)
*hexodontus* Dyar, 1916
*impiger* (Walker, 1848)
*implicatus* Vockeroth, 1954
*increpitus* Dyar, 1916
*intrudens* Dyar, 1919
*melanimon* Dyar, 1924
*nigromaculis* (Ludlow, 1906)
*niphadopsis* Dyar & Knab, 1918
*pionips* Dyar, 1919
*pullatus* (Coquillett, 1904)
*punctor* (Kirby, 1837)
*schizopinax* Dyar, 1929
*spencerii idahoensis* (Theobald, 1903)
*spencerii spencerii* (Theobald, 1901)
*sticticus* (Meigen, 1838)
*trivittatus* (Coquillett, 1902)
**Subgenus: *Protomacleaya* Theobald**
*hendersoni* Cockerell, 1918
*triseriatus* (Say, 1823)

**Genus: *Anopheles* Meigen**
**Subgenus: *Anopheles* Meigen**
*barberi* Coquillett, 1903
*earlei* Vargas, 1943
*franciscanus* McCracken, 1904
*freeborni* Aitken, 1939
*hermsi* Barr & Guptavanij, 1989
*punctipennis* (Say, 1823)

**Genus: *Psorophora* Robineau-Desvoidy**
**Subgenus: *Grabhamia* Theobald**
*columbiae* (Dyar & Knab, 1906)
*discolor* (Coquillett, 1903)
*signipennis* (Coquillett, 1904)

**Genus: *Culex* Linnaeus**
**Subgenus: *Culex* Linnaeus**
*erythrothorax* Dyar, 1907
*pipiens* Linnaeus, 1758
*restuans* Theobald, 1901
*salinarius* Coquillett, 1904
*tarsalis* Coquillett, 1896
**Subgenus: *Neoculex* Dyar**
*territans* Walker, 1856

**Genus: *Culiseta* Felt**
**Subgenus: *Culiseta* Felt**
*alaskaensis* (Ludlow, 1906)
*impatiens* (Walker, 1848)
*incidens* (Thomson, 1869)
*inornata* (Williston, 1893)
**Subgenus: *Culicella* Felt**
*morsitans* (Theobald, 1901)

**Genus: *Coquillettidia* Dyar**
**Subgenus: *Coquillettidia* Dyar**
*perturbans* (Walker, 1856)

**Genus: *Uranotaenia* Lynch Arribalzaga**
**Subgenus: *Pseudoficalbia* Theobald**
*anhydor syntheta* Dyar & Shannon 1924
**Subgenus: *Uranotaenia* Lynch Arribalzaga**
*sapphirina* (Osten Sacken, 1868)

# CHAPTER TWO KEY TO THE ADULT FEMALE MOSQUITOES OF COLORDAO

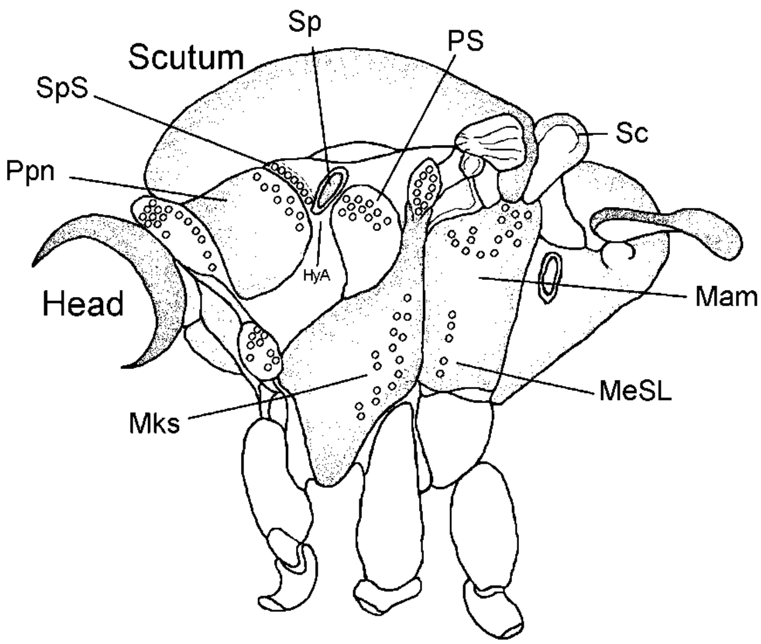



Figure 1. Side view of a mosquito thorax, showing placement of setae: HyA = Hypostigmal area; Mam = Mesanepimeron; MeSL = lower mesanepimeral setae; Mks = mesokatepisternum; Ppn = postpronotum; PS = Postspiracular setae; Sc = Scutellum; Sp = spiracle; SpS = Prespiracular setae.

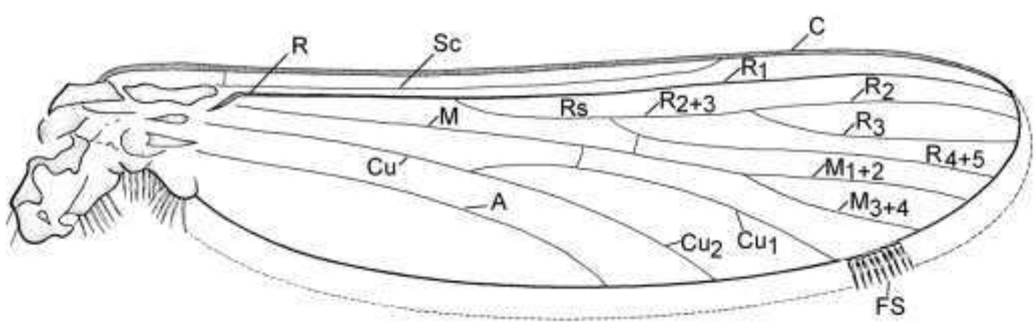



Figure 2. Dorsal view of a mosquito wing, showing placement of veins: A = anal vein; C = costal vein; Cu = cubital vein; $Cu_1$ = first branch of cubital vein; $Cu_2$ = second branch of cubital vein; FS = fringe scales; M = medial vein; $M_{1+2}$ = first or anterior branch of medial vein; $M_{3+4}$ = second or posterior branch of medial vein; R = radial vein; $R_1$ = first or anterior branch of radial vein; $R_2$ = second branch of radial vein; $R_3$ = third branch of radial vein; $R_{2+3}$ = stem of middle radial sector veins; $R_{4+5}$ = fourth or posterior branch of radial vein; Rs = radial sector vein; Sc = subcostal vein.

## GENERA

1. Maxilary palpi nearly as long as the proboscis (Fig. 3); scutellum evenly rounded (Fig. 5) ......................................................……………….…………..………...............*Anopheles*

   Maxilary palpi much shorter than the proboscis (Fig. 4); scutellum tri-lobed (Fig. 6) ......................................................………………...………………………….……….......... 2

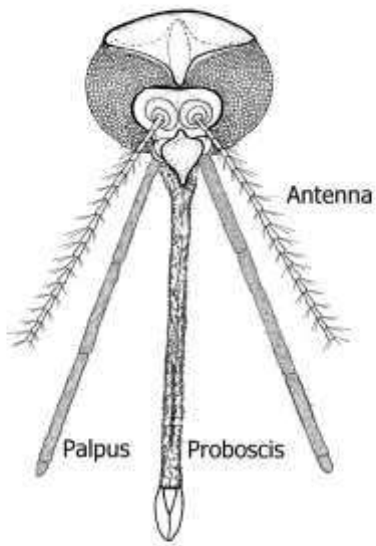



Figure 3. Head of *Anopheles* spp.

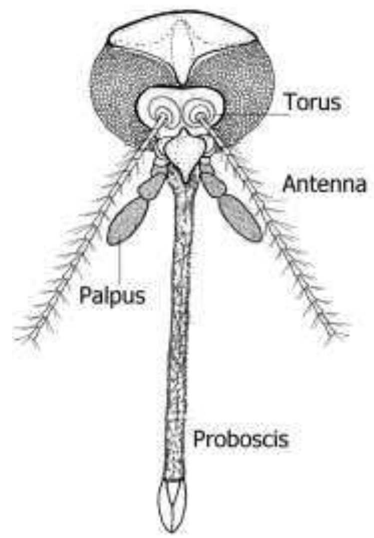



Figure 4. Head of *Culex* spp.

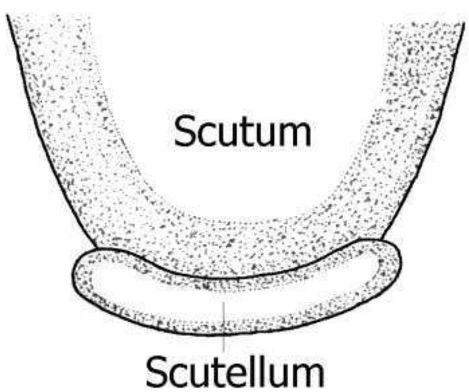



Figure 5. Scutellum of *Anopheles* spp.

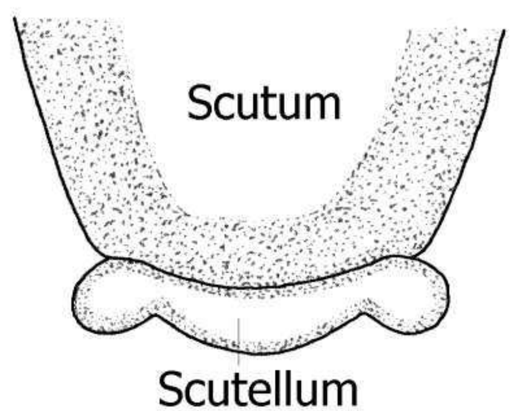



Figure 6. Scutellum of *Culex* spp.

2.(1) Thorax marked with lines of iridescent blue scales (Fig. 7 or Fig. 8); wing cell $R_2$ shorter than wing vein $R_{2+3}$ (Fig. 9); very small, rare species.....................*Uranotaenia*

Thorax lacking iridescent blue scales; wing cell $R_2$ longer than wing vein $R_{2+3}$ (Fig.10)...... 3

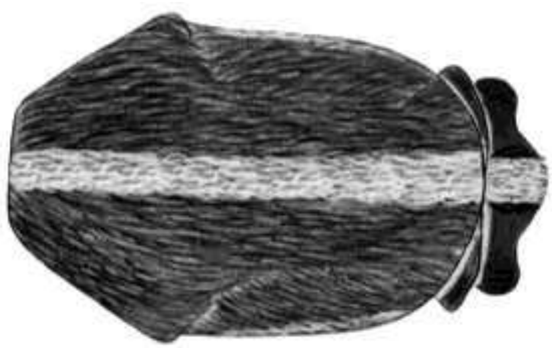


Figure 7. Thorax of *Ur. sapphirina*

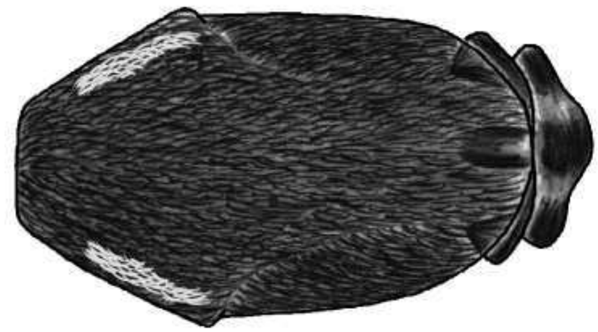


Figure 8. Thorax of *Ur. anhydor syntheta*

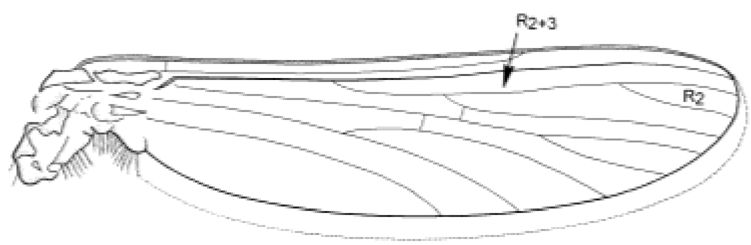



Figure 9. Wing of *Uranotaenia* spp.

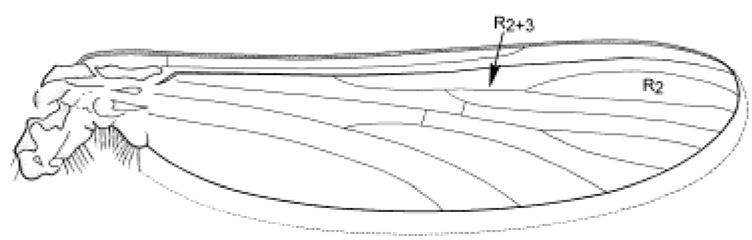



Figure 10. Wing of *Culex* spp.

3.(2)Dorsal wing scales broad, a mix of white or yellow and brown (Fig. 11); first segment of hind tarsus with a distinct median white ring.……... *Coquillettidia perturbans*, page 200

Dorsal wing scales not distinctly broad (Fig. 12); hind tarsus variable............................ 4

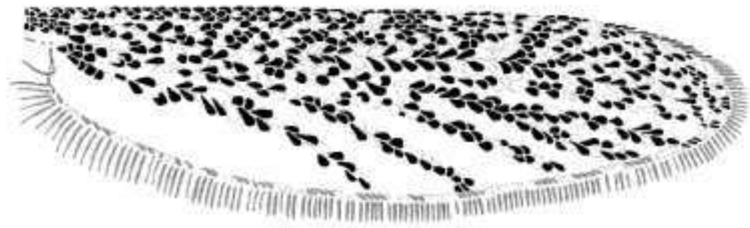


Figure 11. Wing of *Coquillettidia perturbans*

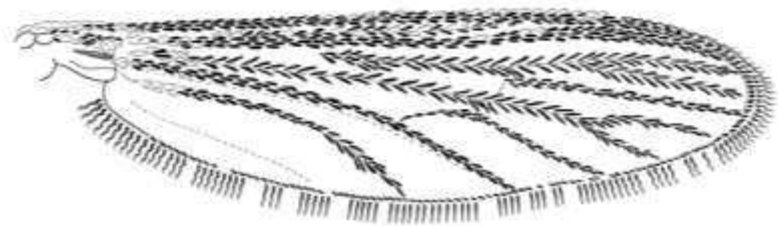


Figure 12. Wing of *Aedes* spp.

4.(3)Abdomen generally pointed at tip (Fig. 13); Postspiracular setae present (Fig. 1)........... 5

Abdomen generally blunt or rounded at tip (Fig. 14); Postspiracular setae absent.......... 6

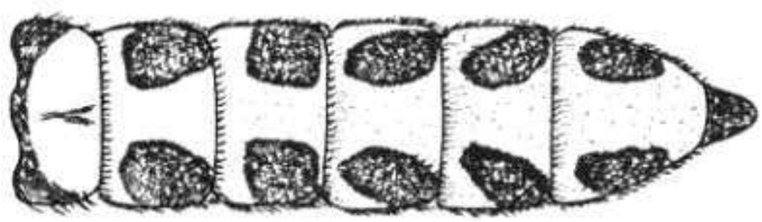


Figure 13. Abdomen of *Aedes nigromaculis*

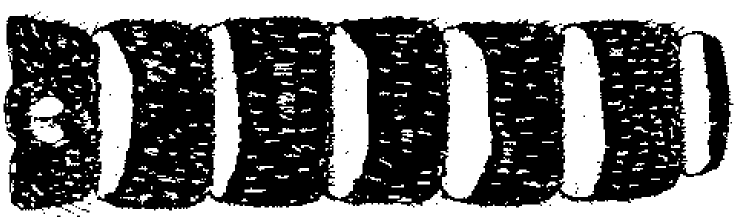


Figure 14. Abdomen of *Culiseta incidens*

5.(4)Prespiracular setae present (Fig. 1); pale scaled transverse bands and lateral patches on abdominal tergites, when present, are primarily apical (Fig. 15).................... *Psorophora*

Prespiracular setae absent; pale scaled transverse bands and lateral patches on abdominal tergites, when present, are primarily basal (Fig. 16)............................... *Aedes*

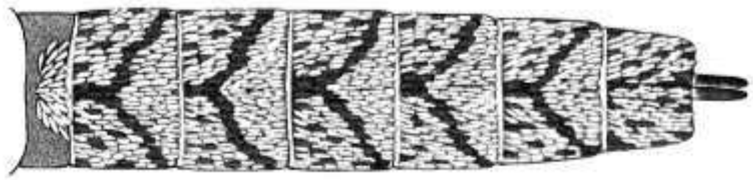


Figure 15. Abdomen of *Psorophora signipennis*

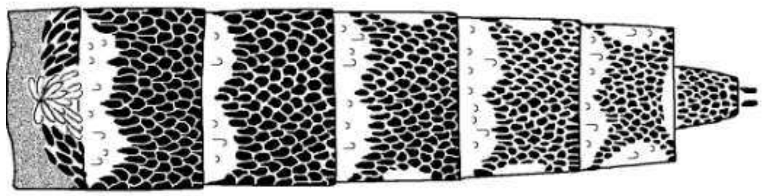


Figure 16. Abdomen of *Aedes vexans*

6.(4)Prespiracular setae present (Fig. 1); wing base of vein Sc (subcosta) with a distinct tuft of setae on the underside (Fig. 2); relatively large species, often with slightly down curved proboscis........................................................................................ *Culiseta*

Prespiracular setae absent; subcostal vein lacking tuft of setae at the base on the ventral surface; small to medium species with straight proboscis......................................... *Culex*

***Aedes***

7. Tarsi with distinct pale bands (Fig. 17 and Fig. 18)........................................................... 8

Tarsi without pale bands (Fig. 19)........................................................................... 21

Figure 17. Hind leg of *Ae. dorsalis*

Figure 18. Hind leg of *Ae. increpitus*

Figure 19. Hind leg of *Aedes* spp.

8.(7)Tarsi, at least on hind legs, with both basal and apical pale bands (Fig. 20).................... 9

Tarsi with basal bands only (Fig. 21)................................................................... 13

Figure 20. Hind leg of *Ae. dorsalis*

Figure 21. Hind leg of *Ae. increpitus*

9.(8)Wings with a mix of dark and pale scales, usually with mostly pale scales (Fig. 22).... 10

Wings with dark scales, except for in some instances a patch of white scales at the base of the costal (anterior) vein (Fig. 23)................................................................. 12

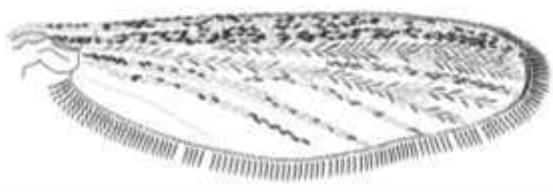


Figure 22. Wing of *Ae. campestris*

Figure 23. *Wing of Ae. epactius*

10.(9)Costal (anterior) wing vein mostly dark scaled; anal vein intermixed with white and dark scales (Fig. 24); abdominal tergites with large areas of dark scales, and with segment VII usually with more dark than pale scales (Fig. 26).*Ae. melanimon*, page 140

Costal wing vein mostly pale scaled; anal vein primarily or entirely white scaled (Fig. 25); abdominal tergites with small dark scale patches, and often greatly reduced, segment VII with more pale than dark scales (Fig. 27)................................................ 11

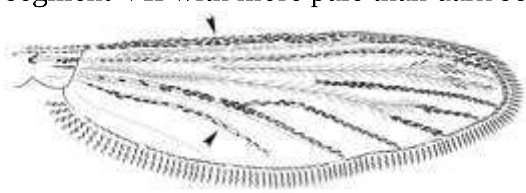


Figure 24. Wing of *Ae. melanimon*

Figure 25. Wing of *Ae. dorsalis*

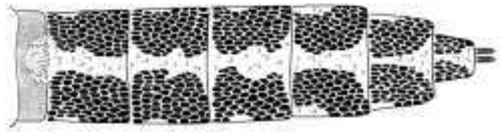


Figure 26. Abdomen of *Ae. melanimon*

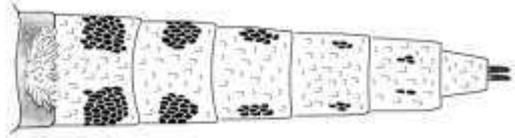


Figure 27. Abdomen of *Ae. dorsalis*

11.(10)Wing with light and dark scales fairly evenly intermixed on the radial (R) veins, usually without any single vein predominantly dark scaled (Fig. 28); foreclaw strongly curved with a well-developed tooth (Fig. 30)............. *Ae. campestris*, page 86

Wing with light and dark scales not evenly intermixed, with dark scales predominating on vein $R_{4+5}$ when compared to $R_2$ and $R_3$ (Fig. 29); foreclaw not strongly curved and with a small tooth (Fig. 31)....................... *Ae. dorsalis*, page 103

Figure 28. Wing of *Ae. campestris*


Figure 29. Wing of *Ae. dorsalis*

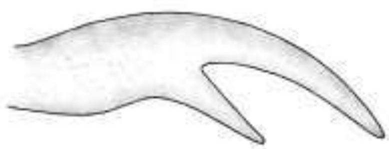


Figure 30. Foreclaw of *Ae. campestris*

Figure 31. Foreclaw of *Ae. dorsalis*

12.(9)Wing with a distinct patch of pale scales on the base of the costal (anterior) vein (Fig. 32); scutum with a broad dark brown or golden median longitudinal stripe (Fig. 34); abdominal tergites with distinct basal white bands...................... *Ae. epactius*, page 106

Wing entirely dark scaled (Fig. 33); scutum without a dark median stripe, covered with golden brown scales (Fig. 35); abdominal tergites lacking basal banding, at most with lateral triangles of white scales............................... *Ae. canadensis canadensis*, page 90

Figure 32. Wing of *Ae. epactius*

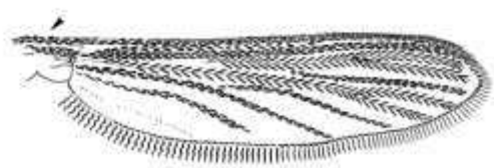


Figure 33. Wing of *Ae. c. canadensis*

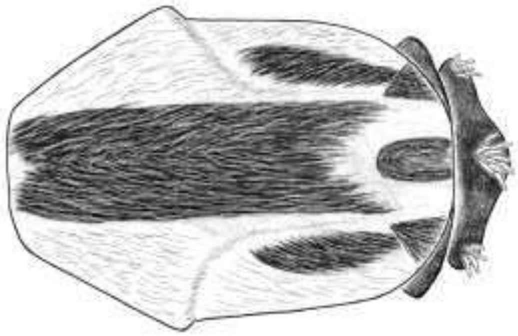


Figure 34. Scutum of *Ae. epactius*

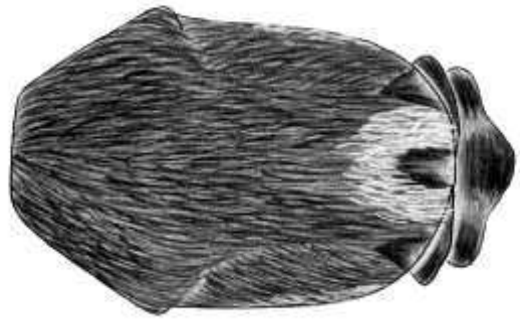


Figure 35. Scutum of *Ae. c. canadensis*

13.(8)Proboscis with definite pale-scaled band near the middle (Fig.36)...................................
..................................................................... *Ae. nigromaculis* (in part), page 144

Proboscis without definite pale-scaled band near the middle (Fig. 37)......................... 14

Figure 36. Proboscis of *Ae. nigromaculis*

Figure 37. Proboscis of *Ae. dorsalis*

14.(13)Basal white bands of hind tarsi very narrow, less than $^{2}/_{10}$ of the segment (Fig. 38); basal pale bands of abdominal tergites indented medially, forming a distinct pattern with "B"-shaped lobes on most tergites (Fig. 40)......................... *Ae. vexans*, page 181

Basal bands of hind tarsi broad, at least ¼ the length of the segment (Fig. 39); basal white bands of abdominal tergites variable but not indented medially...................... 15

Figure 38. Hind leg of *Ae. vexans*

Figure 39. Hind leg of *Ae. increpitus*

Figure 40. Abdomen of *Ae. vexans*

15.(14)Abdomen and legs covered with jet-black scales, adorned with strongly contrasting silvery-white scaled markings; palps with black base and silvery-white tips............. 16

Abdomen and legs brown scaled or yellowish pale scaled, with pale white or yellowish scaled markings; palps entirely dark, or if pale scales are present, they are yellowish and intermixed with dark brown scales...................................................... 17

16.(15)Scutum with lyre-shaped markings of silvery-white scales contrasting with dark-scaled background (Fig. 41)........................................................ *Ae. aegypti*, page 80

Scutum and head with a continuous median stripe of silvery-white scales, contrasting distinctly with surrounding jet-black scales (Fig. 42)............... *Ae. albopictus*, page 83

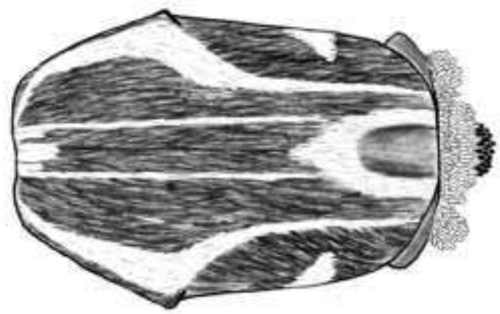


Figure 41. Scutum of *Ae. aegypti*

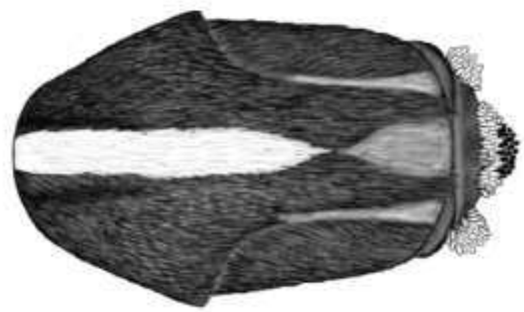


Figure 42. Scutum of *Ae. albopictus*

17.(15)Hypostigmal scale patch (HyA) present (Fig. 43)....................................................... 18

Hypostigmal scale patch (HyA) absent (Fig. 44)......................................................... 19

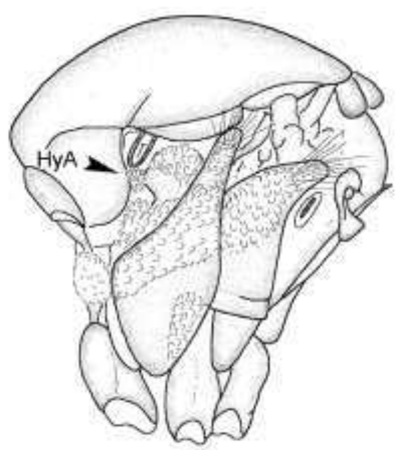



Figure 43. Thorax of *Ae. nigromaculis*

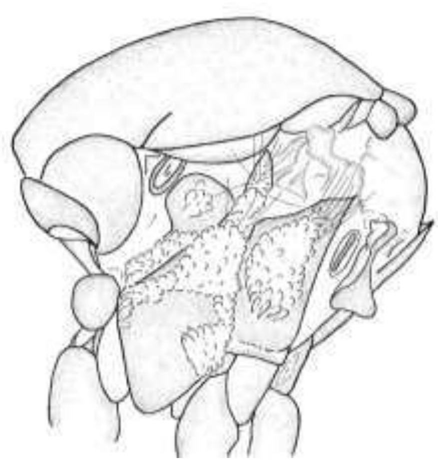


Figure 44. Thorax of *Ae. increpitus*

18.(17)Large species; abdominal tergites entirely covered dorsally with yellowish scales (Fig. 45); palps with yellowish scales intermixed with dark brown scales............................... .......................................................................................... *Ae. flavescens*, page 116

Medium-sized species; abdominal tergites patterned with pale basal bands and a median pale stripe flanked by a pair of black-scaled patches on each segment (Fig. 46); palps entirely dark scaled.............................. *Ae. nigromaculis* (in part), page 144

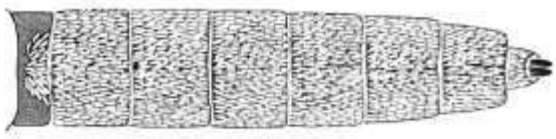


Figure 45. Abdomen of *Ae. flavescens*

Figure 46. Abdomen of *Ae. nigromaculis*

19.(17)Tarsal claws, especially foreclaws, with distinct shape, having a relatively large tooth (approximately ⅔ the length of the main claw) nearly uniformly thick from the base to the tip and subparallel to the main claw (Fig. 47)...................................................... ................................................................ *Ae. excrucians* (species complex), page 109

Tarsal claws with a smaller, more typically-shaped and placed tooth, set at a distinct angle from the main claw and thicker at the base, tapering evenly to a point (Fig. 48).. .............................................................................................................................. 20

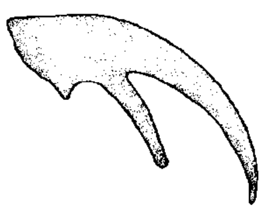


Figure 47. Foreclaw of *Ae. excrucians*

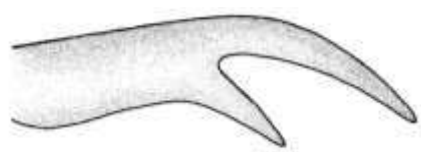


Figure 48. Foreclaw of *Ae. increpitus*

20.(19)Abdominal tergites with even white basal bands (Fig. 49); pedicel of antennae with white scales restricted to only a few on the inner surface or absent (Fig. 51).................. ........................................................................................... *Ae. increpitus*, page 133

Abdominal tergites with basal white bands usually expanded apically into each segment, with some segments lacking white scales laterally (Fig. 50); pedicel of antennae usually with conspicuous bushy white scales dorsally and on inner surface (Fig. 52)........................................................................................ *Ae. fitchii*, page 112

Figure 49. Abdomen of *Ae. increpitus*

Figure 50. Abdomen of *Ae. fitchii*

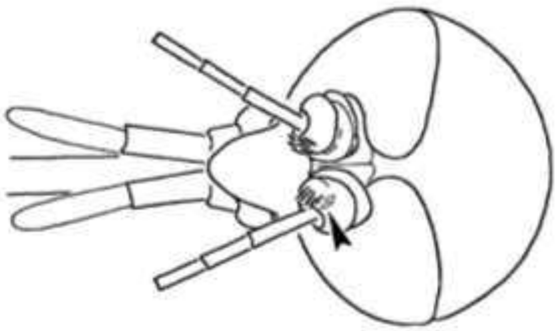


Figure 51. Pedicels of *Ae. increpitus*

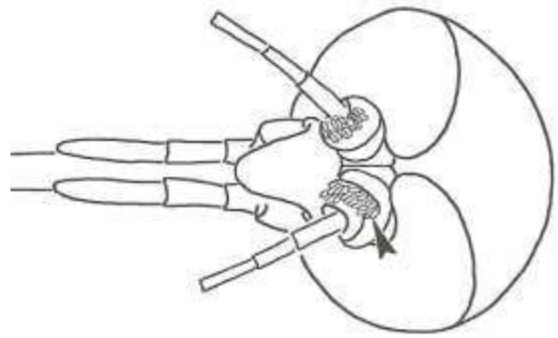


Figure 52. Pedicels of *Ae. fitchii*

21.(7)Scutum pattern distinct, with three stripes of approximate equal width, the median stripe of dark brown scales bordered on each side by a stripe of yellow-white scales, these flanked by dark brown scales laterally (Fig. 53); tergites without basal pale bands but instead with lateral triangular white scale patches............... *Ae. trivittatus*, page 177

Scutum pattern not as above........................................................................... 22

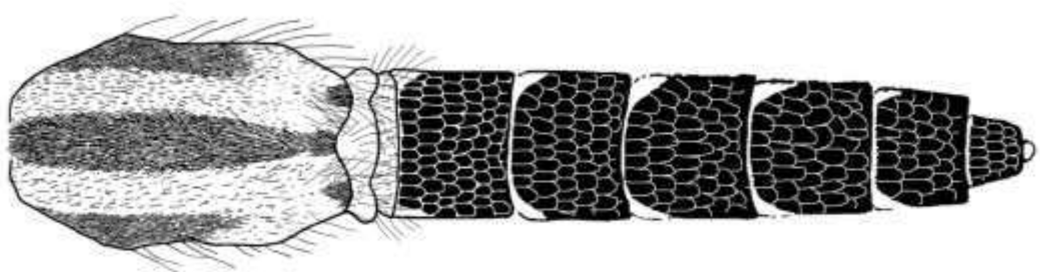


Figure 53. Scutum and abdomen of *Ae. trivittatus*

22.(21)Scutum with dark scales medially and bright silvery-white scales laterally (Fig. 54); abdomen often somewhat blunt or rounded at the tip, without basal bands but instead with lateral rounded white scale patches..................................................................... 23

Scutum entirely dark scaled or if pale scales present then they are dull yellowish and not silvery (Fig. 55); abdomen distinctly pointed at the tip, basal banding variable.. 24

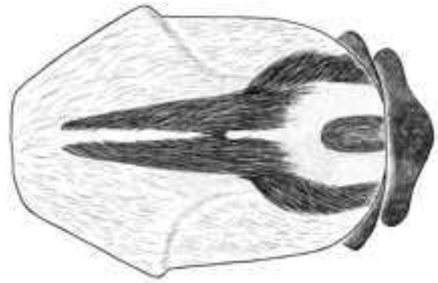


Figure 54. Scutum of *Ae. hendersoni*

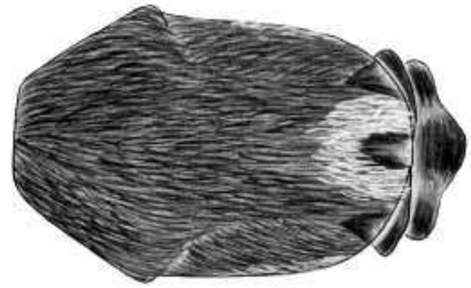


Figure 55. Scutum of *Ae. intrudens*

23.(22)Scutum pattern distinct, with dense areas of bright silvery-white scales anteriorly and laterally, surrounding a wrench-shaped stripe of dark scales that is narrow anteriorly and wider on the posterior half of the scutum (Fig. 56); fore- and midclaws abruptly curved with the tooth more than ⅓ the length of the claw (Fig. 58)................................ ......................................................................................... *Ae. hendersoni*, page 120

Scutum pattern similar to above but with more dark than silvery scales in the anterior portion of the scutum (Fig. 57); fore- and midclaws evenly curved with the tooth small, less than ⅓ the length of the claw (Fig. 59).................. *Ae. triseriatus*, page 173

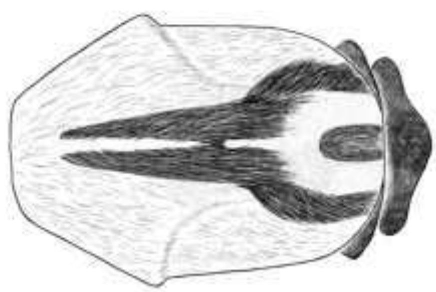


Figure 56. Scutum of *Ae. hendersoni*

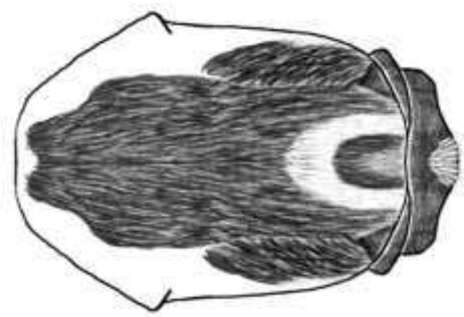


Figure 57. Scutum of *Ae. triseriatus*

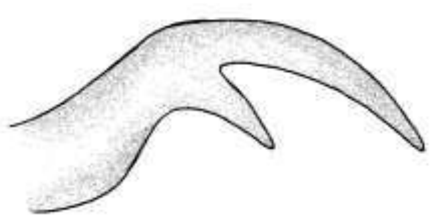


Figure 58. Foreclaw of *Ae. hendersoni*

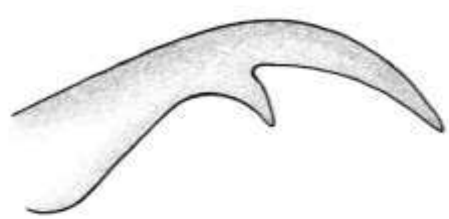


Figure 59. Foreclaw of *Ae. triseriatus*

24.(22)Postprocoxal scale patch absent (Fig. 60)................................................................ 25

Postprocoxal scale patch (PSc) present (Fig. 61)...................................................... 30

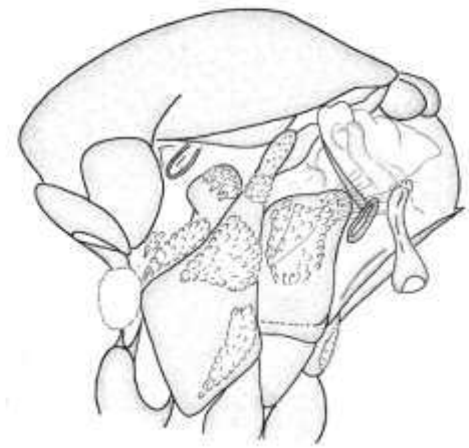


Figure 60. Thorax of *Ae. intrudens*

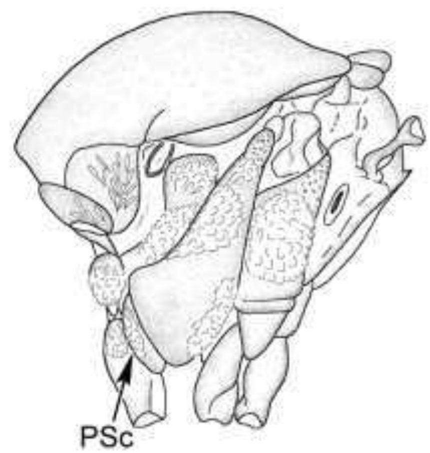



Figure 61. Thorax of *Ae. implicatus*

25.(24)Abdominal tergites dark scaled, without basal white bands, and abdominal sternites golden in color; Usually a distinct patch of dark brown scales present anteriorly on the coxae of the forelegs (Fig. 62); relatively small species........ *Ae. cinereus*, page 96

Abdominal tergites with white basal bands (sometimes with additional white markings); coxae of forelegs lacking dark scales anteriorly...................................... 26

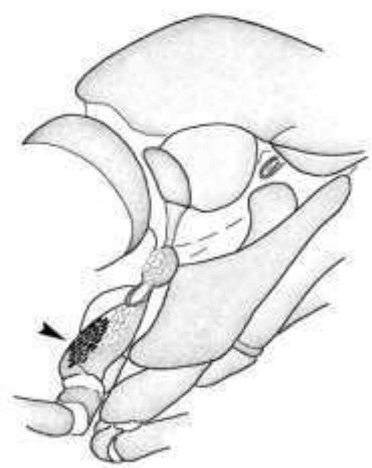


Figure 62. Thorax of *Ae.cinereus*

26.(25)Hypostigmal scale patch (Hyp) present (Fig. 63)...................................................... 27

Hypostigmal scale patch absent (Fig. 64).................................................................. 28

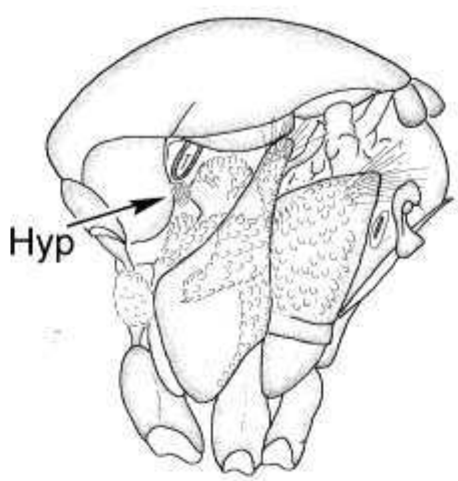



Figure 63. Thorax of *Ae. pullatus*

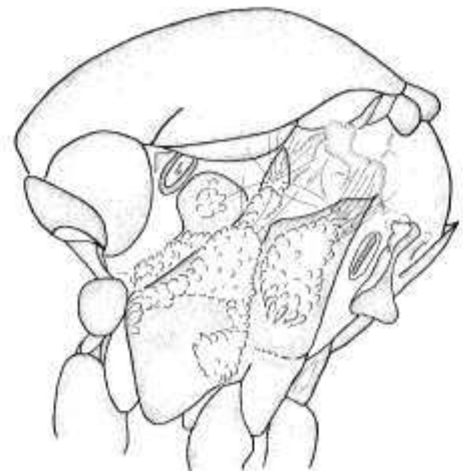


Figure 64. Thorax of *Ae. sticticus*

27.(26)Scutum with a distinct pattern that includes a pair of bare submeadian stripes and lateral pale scales (Fig. 65); some pleural scales usually yellow or grayish-yellow in color and including a distinct hypostigmal scale patch; mesepimeron usually with scales almost to the ventral margin (Fig. 67).............................. *Ae. pullatus*, page 154

Scutum evenly covered with dark scales, lacking lateral pale areas (Fig. 66); pleural scales white with hypostigmal scale patch of only a few; mesepimeron lacking scales on lower ¼ (Fig. 68).................................................... *Ae. intrudens* (in part), page 137

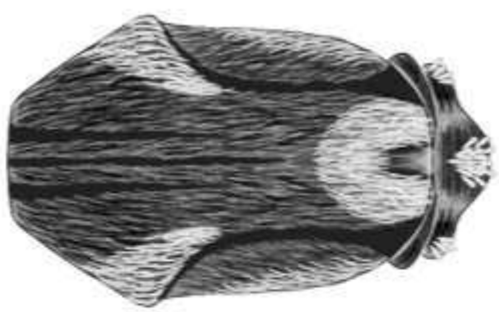


Figure 65. Scutum of *Ae. pullatus*

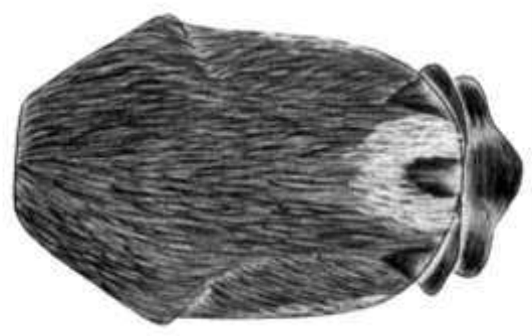


Figure 66. Scutum of *Ae. intrudens*

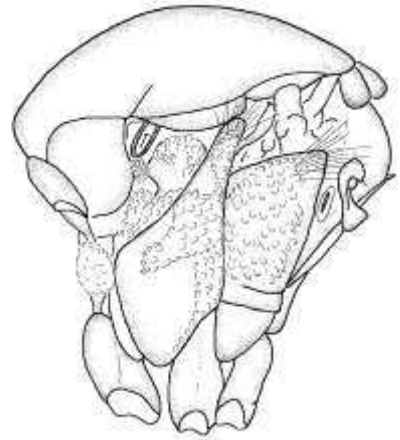


Figure 67. Thorax of *Ae. pullatus*

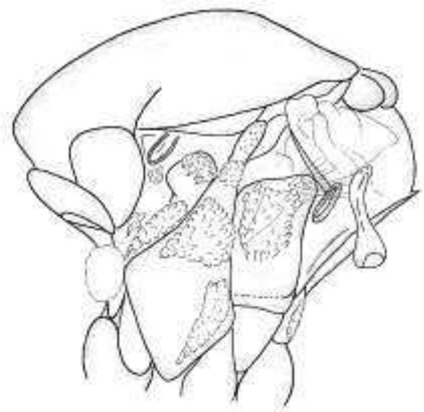


Figure 68. Thorax of *Ae. intrudens*

28.(26)Scale patch on the mesanepimeron (Mam) extends to near the ventral margin (Fig. 69); supraalar setae on the scutum above the wing base (Sas) and setae on the scutellum (MSS) dark brown or black (Fig. 71)...................... *Ae. communis*, page 100

Scale patch on the mesanepimeron (Mam) usually only extends half-way to the ventral margin (Fig. 70); supraalar setae (Sas) on the scutum above the wing base and setae on the scutellum (MSS) golden or yellow (Fig. 71).......................................... 29

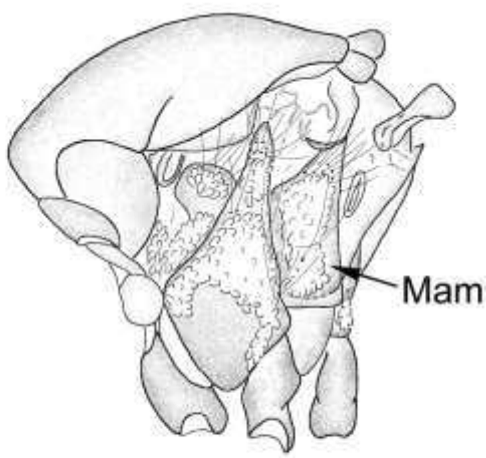



Figure 69. Thorax of *Ae. communis*

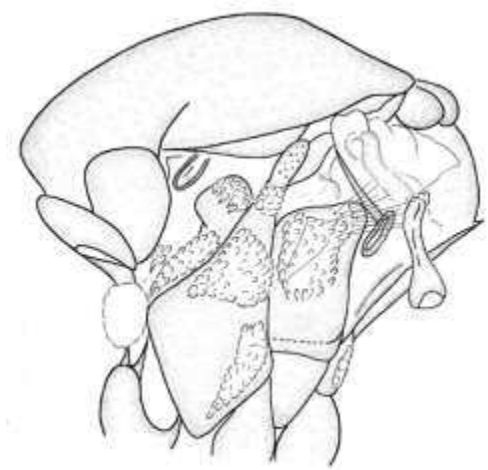


Figure 70. Thorax of *Ae. intrudens*

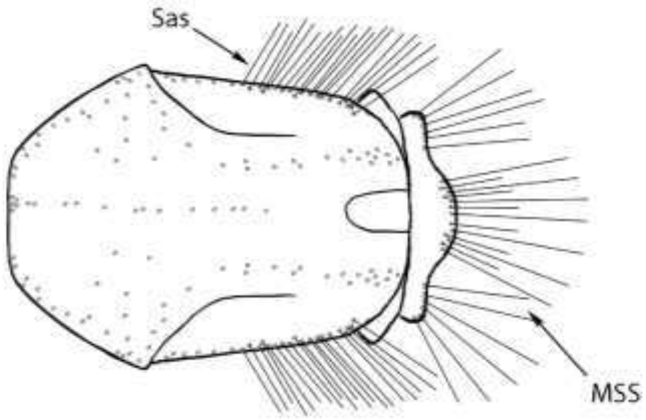



Figure 71. Scutum of *Aedes* spp. showing location of supraalar (Sas) and median scutellar setae (MSS)

29.(28)Scale patch on the mesokatepisternum (Mks) extends to the upper anterior margin (Fig. 72); scutum distinctly patterned with a broad dark median stripe of scales bordered laterally on each side by yellowish-white scales (Fig. 74)............................... ........................................................................................... *Ae. sticticus*, page 170

Scale patch on the mesokatepisternum (Mks) not extending to the upper anterior margin (Fig. 73); scutum evenly covered with dark scales, lacking lateral pale areas (Fig. 75)....................................................................... *Ae. intrudens* (in part), page 137

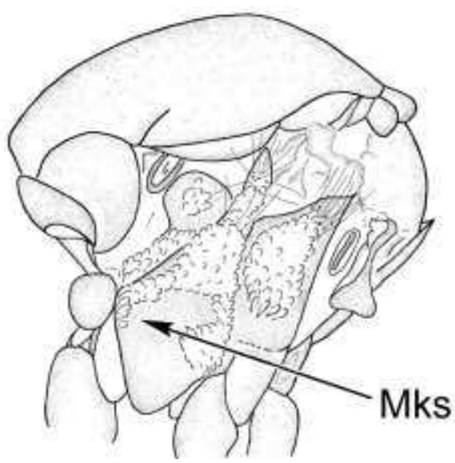



Figure 72. Thorax of *Ae. sticticus*

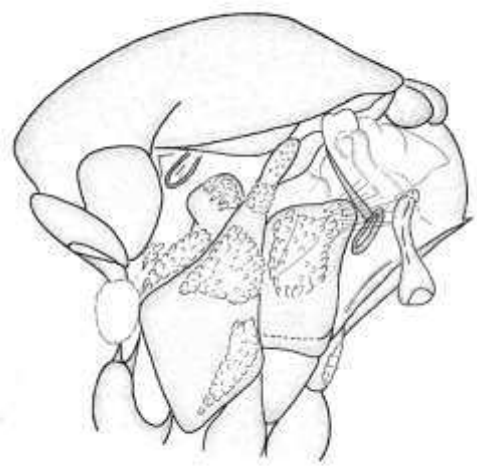


Figure 73. Thorax of *Ae. intrudens*

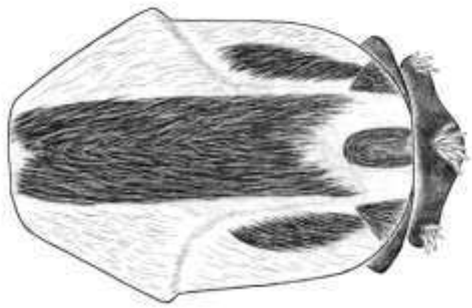


Figure 74. Scutum of *Ae. sticticus*

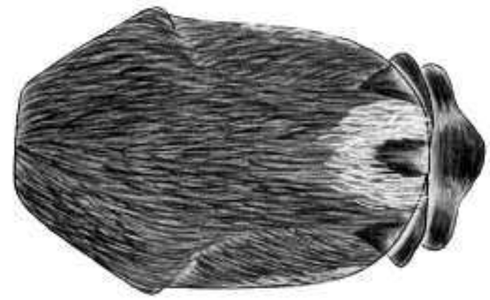


Figure 75. Scutum of *Ae. intrudens*

30.(24)Hypostigmal scale patch (Hyp) present (Fig. 76)....................................................... 31

Hypostigmal scale patch absent (Fig. 77).................................................................... 33

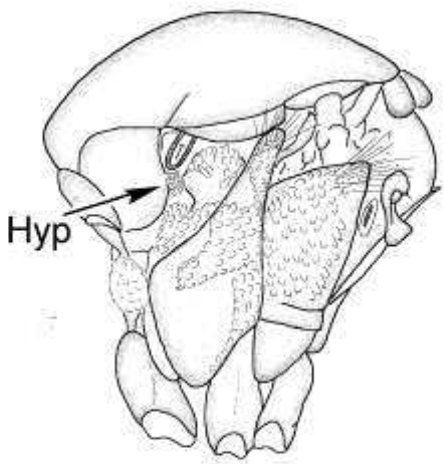



Figure 76. Thorax of *Ae. pullatus*

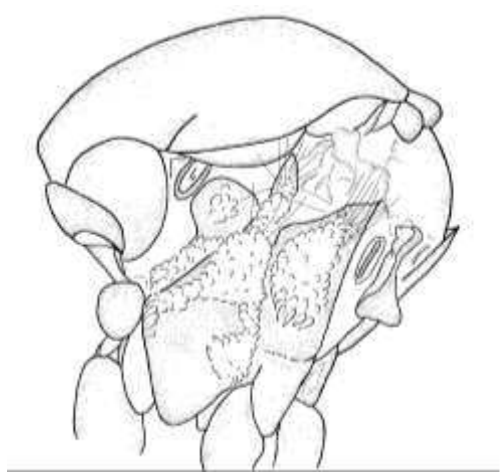


Figure 77. Thorax of *Ae. sticticus*

31.(30)Abdominal tergites with broad basal bands extended apically to form a continuous median longitudinal stripe (Fig. 78); wing with many white scales, especially on the costa, subcosta, radial, and medial veins (Fig. 80)............... *Ae. niphadopsis*, page 147

Abdominal tergites with white scales restricted to basal bands (Fig. 79); wings mostly dark scaled, but often with a distinct patch of white scales at the base of the costa, some with a few white scales scattered on the other anterior veins (Fig. 81)............. 32

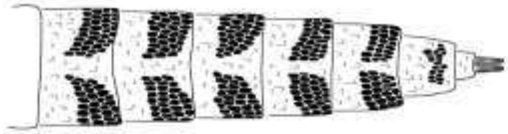


Figure 78. Abdomen of *Ae. niphadopsis*

Figure 79. Abdomen of *Ae. cataphylla*

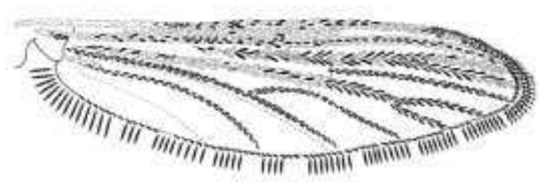


Figure 80. Wing of *Ae. niphadopsis*

Figure 81. Wing of *Ae. cataphylla*

32.(31)Wings almost entirely dark scaled except for a small patch of white scales at the base of the costa (Fig. 82); Hypostigmal scale patch of only a few scales........................................................................................................ *Ae. implicatus* (in part), page 130

Wings mostly dark scaled but with a prominent patch of white scales at the base of the costa and with a few white scales scattered on the other anterior veins (Fig. 83); Hypostigmal scale patch prominent, many scales..................... *Ae. cataphylla*, page 93

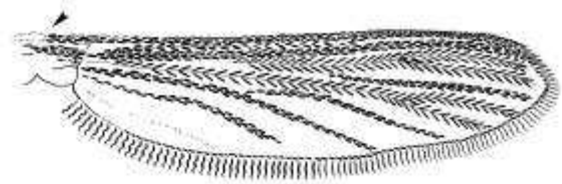


Figure 75. Wing of *Ae. implicatus*

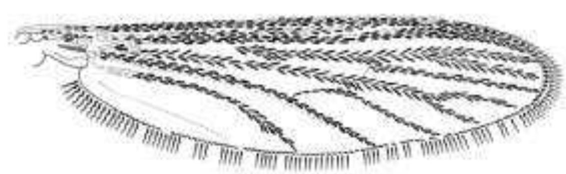


Figure 76. Wing of *Ae. cataphylla*

33.(30)Wing veins alternating black and white scaled, with the costa, $R_1$, $R_{4+5}$, and Cu dark scaled, and the others primarily pale scaled (Fig. 84)................................................ 34

Wings veins primarily dark scaled; if white scales present, they are usually either evenly scattered over all veins, or confined to prominent patches at the base of the costa and $R_1$ (Fig. 85)........................................................................................ 35

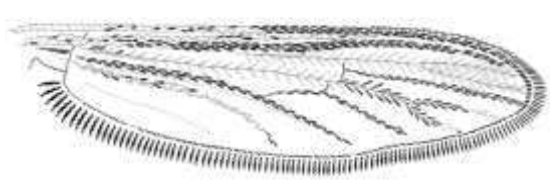


Figure 84. Wing of *Ae. idahoensis*

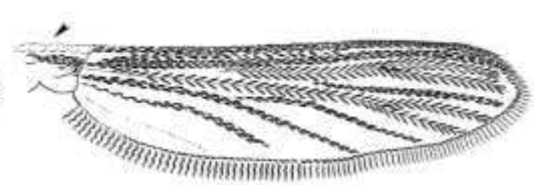


Figure 85. Wing of *Ae. hexodontus*

(33)Abdominal tergites with basal bands extended apically to form a continuous median longitudinal stripe or sometimes completely pale scaled, especially on segments 7 and 8 (Fig. 86)................................................................ *Ae. spencerii spencerii*, page 167

Abdomen with white scales restricted to basal bands, except segment 8, which is predominantly pale scaled throughout (Fig. 87)..... *Ae .spencerii idahoensis*, page 163

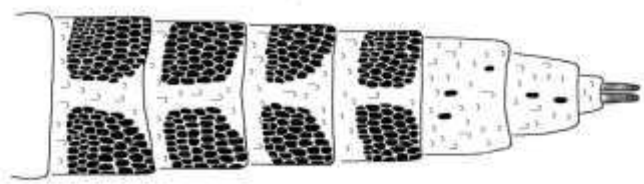


Figure 86. Abdomen of *Ae. spencerii spencerii*

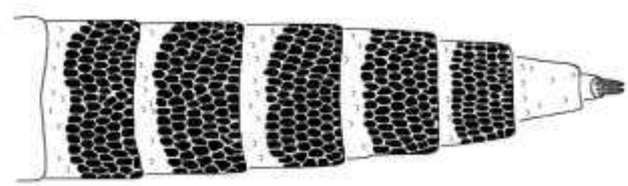


Figure 87. Abdomen of *Ae. spencerii idahoensis*

34.(33)Scale patch on mesanepisternum (Mks) extending to the upper anterior angle; scale patch on mesanepimeron (Mam) extends to the ventral margin (Fig. 88).................. 36

Scale patch on mesanepisternum (Mks) not extending to the upper anterior angle; scale patch on mesanepimeron (Mam) not extending to ventral margin (Fig. 89)..... 39

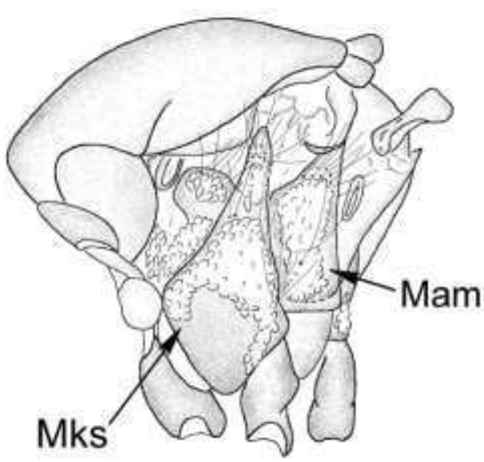



Figure 88. Thorax of *Ae. communis*

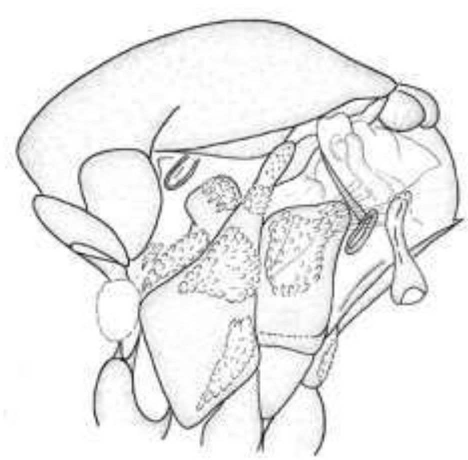


Figure 89. Thorax of *Ae. intrudens*

35.(35)Abdominal tergites seven and eight primarily pale scaled (Fig. 90); ventral surface of proboscis mostly pale scaled (Fig. 92); wings mostly dark scaled, but with pale scales usually scattered along the subcostal vein (Fig. 94)............. *Ae. schizopinax*, page 160

Abdominal tergites seven and eight primarily dark scaled with basal lateral white scale patches on segment seven (Fig. 91); ventral surface of proboscis mostly dark scaled (Fig. 93); wings with pale scales when present restricted to patches at the base of the costa and first vein (Fig. 95)........................................................................... 37

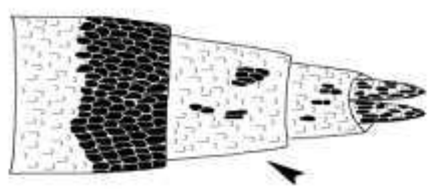


Figure 90. Abdomen of *Ae. schizopinax*

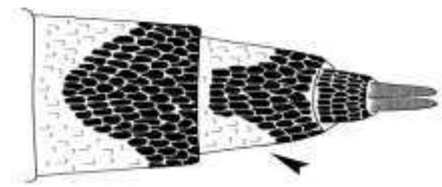


Figure 91. Abdomen of *Ae. hexodontus*

Figure 92. Proboscis of *Ae. schizopinax*

Figure 93. Proboscis of *Ae. hexodontus*

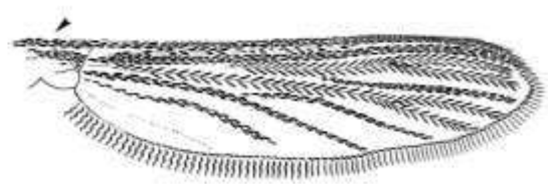


Figure 94. Wing of *Ae. schizopinax*

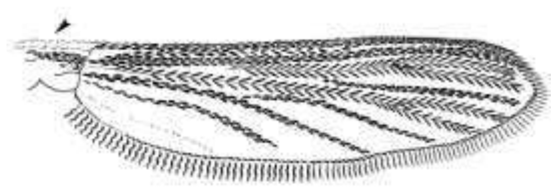


Figure 95. Wing of *Ae. hexodontus*

36.(36)Supraalar setae (Sas) and median scutellar setae (MSS) dark colored, brown or black (Fig. 96); postmetasternum with 13 or more scales (MScP) present (Fig. 97)................ ........................................................................................... *Ae. pionips*, page 150

Supraalar setae (Sas) and median scutellar setae (MSS) light colored, yellow or tan (Fig. 96); postmetasternum with only 3 or fewer scales, usually none (Fig. 98)........ 38

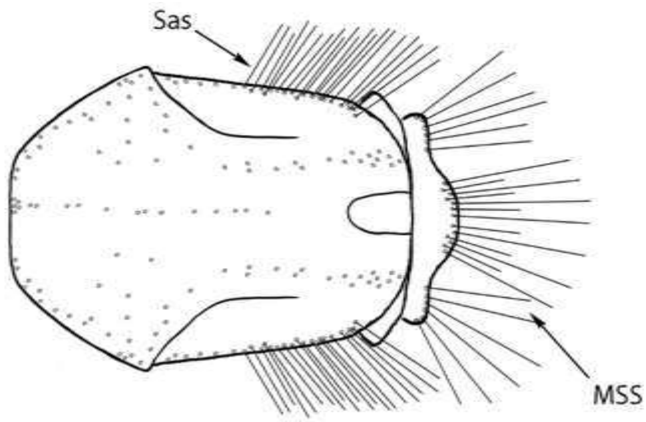



Figure 96. Scutum of *Ae. hexodonus* showing location of supraalar (Sas) and median scutellar setae (MSS)

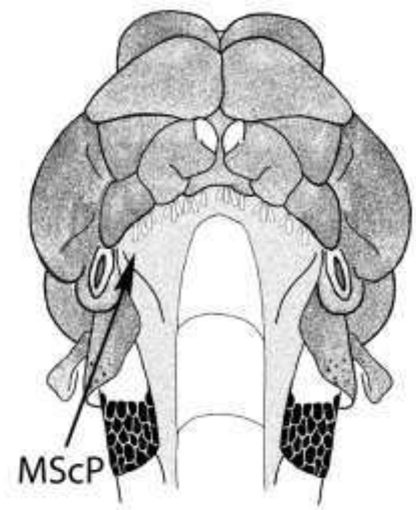



Figure 97. Ventral view of abdominal base of *Ae. pionips*

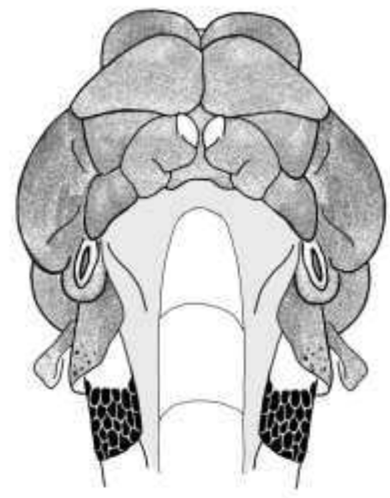


Figure 98. Ventral view of abdominal base of *Ae. hexodontus*

37.(37)Wing with prominent patch of pale scales at the base of vein C (Fig. 99); abdominal sterna primarily pale scaled apically (Fig. 101)..................... *Ae. hexodontus*, page 123

Wing dark scaled with at most a small patch of less than 8 pale scales at the base of vein C (Fig. 100); abdominal sternites with distinct black-scaled triangles apically (Fig. 102)......................................................................... *Ae. punctor*, page 157

Figure 99. Wing of *Ae. hexodontus*

Figure 100. Wing of *Ae. punctor*

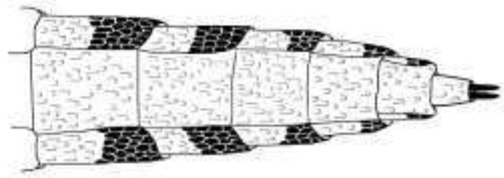


Figure 101. Abdominal sternites of *Ae. hexodontus*

Figure 102. Abdominal sternites of *Ae. punctor*

38.(35)Postpronotum (Ppn) with scattered setae over the posterior half (Fig. 103); scutum and scutellum with many black setae, creating a hairy appearance........................................................................................................................ *Ae. impiger*, page 127

Postpronotum with setae restricted to a single or double row along the upper and posterior margin (Fig. 104); scutum and scutellum lacking hairy appearance..................................................................................... *Ae. implicatus* (in part), page 130

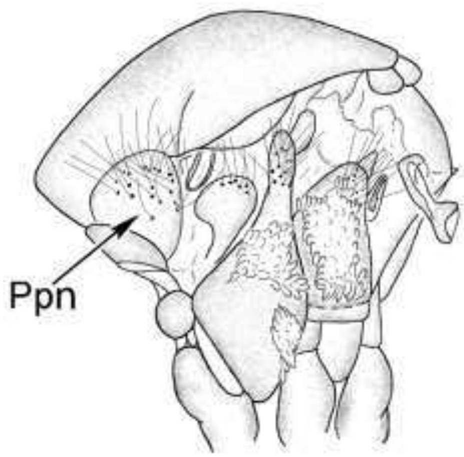



Figure 103. Thorax of *Ae. impiger*

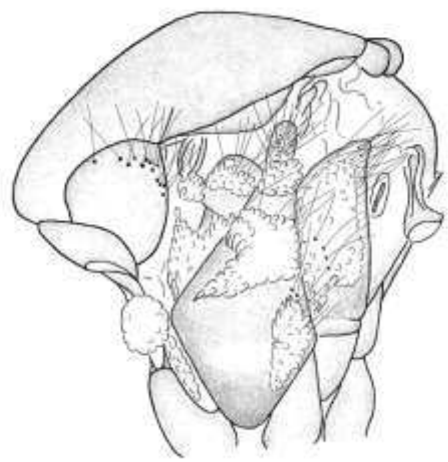


Figure 104. Thorax of *Ae. implicatus*

***Anopheles***

39.Wing with pale-scaled spots (Fig. 105)............................................................................ 41

Wing dark scaled without pale-scaled spots (Fig. 106), or with pale fringe scales on the wing tip (Fig. 107)............................................................................................. 42

Figure 105. Wing of *An. franciscanus*

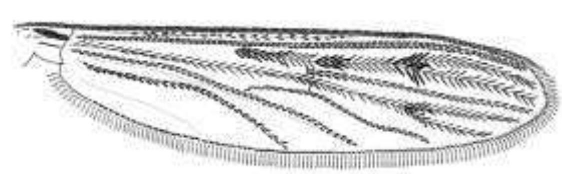


Figure 106. Wing of *An. freeborni*

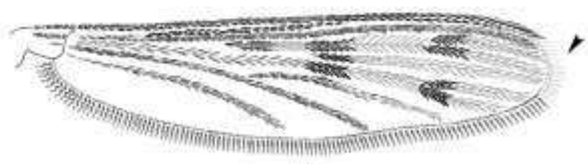


Figure 107. Wing of *An. earlei*

40.(40)Palps with narrow pale rings (Fig.108)................................ *An. franciscanus*, page 190

Palps without pale rings, entirely dark scaled (Fig.109)...... *An. punctipennis*, page 197

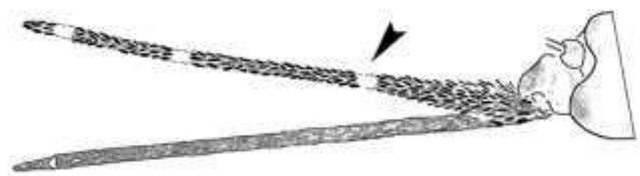


Figure 108. Head of *An. franciscanus*

Figure 109. Head of *An. punctipennis*

41.(40)Wing mostly dark scaled but with a distinct pale fringe of scales on the wing tip (Fig. 110)...................................................................................... *An. earlei*, page 187

Wing entirely dark scaled (Fig. 111)............................................................................ 43

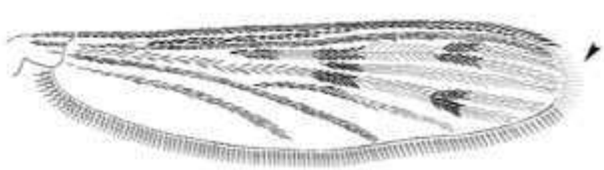


Figure 110. Wing of *An. earlei*

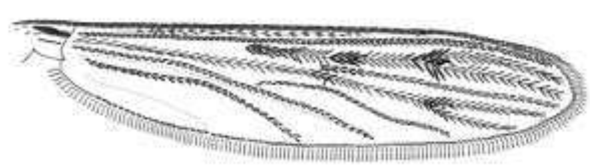


Figure 111. Wing of *An. freeborni*

42.(42)Wing without a pattern of dark spots; small-sized species with wing length approximately 3 mm. (Fig. 112)................................................ *An. barberi*, page 184

Wing with scales forming distinct dark spots; medium-sized species with wing length more than 5 mm. (Fig. 113)................................... *An. hermsi*/*An. freeborni*, page 193

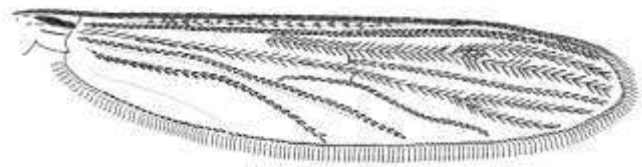


Figure 112. Wing of *An. barberi*

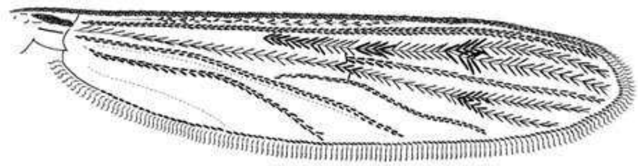


Figure 113. Wing of *An. freeborni*

***Culex***

43.Tarsi with distinct basal and apical white bands (Fig. 114); proboscis with a median white ring (Fig. 117); femora and tibiae with a narrow anterior line of white scales (Fig. 119); underside of abdomen with V-shaped pattern of dark scales (Fig. 120)...................................................................................................................... *Cx. tarsalis*, page 217

Tarsi without pale bands (Fig. 115) or rarely with very narrow pale "knee spots" (Fig. 116); proboscis without white ring (Fig. 118)................................................................. 45

Figure 114. Hind leg of *Cx. tarsalis*

Figure 115. Hind leg of *Cx. pipiens*

Figure 117. Proboscis of *Cx. tarsalis*

Figure 116. Hind leg of *Cx. restuans*

Figure 120. Ventral abdomen of *Cx. tarsalis*

Figure 118. Proboscis of *Cx. pipiens*

Figure 119. Hind femur and tibia of *Cx. tarsalis*

44.(44)Abdominal tergites with apical pale bands (Fig. 121)................ *Cx. territans*, page 220

Abdominal tergites with basal pale bands (Fig. 122)................................................. 46

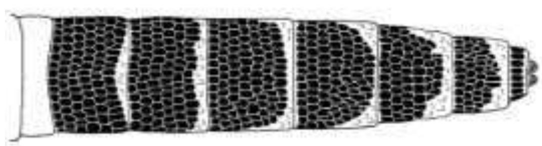


Figure 121. Dorsal abdomen of *Cx. territans*

Figure 122. Dorsal abdomen of *Cx. restuans*

45.(45)Scales on scutum hair-like and golden brown (Fig 123); integument of thorax and coxae reddish-brown to orange (Fig. 125)......................... *Cx. erythrothorax*, page 203

Scales on scutum short and curved, not hair-like (Fig. 124); integument on thorax tan to brown.......................................................................................................... 47

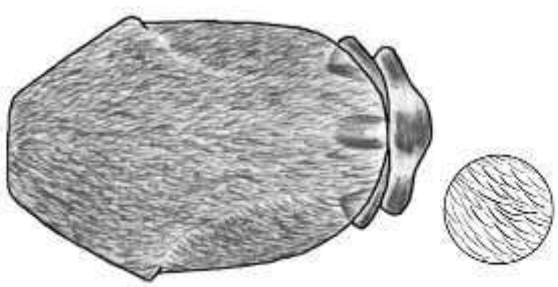


Figure 123. Scutum of *Cx. erythrothorax* with scale detail

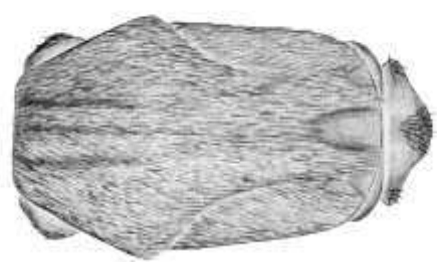


Figure 124. Scutum of *Cx. pipiens*

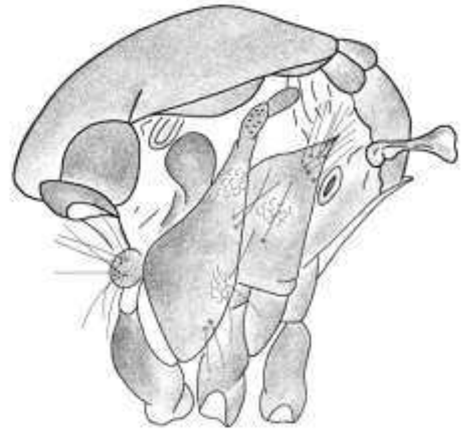


Figure 125. Thorax of *Cx. erythrothorax*

46.(46)Basal abdominal bands very narrow, often lacking mid-dorsally on segments two and three, but with the seventh and eighth segments nearly completely covered with yellowish or copper scales (Fig. 126)...................................... *Cx. salinarius*, page 214

Basal abdominal bands broad and distinct mid-dorsally on all segments, with the seventh and sometimes eighth segments primarily dark scaled (Fig. 127)................. 48


Figure 126. Dorsal abdomen of *Cx. salinarius*

Figure 127. Dorsal abdomen of *Cx. restuans*

47.(47)Basal abdominal bands broad with the posterior margin nearly straight (Fig. 128); scutum usually with a distinct pair of pale spots (Fig. 130); legs often with very narrow basal bands of pale scales (Fig. 132).............................. *Cx. restuans*, page 210

Basal abdominal bands restricted laterally and rounded medially, often only narrowly joined to the lateral scale patches, especially on the second and third segments (Fig. 129); scutum lacking pale spots (Fig. 131); legs dark scaled (Fig. 133).........................
.......................................................................... C*x. pipiens/quinquefasciatus*, page 207

Figure 128. Dorsal abdomen of *Cx. restuans*

Figure 129. Dorsal abdomen of *Cx. pipiens*

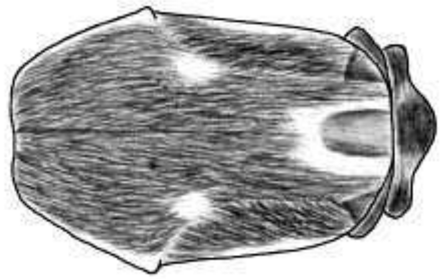


Figure 130. Scutum of *Cx. restuans*

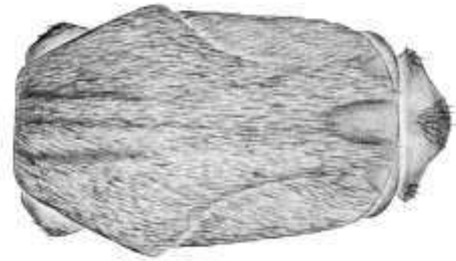


Figure 131. Scutum of *Cx. pipiens*

Figure 132. Hind leg of *Cx. restuans*

Figure 133. Hind leg of *Cx. pipiens*

***Culiseta***

48. Hind tarsi with white or pale-scaled bands on some segments (Fig. 134)........................ 50

Hind tarsi without bands (Fig. 135)...................................................................... 52

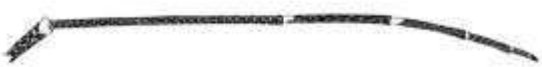


Figure 134. Hind leg of *Cs. incidens*

Figure 135. Hind leg of *Cs. impatiens*

49.(49)Hind tarsi with broad basal bands, especially on the hind legs, covering at least $^{1}/_{4}$ of the second segment (Fig. 136).............................................. *Cs. alaskaensis*, page 223

Hind tarsi with narrow basal bands, less than $^{1}/_{10}$ of second segment (Fig. 137)....... 51

Figure 136. Hind leg of *Cs. alaskaensis*

Figure 137. Hind leg of *Cs. incidens*

50.(50)Wings with distinct dense patches of dark scales (Fig. 138)...... *Cs. incidens*, page 229

Wing scales not forming distinct dark patches (Fig. 139)......... *Cs. morsitans*, page 236

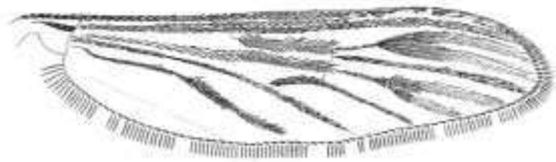


Figure 138. Wing of *Cs. incidens*

Figure 139. Wing of *Cs. morsitans*

51.(49)L ... ing salt-an

Wings with scattered pale scales on the costa, subcostal, and vein $R_1$ (Fig. 142)........... ........................................................................................ *Cs. inornata*, page 233

Legs (Fig. 141) and wings (Fig. 143) dark scaled.................... *Cs. impatiens*, page 226

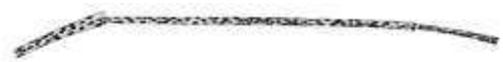


Figure 140. Hind leg of *Cs. inornata*

Figure 141. Hind leg of *Cs. impatiens*

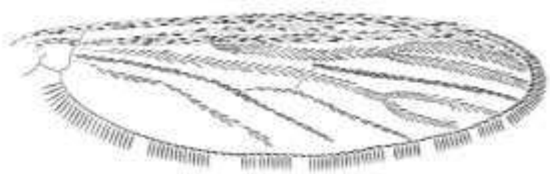


Figure 142. Wing of *Cs. inornata*

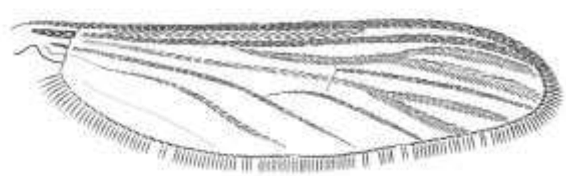


Figure 143. Wing of *Cs. impatiens*

### *Psorophora*

52. First segment of hind tarsi with a distinct pale-scaled band at the base and at the middle (Fig. 144); pale wing scales with no definite pattern (Fig. 146).... *Ps. columbiae*, page 240

First segment of hind tarsi almost completely pale scaled (Fig. 145); wing with distinct areas of pale and dark scales (Fig. 147)............................................................................ 54

Figure 144. Hind leg of *Ps. columbiae*

Figure 145. Hind leg of *Ps. discolor*

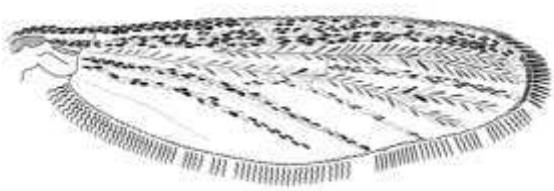


Figure 146. Wing of *Ps. columbiae*

Figure 147. Wing of *Ps. discolor*

53.(53)Wing fringe with alternating spots of dark and pale scales, and with the anal vein pale-scaled apically (Fig. 148)............................................. *Ps. signipennis*, page 246

Wing fringe uniformly dark scaled, with the anal vein dark-scaled apically (Fig. 149). ........................................................................................... *Ps. discolor*, page 243

Figure 148. Wing of *Ps. signipennis*

Figure 149. Wing of *Ps. discolor*

***Uranotaenia***

54.Scutum with a distinct narrow median stripe of iridescent blue scales from the head to the middle lobe of the scutellum (Fig. 150)...................................... *Ur. sapphirina*, page 252

Scutum and scutellum lacking a distinct mid-dorsal stripe of scales, but still having a stripe of iridescent blue scales laterally on each side of the scutum, from the anterior promontory to the wing base (Fig. 151)............................ *Ur. anhydor syntheta*, page 249

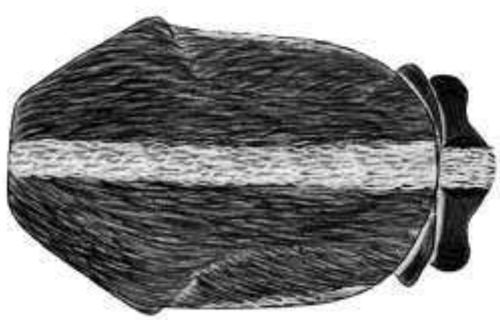


Figure 150. Thorax of *Ur. sapphirina*

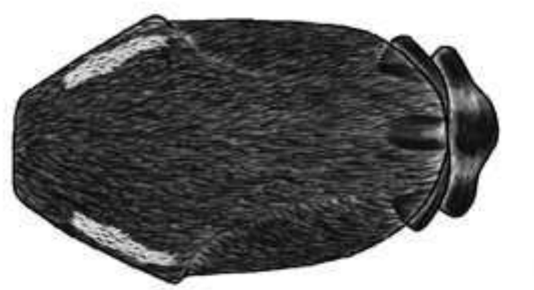


Figure 151. Thorax of *Ur. anhydor syntheta*

## CHAPTER THREE KEY TO THE FOURTH INSTAR LARVAL MOSQUITOES OF COLORADO

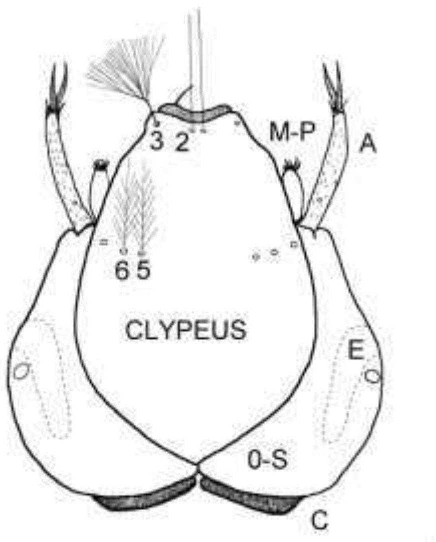



Fig. 152. Head of *Anopheles* larva, dorsal view. A = antenna; C = collar; E = eye; M-P = maxillary palpus; O-S = ocular sclerite; 2 = inner clypeal seta; 3 = outer clypeal seta; 5 = inner frontal seta; 6 = middle frontal seta.

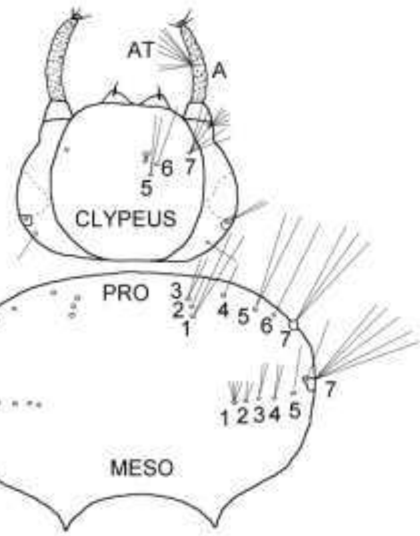



Fig. 153. Head and thorax of culicine larva, dorsal view. A = antenna; AT = antennal setal tuft; PRO = prothorax; MESO = Mesothorax; numbered setae for each region shown.

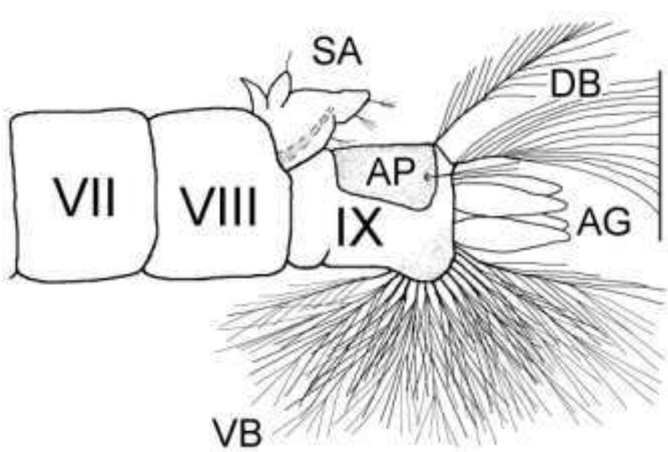



Fig. 154. Terminal abdomen of *Anopheles* larva, lateral view. AG = anal gills; AP = anal plate; DB = dorsal brush; SA = spiracular apparatus; VB = ventral brush.

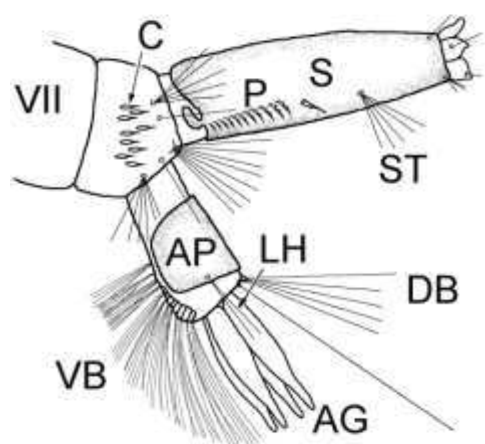



Fig. 155. Terminal abdomen of *Aedes* larva, lateral view. AG = anal gills; SA = saddle; C = comb scales; DB = dorsal brush; LH = lateral hair of anal plate; P = pectin; S = siphon; ST = siphonal setal tuft; VB = ventral brush.

## GENERA

1. Respiratory siphon absent (Fig. 156)...........................................................*Anopheles*, 39

   Respiratory siphon present (Fig. 157)................................................................... 2

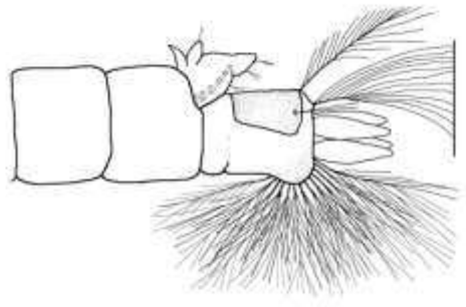


Figure 156. Distal abdomen of *Anopheles* spp.

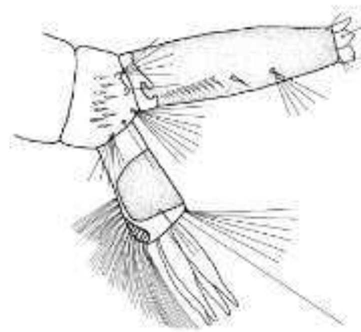


Figure 157. Distal abdomen of *Aedes* spp.

2.(1)Siphon shortened apically, only about twice as long as broad, and apically armed with a sharp hook adapted for piercing underwater aquatic plants (Fig. 158)...............................
.......................................................................*Coquillettidia perturbans*, page 200

Siphon elongate, more than twice as long as broad, and not sharpened at apex (Fig. 159).
........................................................................................................................ 3

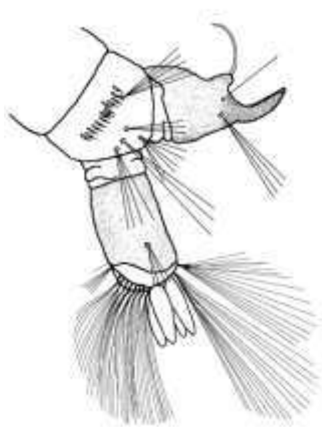


Figure 158. Distal abdomen of *Coquillettidia perturbans*

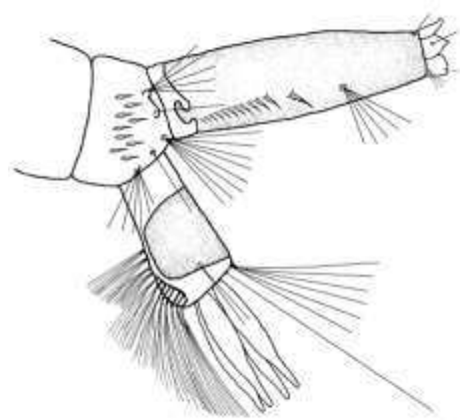


Figure 159. Distal abdomen of *Aedes* spp.

3.(2)Comb scales situated on a large lateral plate on abdominal segment 8 (Fig. 160); head longer than wide (Fig. 163); small species............................................*Uranotaenia*, 54

Abdominal segment 8 lacking a large lateral plate with comb scales arising from membranous area (Fig. 161), or if sclerotized plate present it is greatly reduce in size (Fig. 162); head wider than long (Fig. 164)...................................................................... 4

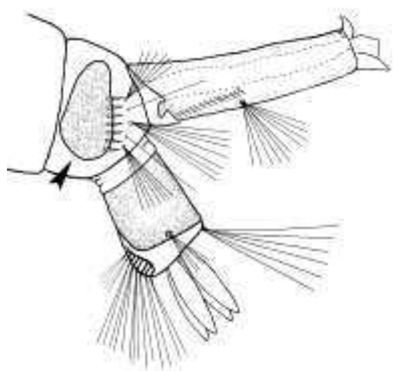


Figure 160. Distal abdomen of *Uranotaenia* spp.

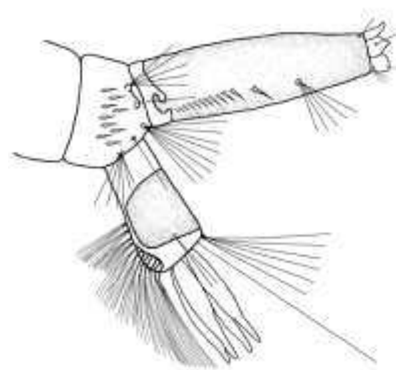


Figure 161. Distal abdomen of *Aedes* spp.

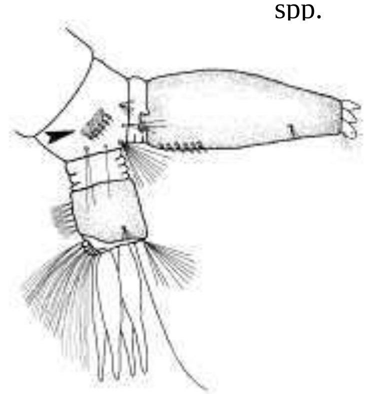


Figure 162. Distal abdomen of *Psorophora* spp.

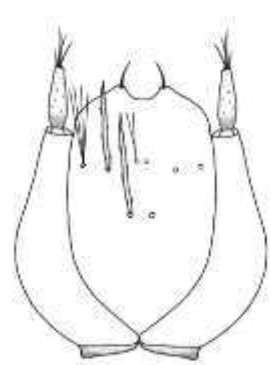


Figure 163. Head of *Uranotaenia* spp.

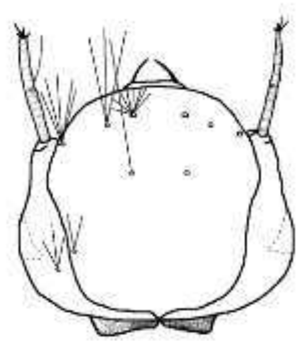


Figure 164. Head of *Aedes* spp.

4.(3)Siphon with a conspicuous pair of setal tufts inserted at the base within the pecten (BST = basal siphon tuft) (Fig. 165)..........................................................................*Culiseta*, 48

Siphon lacking basal setal tufts (Fig. 166)........................................................................ 5

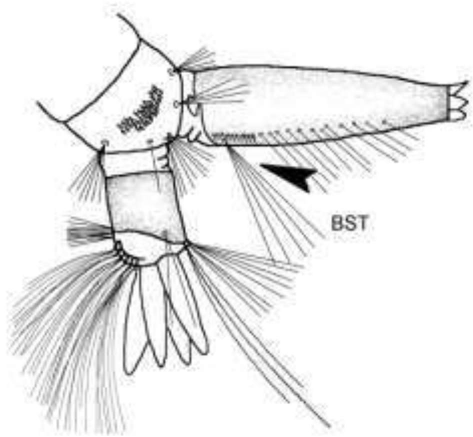



Figure 165. Distal abdomen of *Culiseta* spp.

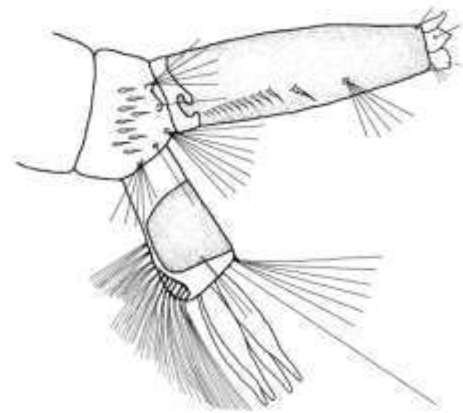


Figure 166. Distal abdomen of *Aedes* spp.

5.(4)Siphon with 3 or more pairs of single setae or setal tufts, usually inserted distally to the pectin spines (Fig. 167)..........................................................................................*Culex*, 43

Siphon with only one pair of setal tufts (Fig. 168)........................................................... 6

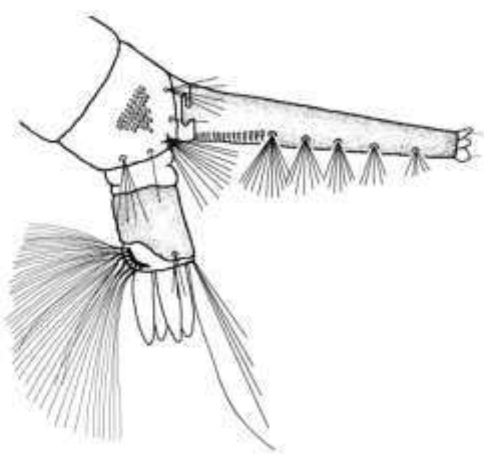


Figure 167. Distal abdomen of *Culex* spp.

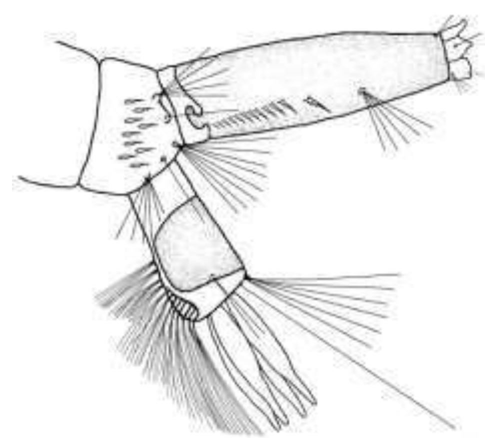


Figure 168. Distal abdomen of *Aedes* spp.

6.(5)Anal saddle completely encircling abdominal segment 10, and pierced along the midventral line by a row of setal tufts (Fig. 169).......................................*Psorophora*, 52

Anal saddle usually not completely encircling abdominal segment 10, OR if so then the ventral tufts are inserted posterior to the anal saddle rather than piercing it (Fig. 170)....... ..........................................................................................................................*Aedes*, 7

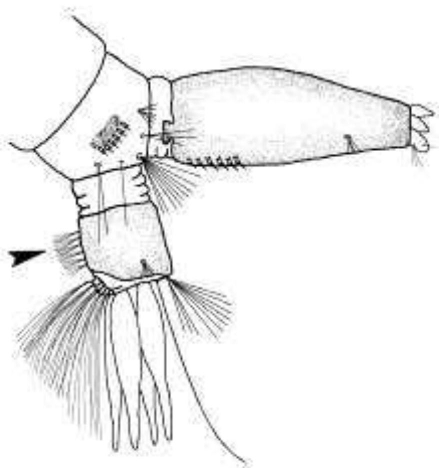


Figure 169. Distal abdomen of *Psorophora* spp.

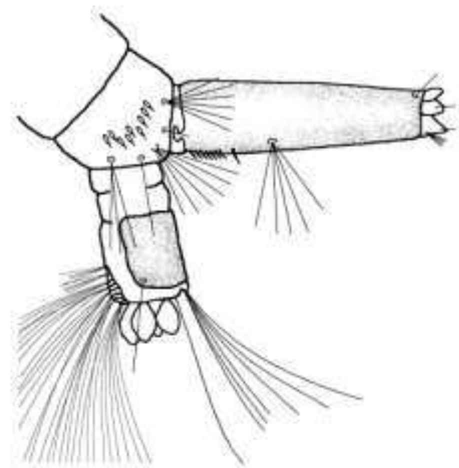


Figure 170. Distal abdomen of *Aedes* spp.

***Aedes***

7. Tenth abdominal segment completely ringed by the anal saddle (Fig. 171)...................... 8

   Tenth abdominal segment not completely ringed by the anal saddle (Fig. 172)............. 11

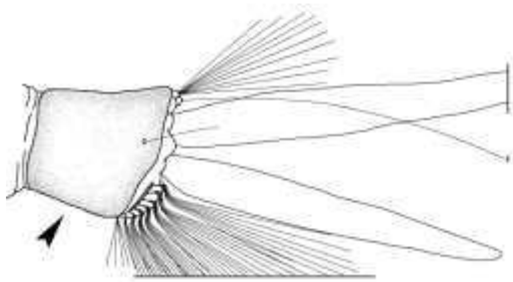


Figure 171. Anal segment of *Ae. trivittatus*

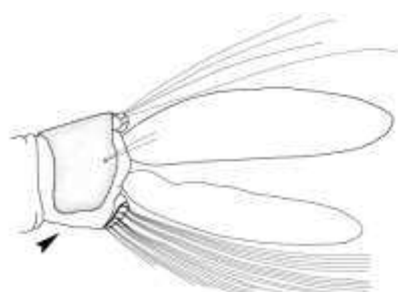


Figure 172. Anal segment of *Ae. aegypti*

8.(7)Row of pectin spines extending at least ⅔ the length of the siphon and with 2 to 4 distal spines more widely spaced than the others in the row; siphonal tuft very short with setae only slightly longer than the last pectin spine (Fig. 173); head seta 5-C and 6-C single (Fig. 175)........................................................................*Ae. nigromaculis*, page 144

Row of pectin spines extending less than ⅔ the length of the siphon and with spines approximately evenly spaced; siphonal tuft well developed with setae several times the length of the last pectin spine (Fig. 174); 5-C and 6-C single or double (Fig. 176)......... 9

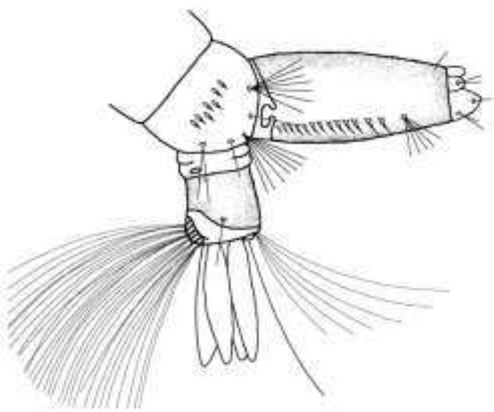


Figure 173. Distal abdomen of *Ae. nigromaculis*

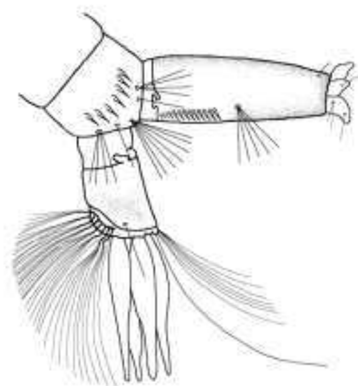


Figure 174. Distal abdomen of *Ae. hexodontus*

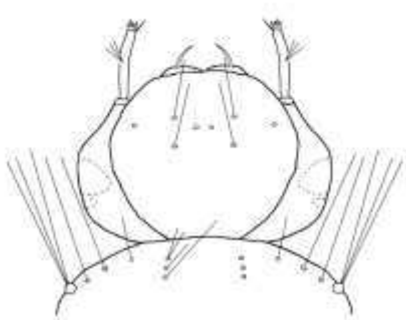


Figure 175. Head of *Ae. nigromaculis*

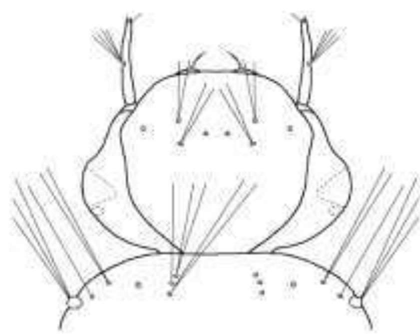


Figure 176. Head of *Ae. hexodontus*

9.(8)Comb scales large, usually 6 in number but always less than 10 (Fig. 177)........................ ..........................................................................................*Ae. hexodontus*, page 123

Comb scales small, 10 or more in number (Fig. 178).................................................... 10

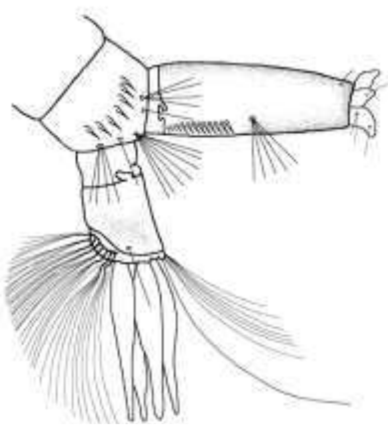


Figure 177. Distal abdomen of *Ae. hexodontus*

Figure 178. Distal abdomen of *Ae. trivittatus*

10.(9)Integument of thorax smooth, not speculate (Fig. 179); comb scales with apical spine a least 4x the length of the subapical spinules (Fig. 181)..................*Ae. punctor*, page 157

Integument of thorax densely speculate/aculeate (Fig. 180); comb scales with apical spine slightly longer than the subapical spinules (Fig. 182)........ *Ae. trivittatus*, page 177

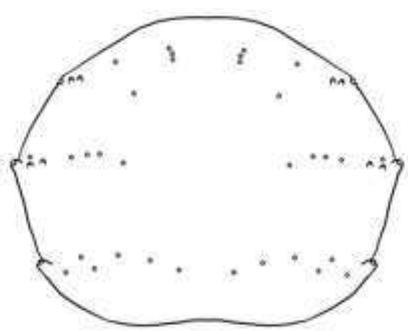


Figure 179. Thorax of *Ae. punctor*

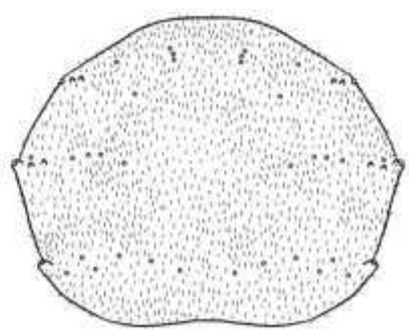


Figure 180. Thorax of *Ae. trivittatus*

Figure 181. Comb scale of *Ae. punctor*

Figure 182. Comb scale of *Ae. trivittatus*

11.(7)Row of pectin spines with one or more distal spines more widely spaced than the others in the row (Fig. 183)........................................................................................ 12

Row of pectin spines approximately evenly spaced (Fig. 184).................................... 22

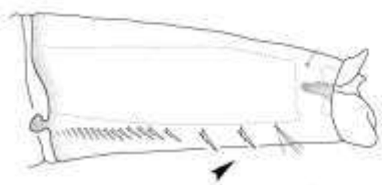


Figure 183. Siphon of *Ae. vexans*

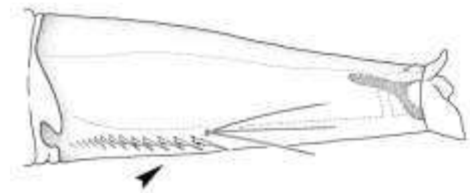


Figure 184. Siphon of *Ae. increpitus*

12.(11)Pectin with one or more spines extending distally beyond the insertion of the siphonal tuft (Fig. 185)................................................................................................ 13

Pectin ending at or before the insertion of the siphonal tuft (Fig. 186)...................... 14

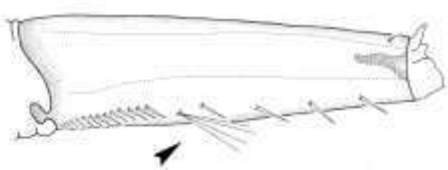


Figure 185. Siphon of *Ae. cataphylla*

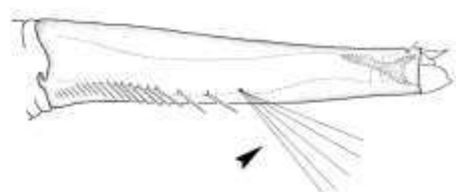


Figure 186. Siphon of *Ae. flavescens*

13.(12)Comb scales thorn-like with a large apical spine and short lateral spinules (Fig. 187); siphon proportions normal with siphonal index 3.0 to 3.5; abdominal seta 1-X inserted on the anal saddle (Fig. 189)....................................... *Ae. cataphylla,* page 93

Comb scales not thorn-like, evenly fringed with subequal spinules (Fig. 188); siphon short and thick with siphonal index approximately 2.0; abdominal seta 1-X attached ventral to the anal saddle (Fig. 190); larvae usually found in rock pools and other similar small containers............................................................ *Ae. epactius,* page 106

Figure 187. Comb scale of *Ae. cataphylla*

Figure 188. Comb scale of *Ae. epactius*

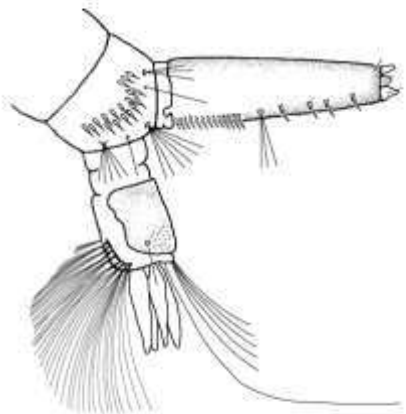


Figure 189. Distal abdomen of *Ae. cataphylla*

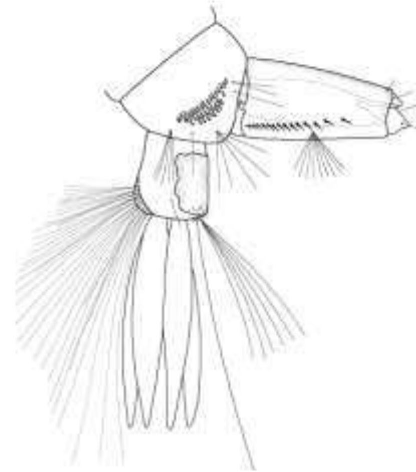


Figure 190. Distal abdomen of *Ae. epactius*

14.(12)Integument of thorax and abdomen densely speculate/aculeate (Fig. 191)................ 15

Integument of thorax and abdomen smooth (Fig. 192).............................................. 16

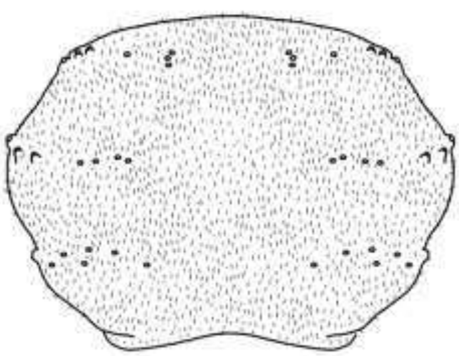


Figure 191. Thorax of *Ae. spencerii spencerii*

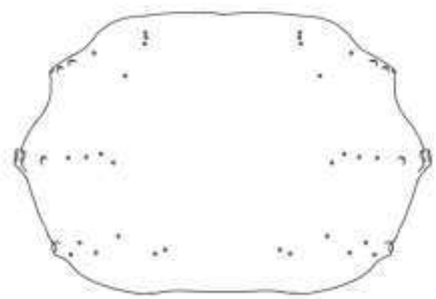


Figure 192. Thorax of *Ae. campestris*

15.(14)Comb scales 13 or fewer (Fig. 193); median spine of comb scale broad at the base (Fig. 195)................................................................ *Ae. spencerii spencerii*, page 167

Comb scales 14 or more (Fig. 194); median spine of comb scale narrow at the base (Fig. 196)............................................................... *Ae. spencerii idahoensis*, page 163

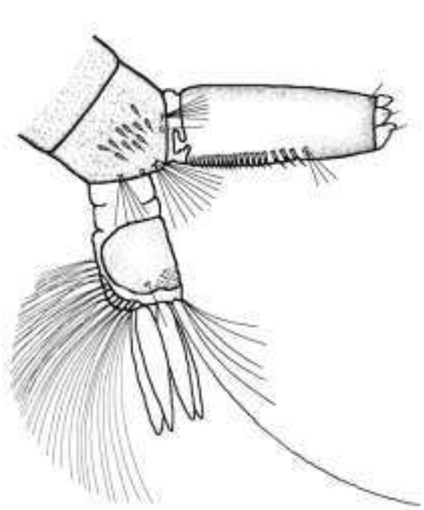


Figure 193. Terminal abdomen of
*Ae. spencerii spencerii*

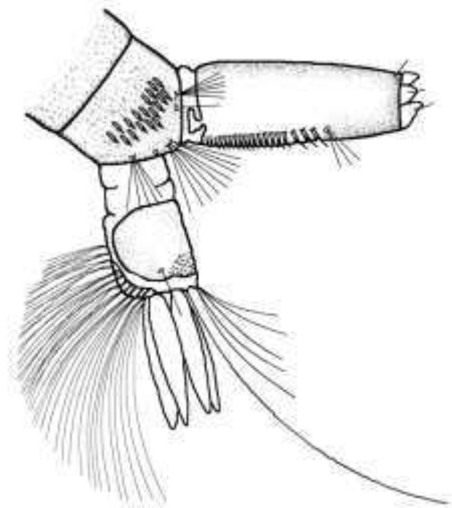


Figure 194. Terminal abdomen of
*Ae. spencerii idahoensis*

Figure 195. Comb scale of
*Ae. spencerii spencerii*

Figure 196. Comb scale of
*Ae. spencerii idahoensis*

16.(14)Comb scales in patch of 18 or more (Fig. 197)........................................................ 17

Comb scales in single or irregular double row, usually 17 or fewer (Fig. 198)......... 19

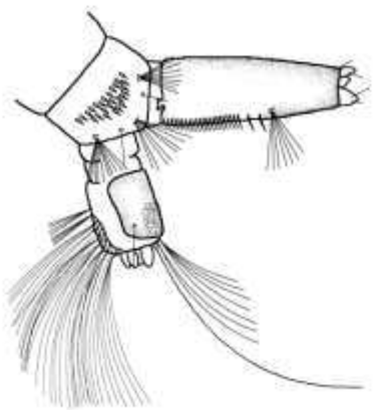


Figure 197. Distal abdomen of *Ae. campestris*

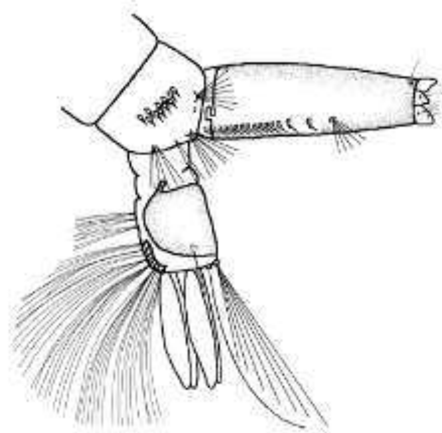


Figure 198. Distal abdomen of *Ae. vexans*

17.(16)Siphon thin and tapering with diameter at the tip slightly more than ½ of the basal diameter, siphonal index approximately 4.5 to 5.0 (Fig. 199); lateral abdominal seta 6 III-VI usually single (Fig. 201)............................................ *Ae. excrucians,* page 109

Siphon stout, siphonal index less than 4.0 (Fig. 200); lateral abdominal seta 6 III-VI double (Fig. 202)........................................................................................... 18

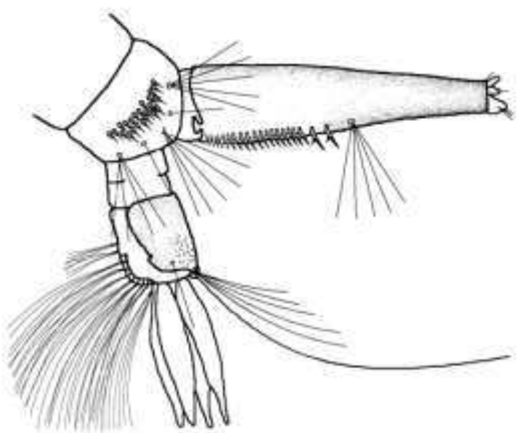


Figure 199. Distal abdomen of *Ae. excrucians*

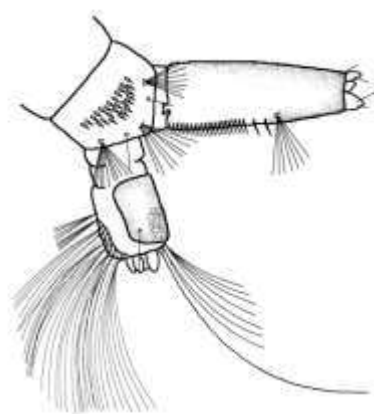


Figure 200. Distal abdomen of *Ae. campestris*

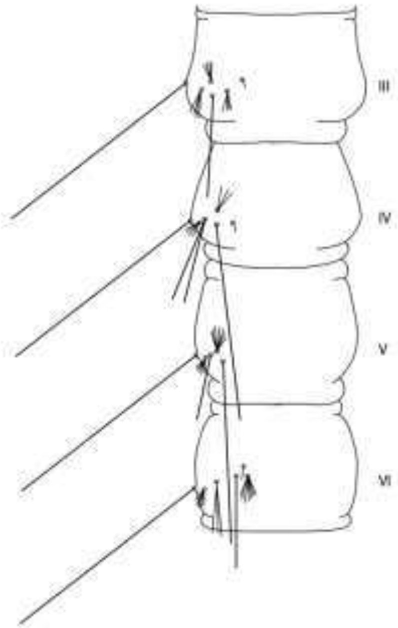



Figure 201. Middle abdomen of *Ae. excrucians*

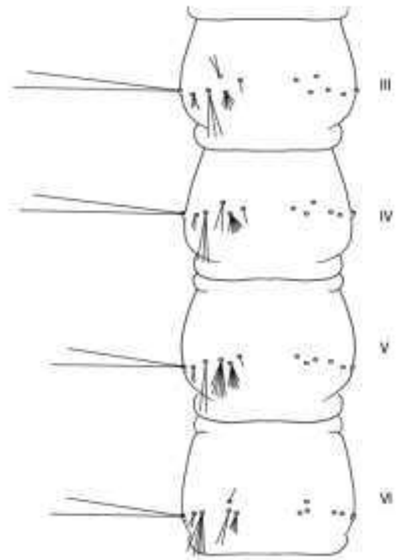



Figure 202. Middle abdomen of *Ae. campestris*

18.(17)Pecten spines reaching beyond the middle of the siphon with the tuft inserted in the distal ½ (Fig. 203); mesothoracic seta 1-M multibranched, long, about as long as the antenna (Fig. 205); comb scales small, not spine-like (Fig. 207)....................................................................................................................... *Ae. campestris*, page 86

Pecten spines not reaching beyond the middle of the siphon with the tuft usually inserted in the middle or first ½ (Fig. 204); 1-M usually very short, less than ⅓ the length of the antenna (Fig. 206); comb scales usually spine-like (Fig. 208)........................................................................................ *Ae. flavescens* (in part), page 116

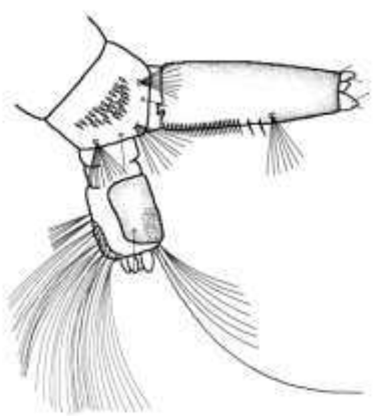


Figure 203. Distal abdomen of *Ae. campestris*

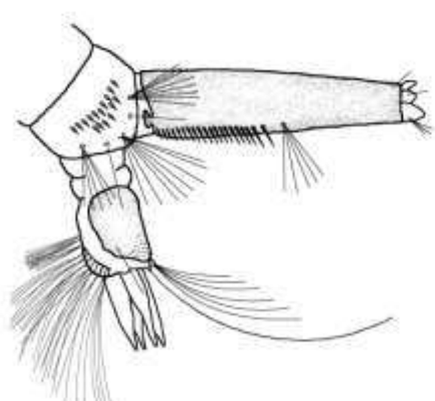


Figure 204. Distal abdomen of *Ae. flavescens*

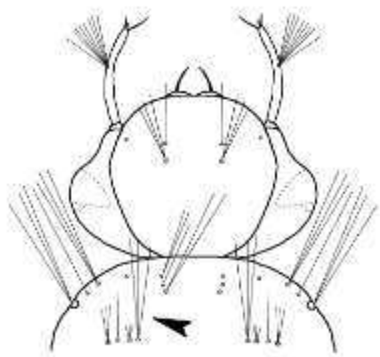


Figure 205. Head and thorax of *Ae. campestris*

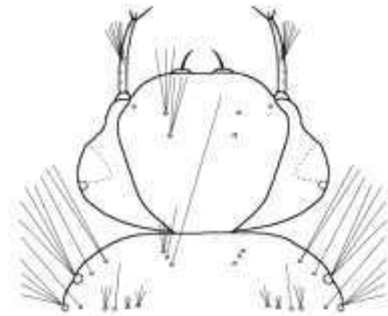


Figure 206. Head and thorax of *Ae. flavescens*

Figure 207. Comb scale of *Ae. campestris*

Figure 208. Comb scale of *Ae. flavescens*

19.(16)Head seta 5-C single or double, rarely triple (Fig. 209); pecten spines restricted to basal $^{1}/_{4}$-$^{1}/_{3}$ of siphon; anal saddle extends only about ½ half way down the sides of the anal segment (Fig. 211)................................................. *Ae. niphadopsis*, page 147

Head seta 5-C with 3 or more branches (Fig. 210); pecten spines extend distally to the middle of the siphon or beyond; anal saddle usually extends to near the mid-ventral line of the anal segment (Fig. 212)............................................................................ 20

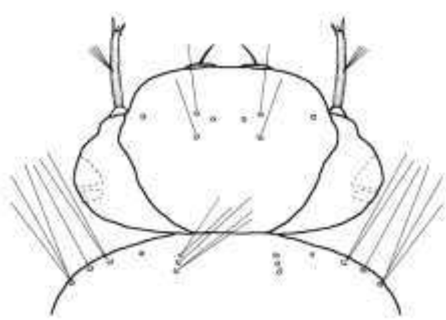


Figure 209. Head of *Ae. niphadopsis*

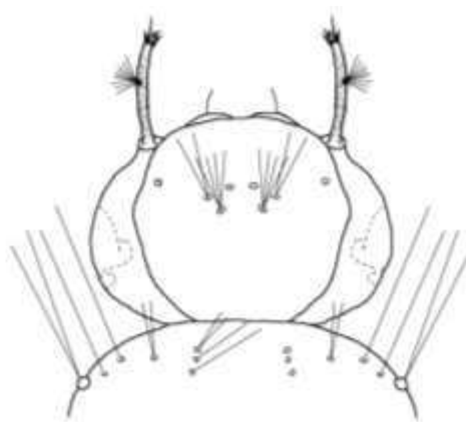


Figure 210. Head of *Ae. vexans*

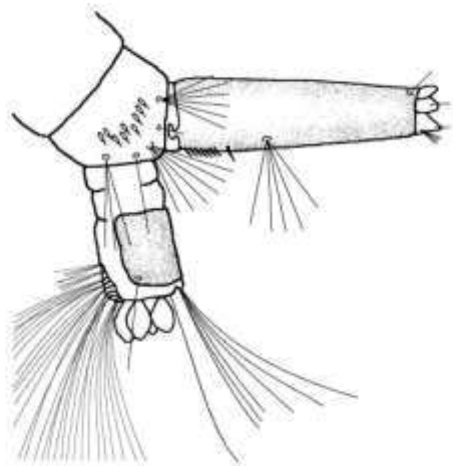


Figure 211. Distal abdomen of *Ae. niphadopsis*

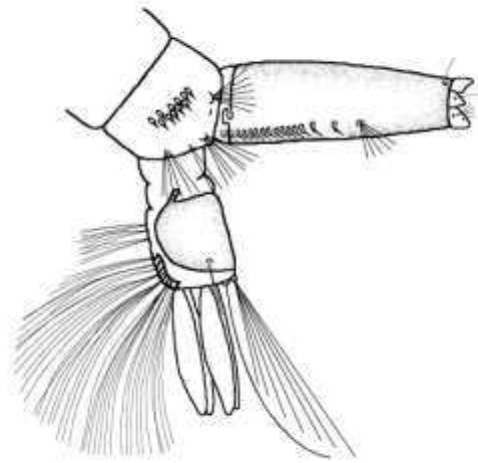


Figure 212. Distal abdomen of *Ae. vexans*

20.(19)Head setae 5-C, 6-C, and 7-C inserted in nearly a straight line (Fig. 213)...................... ........................................................................................................ *Ae. cinereus*, page 96

Head setae forming a triangle, 6-C anterior to 5-C such that they are not aligned with 7-C (Fig. 214)........................................................................................................................ 21

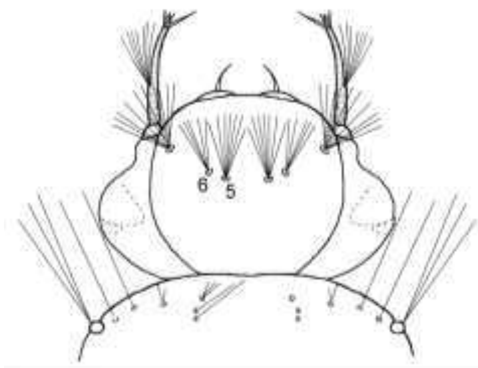



Figure 213. Head of *Ae. cinereus*

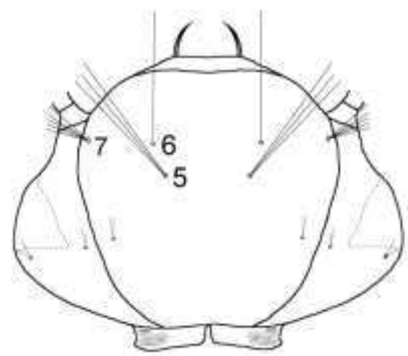



Figure 214. Head of *Ae. campestris*

21.(20)Siphonal tuft short, rarely more than ½ the length of the basal diameter of the siphon; anal saddle not deeply incised on the posterior ventral margin (Fig. 215)...................... .................................................................................................. *Ae. vexans*, page 181

Siphonal tuft long, equal to or longer than the basal diameter of the siphon; anal saddle incised on the posterior ventral margin (Fig. 216)......... *Ae. intrudens*, page 137

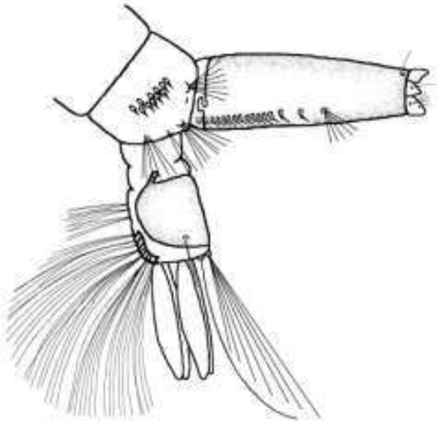


Figure 215. Distal abdomen of *Ae. vexans*

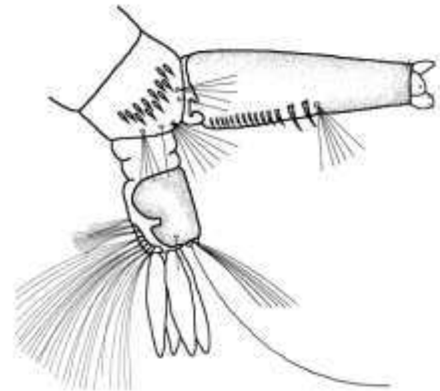


Figure 216. Distal abdomen of *Ae. intrudens*

22.(11)Antenna short, ½ as long as the head or less, with a smooth surface; antennal tuft single or double (Fig. 217); (tree hole or small container species)............................ 23

Antenna longer, usually more than ½ as long as the head, covered with prominent coarse spinules on the surface; antennal tuft multibranched (Fig. 218)..................... 26

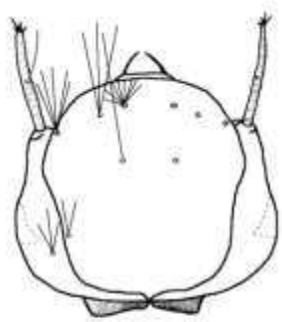


Figure 217. Head of *Ae. hendersoni*

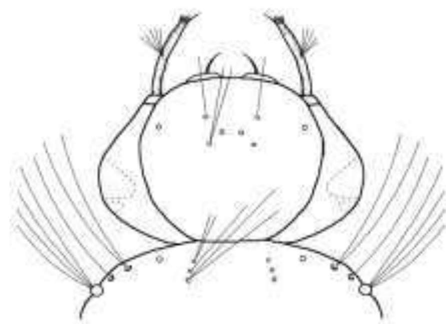


Figure 218. Head of *Ae. increpitus*

23.(22)Antennal tuft usually single and long, reaching near the tip of the antenna (Fig. 219)... ........................................................................................................................ 24

Antenna tuft very short, not reaching more than ¾ the distance to the tip of the antenna (Fig. 220)........................................................................................... 25

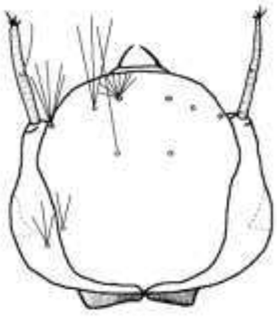


Figure 219. Head of *Ae. hendersoni*

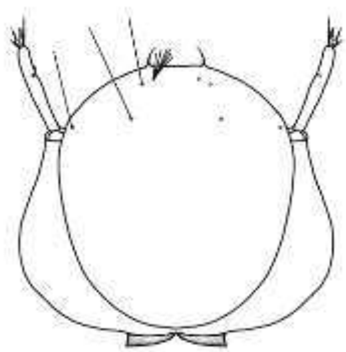


Figure 220. Head of *Ae. aegypti*

24.(23)Anal papillae bulbous, with both pairs approximately equal in length (Fig. 221); siphon with a small sclerotized plate (acus) detached from the rest of the siphon near the base (Fig. 223).................................................................. *Ae. hendersoni*, page 120

Anal papillae not bulbous, the dorsal pair longer than the ventral pair (Fig. 222); siphon with acus attached to the rest of the siphon near the base (Fig. 224)................... ........................................................................................ *Ae. triseriatus*, page 173

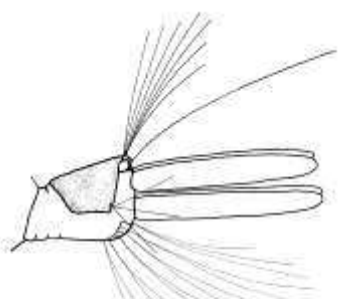


Figure 221. Anal papillae of *Ae. hendersoni*

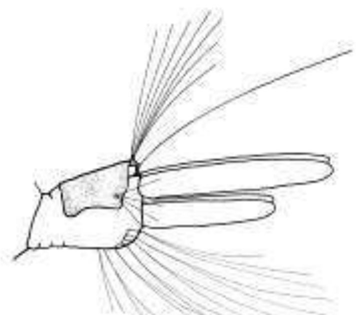


Figure 222. Anal papillae of *Ae. triseriatus*

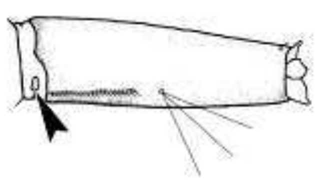


Figure 223. Siphon of *Ae. hendersoni*

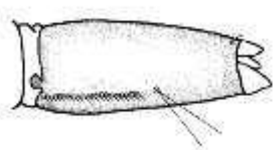


Figure 224. Siphon of *Ae. triseriatus*

25.(23)Comb scales with long median spine and strong subapical spines (Fig. 225)................. ........................................................................................................ *Ae. aegypti*, page 80

Comb scales with long median spine but without strong subapical spines, instead with a fringe of small spicules (Fig. 226)......................................... *Ae. albopictus*, page 83

Figure 225. Comb scale of *Ae. aegypti*

Figure 226. Comb scale of *Ae. albopictus*

26.(22)Comb scales with long median spine, at least 1.5x longer than the subapical spinules (Fig. 227)........................................................................................................... 27

Comb scales fringed with subequal spinules or with the median spine less than 1.5x longer than the subapical spinules (Fig. 228)............................................................ 32

Figure 227. Comb scale of *Ae. impiger*

Figure 228. Comb scale of *Ae. pullatus*

27.(26)Siphon long and thin, tapering in the distal ½, siphonal index 4.0-5.0; distal pecten spines long, nearly equal to the apical diameter of the siphon (Fig. 229)....................... ........................................................................................................ *Ae. fitchii*, page 112

Siphon not as long, siphonal index 4.0 or less; distal pecten spines less than ½ the apical diameter of the siphon (Fig. 230)...................................................................... 28

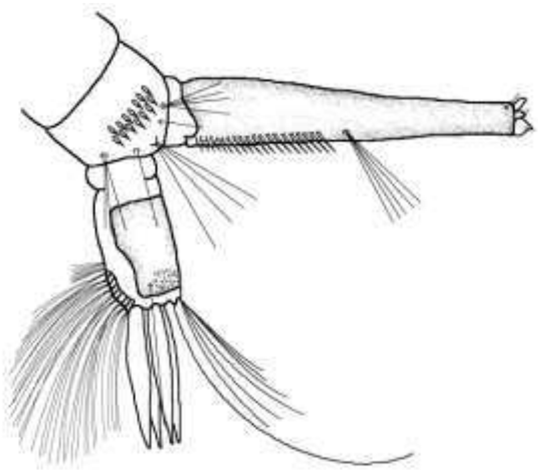


Figure 229. Distal abdomen of *Ae. fitchii*

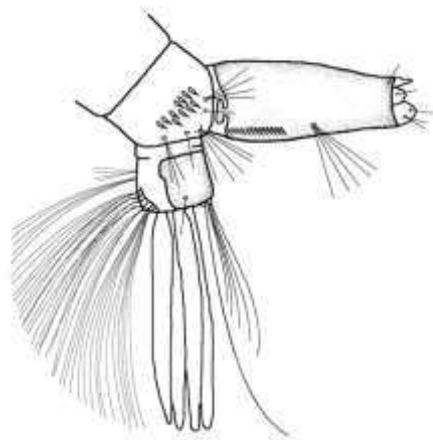


Figure 230. Distal abdomen of *Ae. impiger*

28.(27)Comb scales less than 15 (Fig. 231)........................................... *Ae. impiger*, page 127

Comb scales more than 15 (Fig. 232)........................................................................ 29

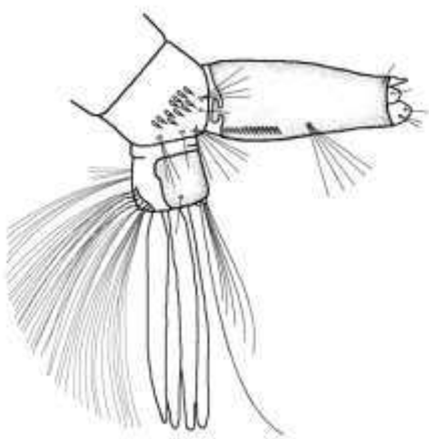


Figure 231. Distal abdomen of *Ae. impiger*

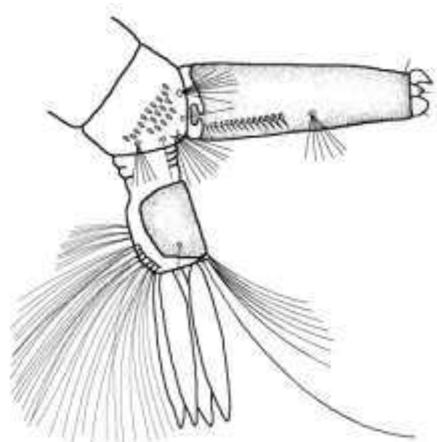


Figure 232. Distal abdomen of *Ae. sticticus*

29.(28)Seta 1-X on the anal segment longer than the anal saddle (Fig. 233)............................. ....................................................................................... *Ae. schizopinax*, page 160

Seta 1-X on the anal segment shorter than the anal saddle (Fig. 234)........................ 30

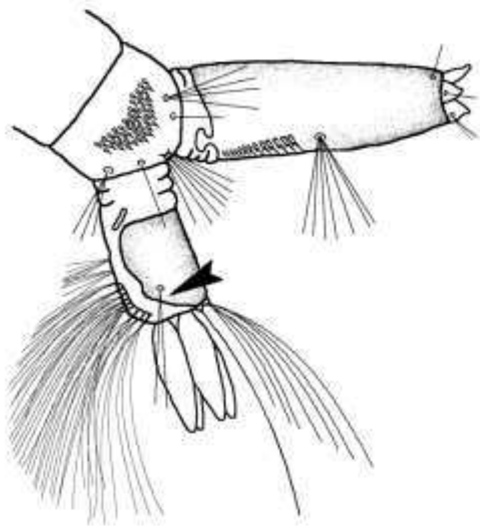


Figure 233. Distal abdomen of *Ae. schizopinax*

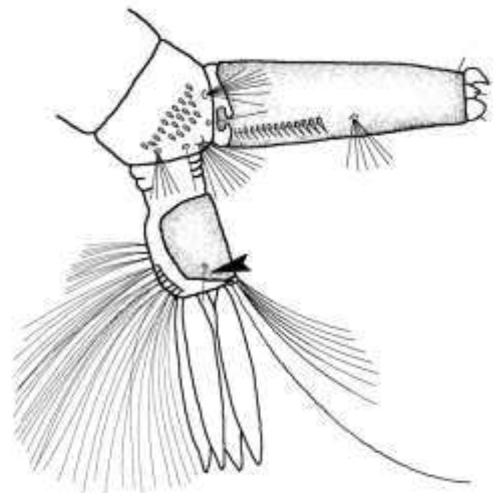


Figure 234. Distal abdomen of *Ae. sticticus*

30.(29)Head seta 5-C and 6-C single, rarely double (Fig. 235)....................................................................................................................................... *Ae. melanimon* (in part), page 140

Head seta 5-C with 2-4 branches, 6-C usually double (Fig. 236)................................ 31

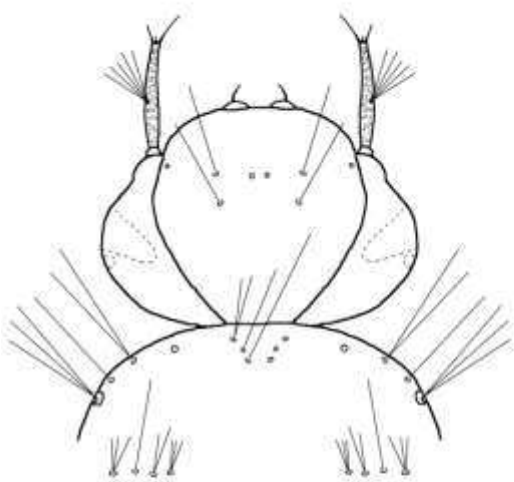


Figure 235. Head of *Ae. melanimon*

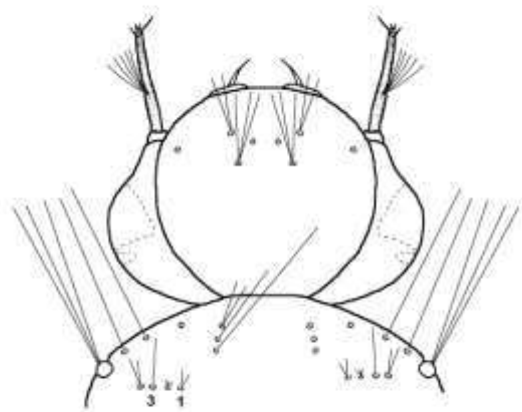



Figure 236. Head of *Ae. sticticus*

31.(30)Siphonal index more than 3.0 (Fig. 237); comb scale with stout subapical spinules (Fig. 239).................................................................. *Ae. flavescens* (in part), page 116

Siphonal index less than 3.0 (Fig. 238); comb scale with weak subapical spinules (Fig. 240)........................................................................................ *Ae. sticticus*, page 170

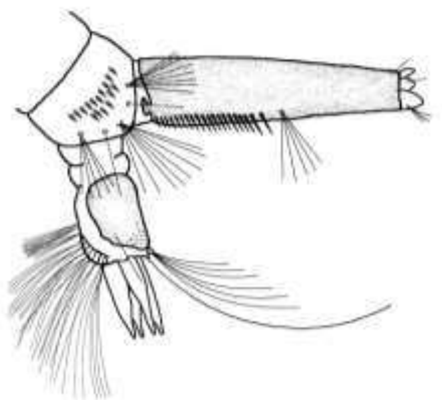


Figure 237. Distal abdomen of *Ae. flavescens*

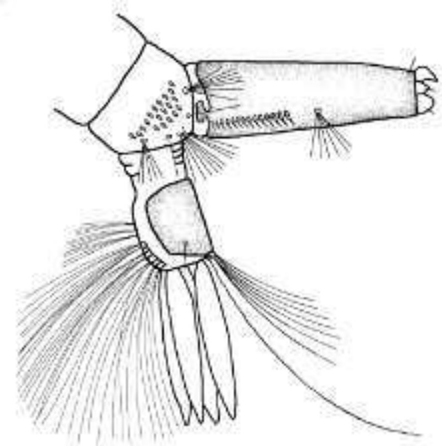


Figure 238. Distal abdomen of *Ae. sticticus*

Figure 239. Comb scale of *Ae. flavescens*

Figure 240. Comb scale of *Ae. sticticus*

32.(26)Head seta 5-C with 4 or more branches, 6-C with 3 or more branches (Fig. 241)..... 33

Head seta 5-C with 1-3 branches, 6-C single or double, rarely triple (Fig. 242)........ 35

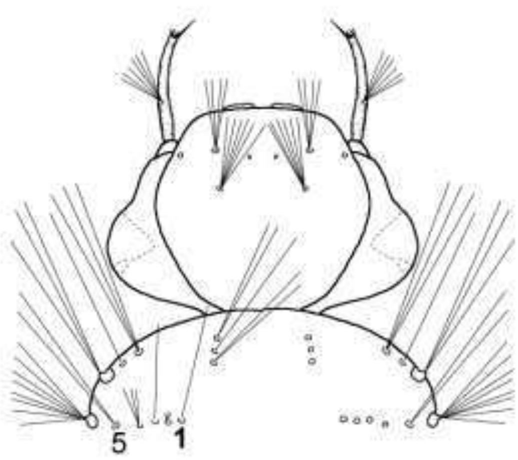



Figure 241. Head of *Ae. pullatus*

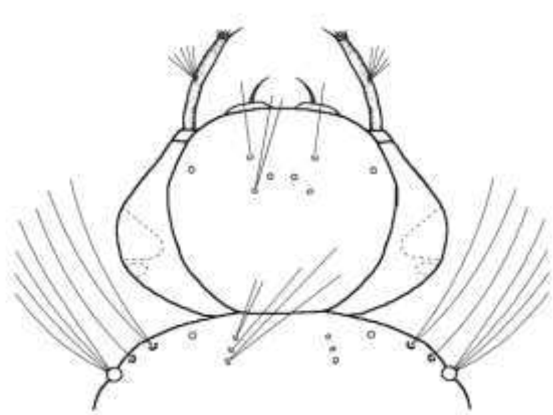


Figure 242. Head of *Ae. increpitus*

33.(32)Mesothoracic seta 1-M much shorter than the length of the antenna (Fig. 243)..............
.................................................................... *Ae. canadensis canadensis*, page 90

Mesothoracic seta 1-M about the length of the antenna or longer (Fig. 244)............. 34

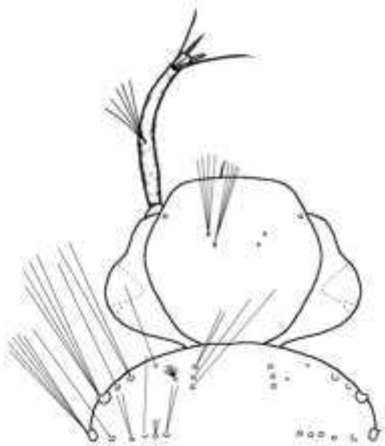


Figure 243. Head and thorax of *Ae. c. canadensis*

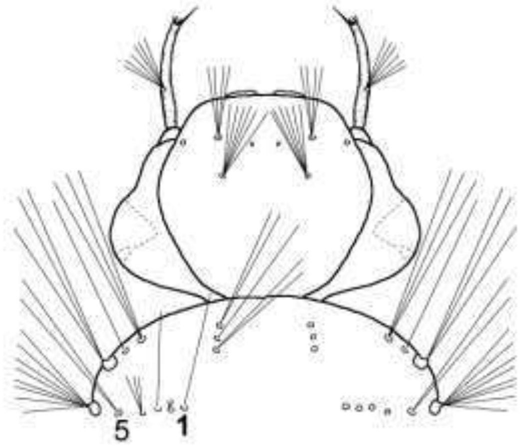



Figure 244. Head and thorax of *Ae. pullatus*

34.(33)Comb scale patch of 60 or more comb scales, usually more than 70 (Fig. 245).............
........................................................................................... *Ae. pionips*, page 150

Comb scale patch of fewer than 55 comb scales (Fig. 246)........ *Ae. pullatus*, page 154

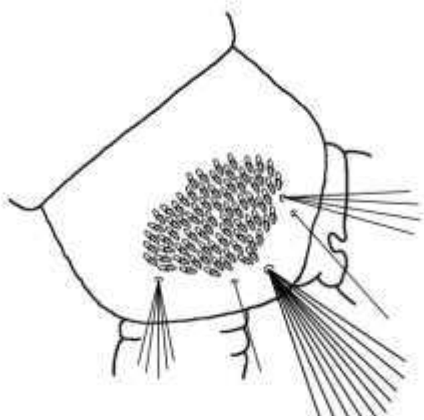


Figure 245. Comb scale patch of *Ae. pionips*

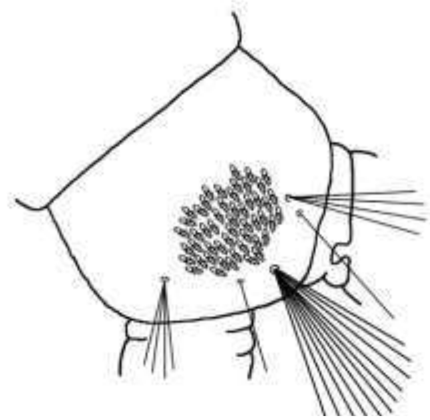


Figure 246. Comb scale patch of *Ae. pullatus*

35.(32)Mesothoracic seta 1-M about the length of the antenna or longer (Fig. 247).................
......................................................................................... *Ae. dorsalis*, page 103

Mesothoracic seta 1-M shorter than the length of the antenna (Fig. 248).................. 36

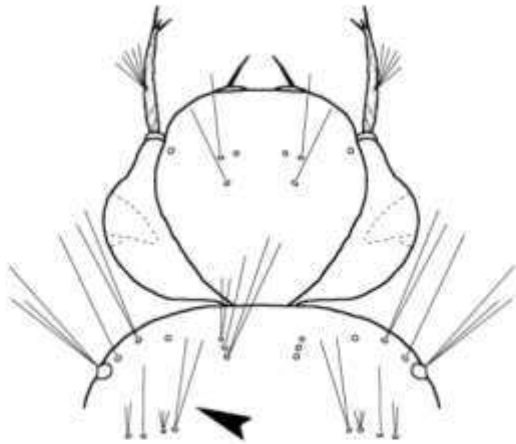


Figure 247. Head and thorax of *Ae. dorsalis*

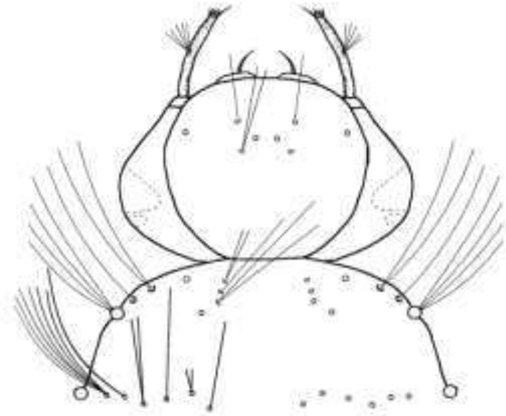


Figure 248. Head and thorax of *Ae. increpitus*

36.(35)Comb scales 36 or more in a large triangular patch (Fig. 249); each comb scale fringed apically with several spinules of approximately equal size, appearing broadly rounded (Fig. 250).................................................................. *Ae. communis*, page 100

Comb scales 35 or fewer, shape variable (Fig. 251)................................................... 37

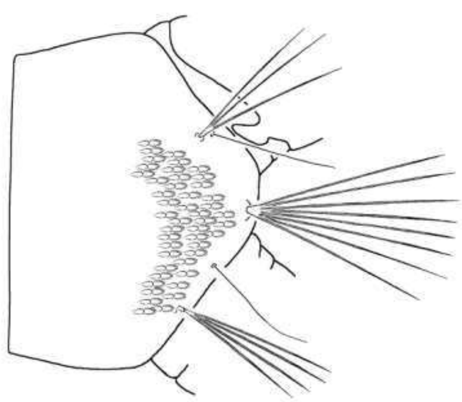


Figure 249. Terminal abdomen of *Ae. communis*

Figure 251. Comb scale of *Ae. melanimon*

Figure 250. Comb scale of *Ae. communis*

37.(36)Pecten extending distal to middle of siphon (Fig. 252)..................................................
.................................................................................... *Ae. melanimon* (in part), page 140

Pecten confined to basal half of siphon (Fig. 253)..................................................... 38

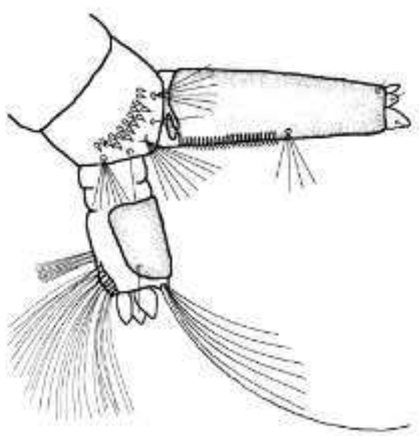


Figure 252. Distal abdomen of *Ae. melanimon*

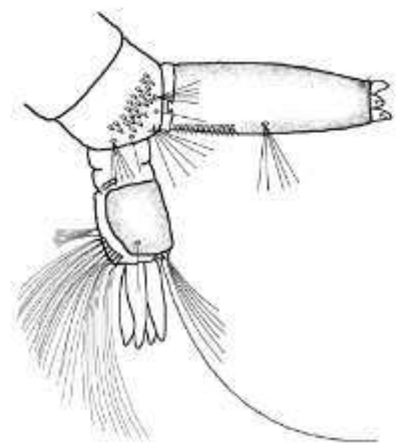


Figure 253. Distal abdomen of *Ae. implicatus*

38.(37)Posterior margins of anal saddle and adjacent membranous area fringed with coarse spicules (Fig. 254); prothoracic seta 1-P and 3-P usually double, and head seta 5-C usually double (rarely single or triple) (Fig. 256).................... *Ae. increpitus*, page 133

Posterior margins of anal saddle and adjacent membranous area smooth or with only very fine spicules (Fig. 255); 1-P and 3-P usually single, and 5-C usually single (rarely double) (Fig. 257).......................................... *Ae. implicatus* (in part), page 130

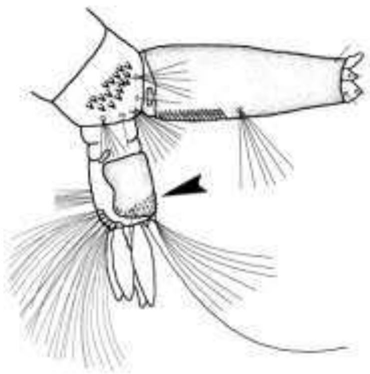


Figure 254. Terminal abdomen of *Ae. increpitus*

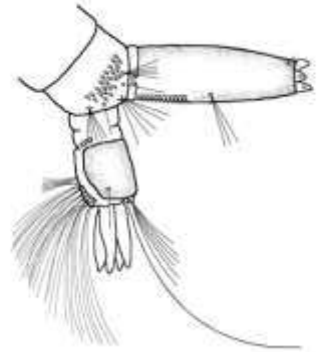


Figure 255. Terminal abdomen of *Ae. implicatus*

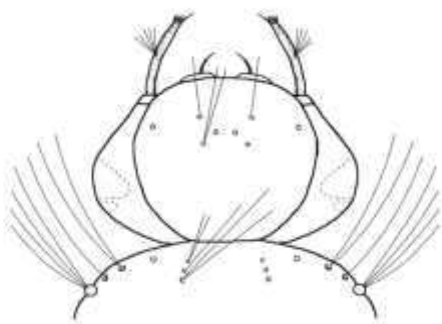


Figure 256. Head of *Ae. increpitus*

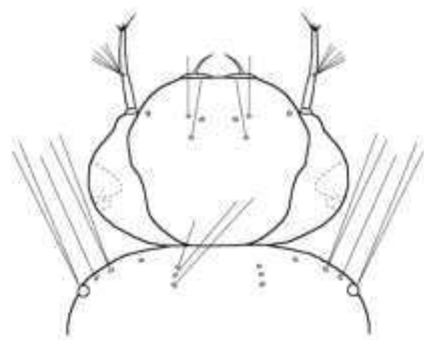


Figure 257. Head of *Ae. implicatus*

***Anopheles***

39. Head seta 5-C, 6-C, and 7-C small, usually single (Fig. 258)........... *An. barberi*, page 184

Head setae 5-C, 6-C, and 7-C large and plumose (Fig. 259)........................................... 40

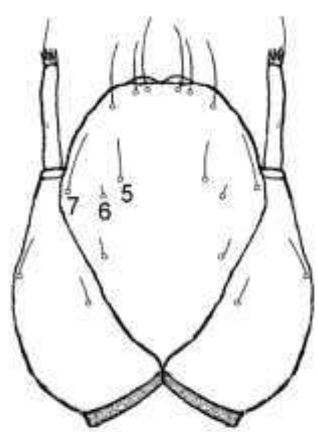



Figure 258. Head of *An. barberi*

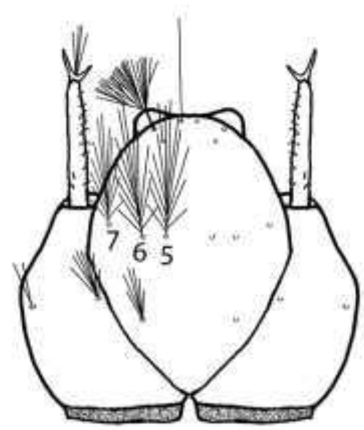



Figure 259. Head of *An. punctipennis*

40.(39)Outer clypeal seta 3-C single (Fig. 260).............................. *An. franciscanus*, page 190

Outer clypeal seta 3-C plumose (Fig. 261)................................................................ 41

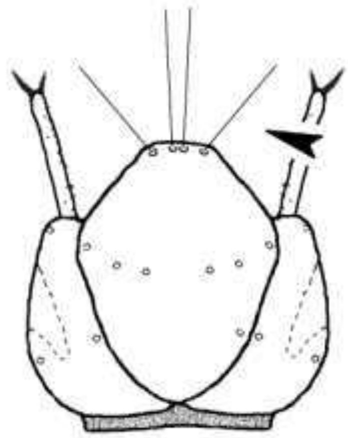


Figure 260. Head of *An. franciscanus*

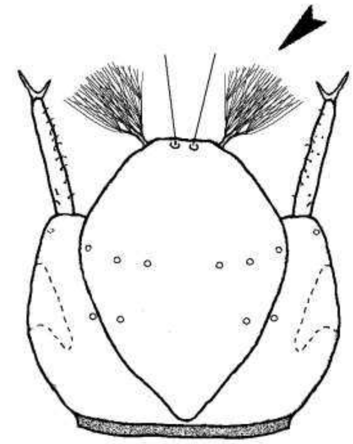


Figure 261. Head of *An. freeborni*

41.(40)Clypeal seta 2-C with 2-5 branches in the outer ½ (Fig. 262)........ *An. earlei*, page 187

Clypeal seta 2-C single (Fig. 263)................................................................................. 42

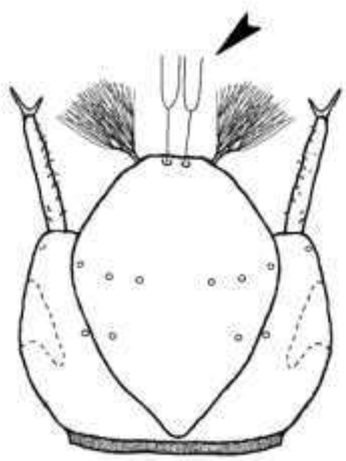


Figure 262. Head of *An. earlei*

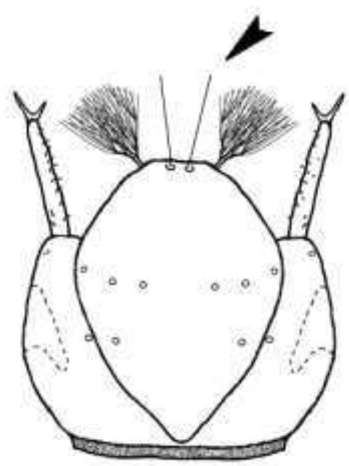


Figure 263. Head of *An. hermsi*

42.(41)Abdominal segments IV and V with 3 small accessory tergal plates (Fig. 264); antennal seta tuft located at or distal to the basal ⅓ of the antenna; dorsal integument of the head patterned with spots (Fig. 266)................... *An. freeborni/hermsi*, page 193

Abdominal segments IV and V with only 1 small accessory tergal plate (Fig. 265); antennal seta tuft located within the basal ⅓ of the antenna; dorsal integument of the head banded (Fig. 267)........................................................ *An. punctipennis*, page 197

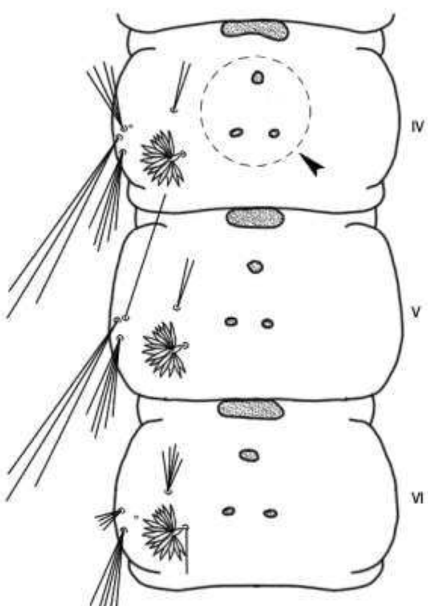



Figure 264. Abdomen of *An. hermsi*

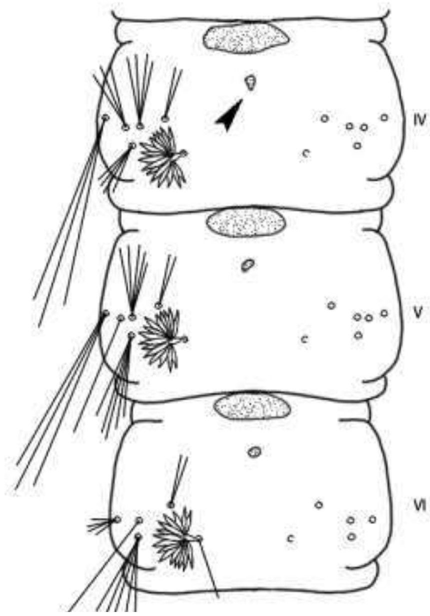



Figure 265. Abdomen of *An. punctipennis*

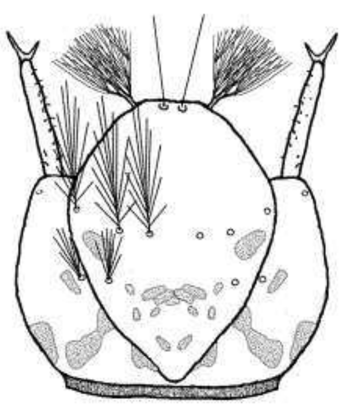


Figure 266. Head of *An. hermsi*

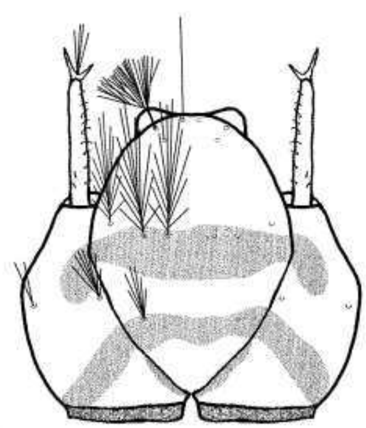


Figure 267. Head of *An. punctipennis*

43. Siphonal tufts lacking, instead replaced by long, single or sometimes double setae that are not aligned (Fig. 268)........................................................................ *Cx. restuans*, page 210

    Siphon with pairs of branched tufts of multiple setae (Fig. 269)...................................... 44

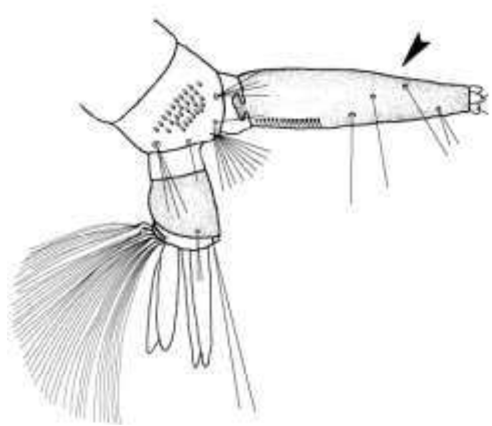


Figure 268. Distal abdomen of *Cx. restuans*

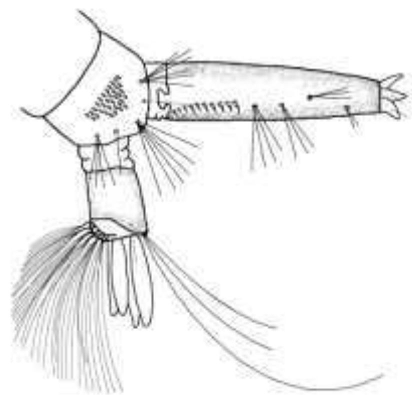


Figure 269. Distal abdomen of *Cx. pipiens*

44.(43)Head seta 5-C and 6-C usually single (5-C sometimes double)(Fig. 270); Siphon long and thin, with siphonal index usually 5.5-7.0, and with 5 pairs of tufts inserted more or less along a straight line (Fig. 272).............................................. *Cx. territans*, page 220

    Head seta 5-C and 6-C with more than 3 branches (Fig. 271); siphonal index variable; number and alignment of siphonal tufts variable......................................................... 45

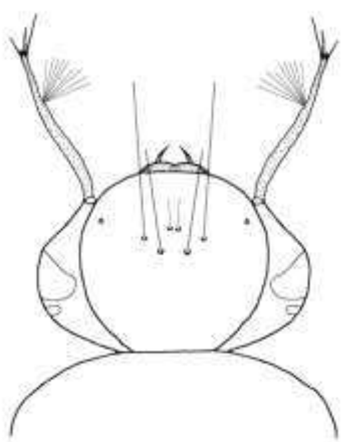


Figure 270. Head of *Cx. territans*

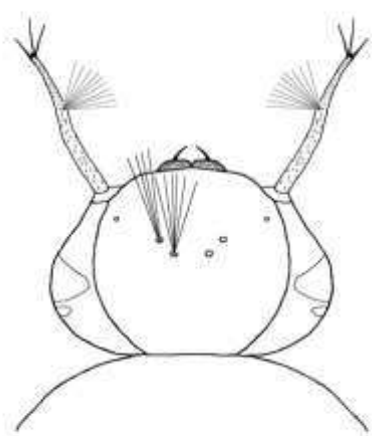


Figure 271. Head of *Cx. tarsalis*

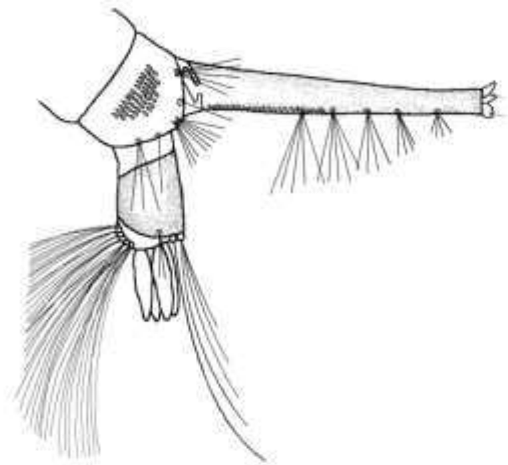
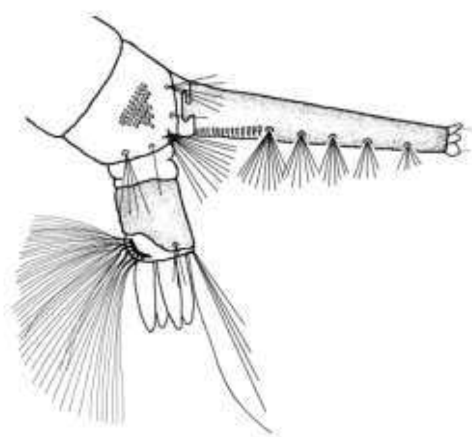


Figure 272. Distal abdomen of *Cx. territans*

45.(44)Siphon with five pairs of multiple tufts inserted more or less in a straight line, siphonal index 4.5-5.5 (Fig. 273)................................................ *Cx. tarsalis*, page 217

Siphon with four or five pairs of multiple tufts with one or more pairs inserted laterally out of line; siphonal index variable but usually less than 5.0 or more than 6.0 (Fig. 274)......................................................................................................... 46



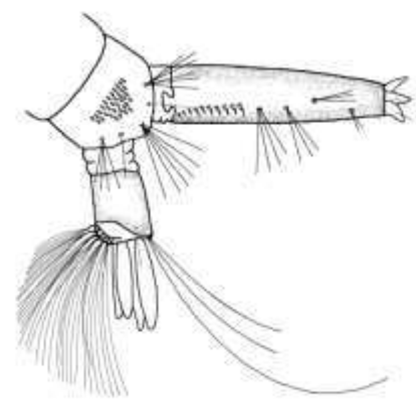


Figure 273. Distal abdomen of *Cx. tarsalis*

Figure 274. Distal abdomen of *Cx. pipiens*

46.(45)Siphon relatively short and squat, siphonal index approximately 4.0 (Fig. 275). Head seta 6-C usually with five or more branches (Fig. 276)............... *Cx. pipiens*, page 207

Siphon relatively long and thin, siphonal index 5.5 to 7.0; head seta 6-C usually with 3-4 branches...................................................................................................... 47

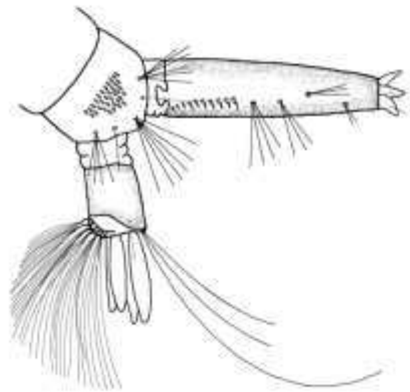


Figure 275. Distal abdomen of *Cx. pipiens*

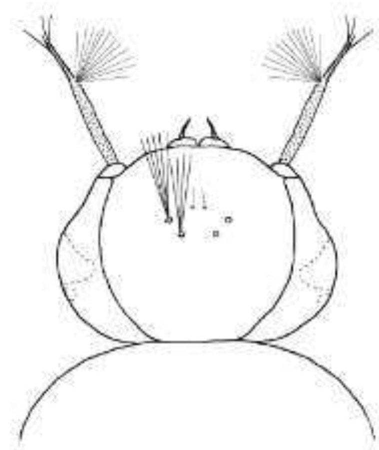


Figure 276. Head of *Cx. pipiens*

47.(46)Comb scales usually more than 65; siphon with five pairs of tufts with the third and fourth usually inserted laterally out of line from the first, second, and fifth (Fig. 277).... ........................................................................................ *Cx. erythrothorax,* page 203

Comb scales usually 35-60; siphon with four pairs of tufts with only the third inserted laterally out of line from the other siphonal tufts (Fig. 278)..... *Cx. salinarius*, page 214

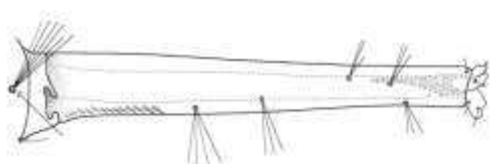


Figure 277. Siphon of *Cx. erythrothorax*

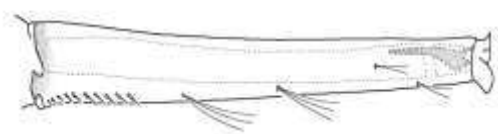


Figure 278. Siphon of *Cx. salinarius*

***Culiseta***

48. Siphon long and slender, about 6 times as long as the basal diameter and without a row of setae distal to the pecten (Fig. 279); antenna longer than the head, with the antennal tuft attached to the distal ⅓…………………...................................... *Cs. morsitans*, page 236

Siphon shorter and spindle-shaped, only about 3x as long as the basal diameter, and adorned with a row of single setae distal to the pecten (Fig. 280); antennae shorter than the head, with the antennal tuft attached approximately in the middle............................ 49

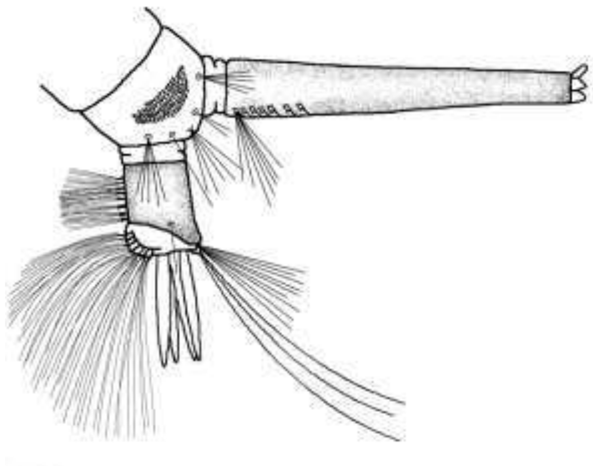


Figure 279. Siphon of *Cs. morsitans*

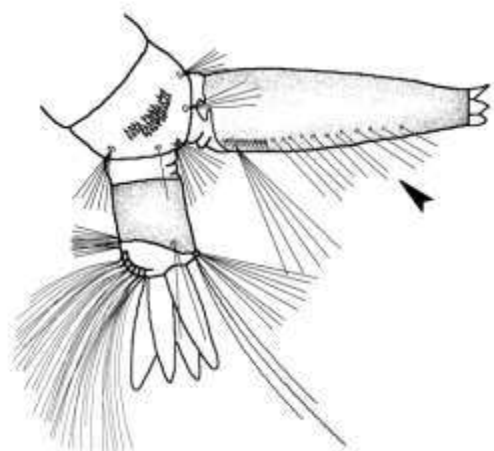


Figure 280. Siphon of *Cs. inornata*

49.(48)Head seta 5-C and 6-C similar in size and both multibranched (Fig. 281)...................... ......................................................................................... *Cs. impatiens*, page 226

Head seta 5-C shorter than seta 6-C and with more branches (Fig. 282)................... 50

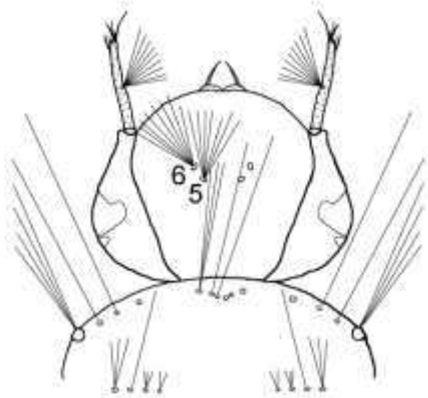



Figure 281. Head of *Cs. impatiens*

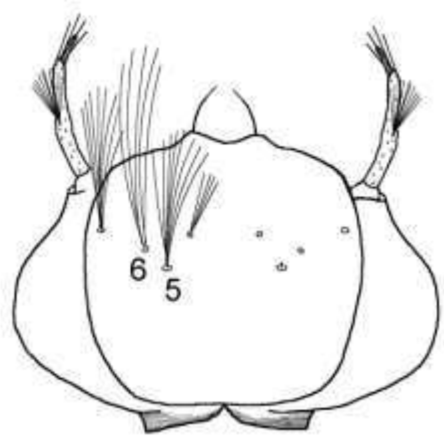



Figure 282. Head of *Cs. inornata*

50.(49)Lateral seta 1-X on anal saddle equal to the length of the saddle or longer, and usually double (Fig. 283)......................................................................... *Cs. inornata*, page 233

Lateral seta 1-X on anal saddle shorter than the length of the saddle and multibranched (Fig. 284)............................................................................................ 51

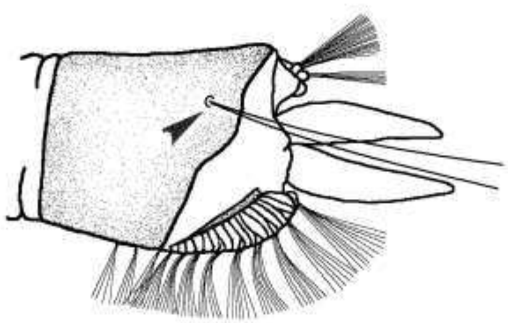


Figure 283. Anal saddle of *Cs. inornata*

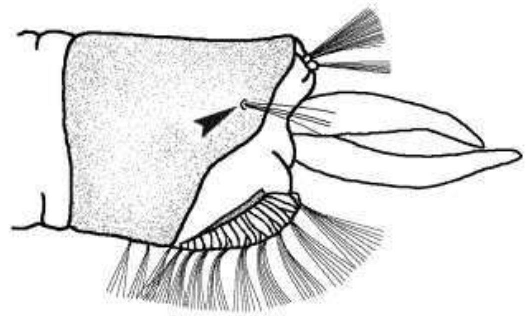


Figure 284. Anal saddle of *Cs. incidens*

51.(50)Mesothoracic seta 1-M single and much longer than multibranched seta 2-M (Fig. 285)........................................................................................ *Cs. incidens*, page 229

Mesothoracic seta 1-M and 2-M both short and multibranched (Fig. 286).................... ........................................................................................ *Cs. alaskaensis*, page 223

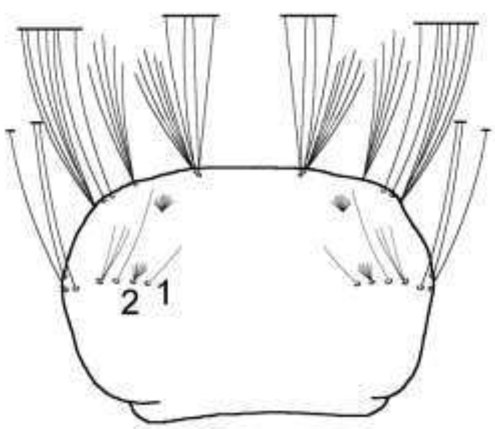



Figure 285. Mesothorax of *Cs. incidens*

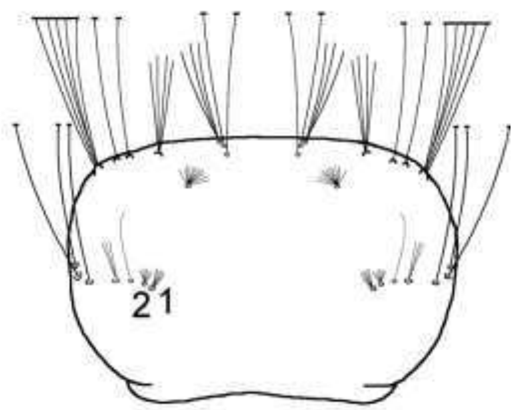



Figure 286. Mesothorax of *Cs. alaskaensis*

***Psorophora***

52. Antennae longer than head, sinuate, somewhat inflated in distal ½ (Fig. 287); siphonal tuft very large with some branches at least equal in length of the siphon (Fig. 289)............ ........................................................................................ *Ps. discolor*, page 243

Antennae shorter than head, slightly curved, not inflated (Fig. 288); siphonal tuft much shorter than the length of the siphon (Fig. 290)................................................................ 53

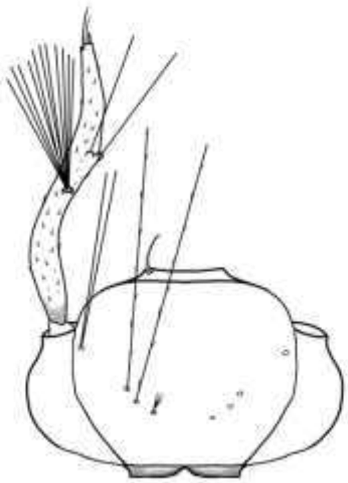


Figure 287. Head of *Ps. discolor*

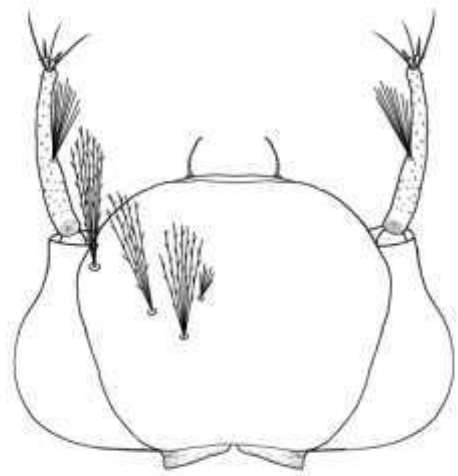


Figure 288. Head of *Ps. columbiae*

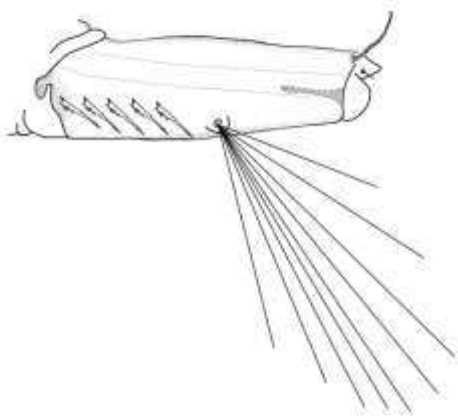


Figure 289. Siphon of *Ps. discolor*

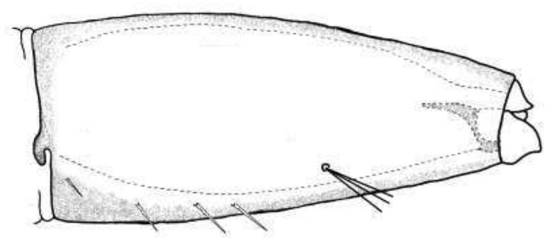


Figure 290. Siphon of *Ps. columbiae*

53.(52)Head seta 5-C and 6-C shorter than antenna, with 4 or more branches (Fig. 291)..........
........................................................................................ *Ps. columbiae*, page 240

Head seta 5-C and 6-C equal to or longer than antenna, single or with only 2 or 3 branches (Fig. 292)................................................................. *Ps. signipennis*, page 246

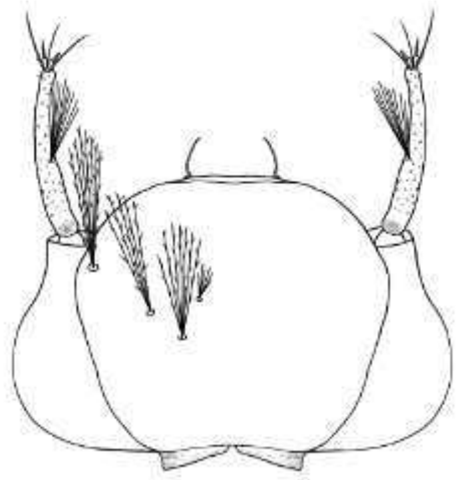


Figure 291. Head of *Ps. columbiae*

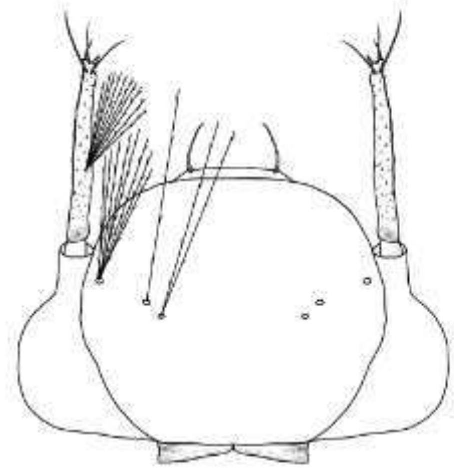


Figure 292. Head of *Ps. signipennis*

### *Uranotaenia*

54. Head seta 5-C double or triple, seta 6-C single, both coarse but not spiniform (Fig. 293)... ........................................................................................ *Ur. anhydor syntheta*, page 249

    Head seta 5-C and 6-C single, thick, and spine-like (Fig. 294).... *Ur. sapphirina*, page 252

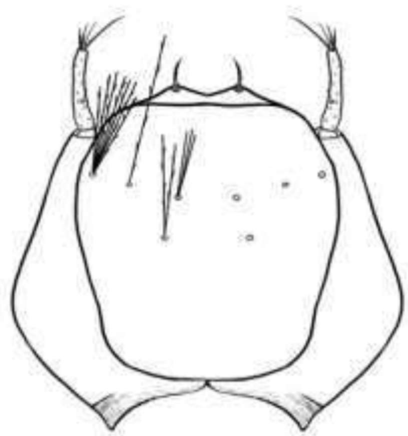


Figure 293. Head of *Ur. anhydor syntheta*

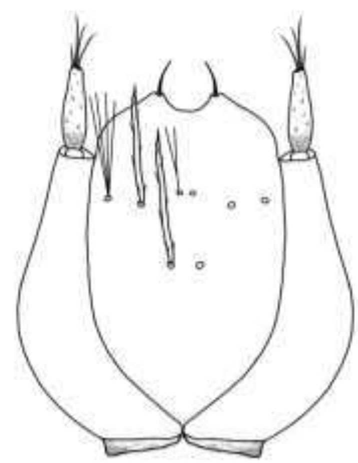
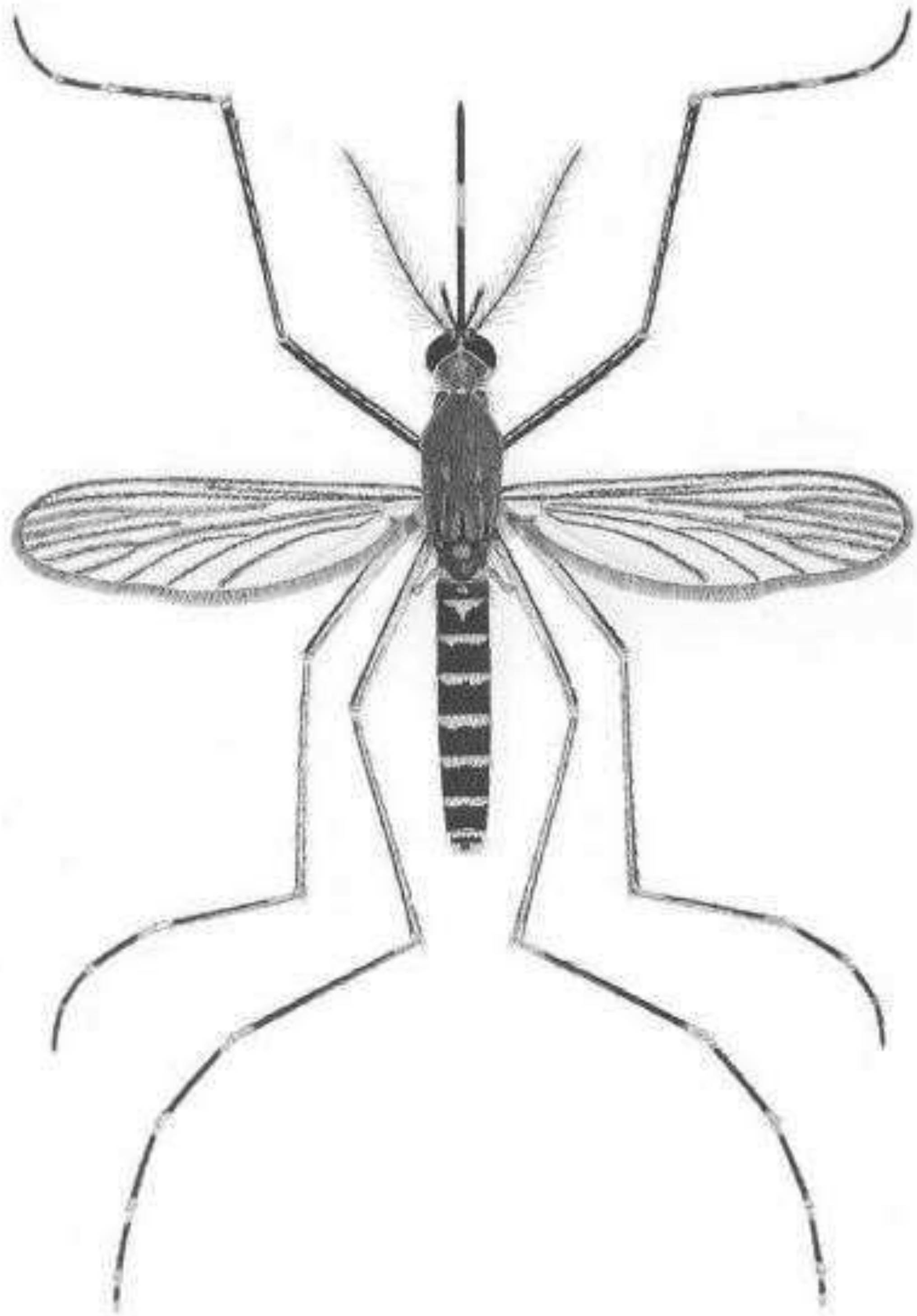


Figure 294. Head of *Ur. sapphirina*

## CHAPTER FOUR SPECIES SUMMARY OF THE MOSQUITOES OF COLORADO



*Culex tarsalis* Coq. Species plate from Carpenter and LaCasse (1955).

## *Aedes aegypti* (Linnaeus)

**Original Description:** Linnaeus, 1762: 470 [as *Culex*].

**Adult Female:** *Head*: Proboscis dark-scaled. *Thorax*: Scutum covered in bronze-brown to black scales except conspicuous pale-scaled lyre-shaped pattern dorsally; lyre-shaped scale pattern with broad silvery-white scales laterally, pair of narrow lines of slender yellowish-white scales submedially; prescutellar space bounded by white scales (Fig. 295a). *Wing*: Veins with narrow dark scales. *Legs*: Hind tarsi dark-scaled with broad basal bands of white scales on segments 1-to-4, segment 5 entirely white-scaled. *Abdomen*: Tergites dark-scaled with basal transverse band of white scales and basolateral patches of silvery-white scales; sternites white-scaled with last two segments mostly dark-scaled. **Similar Species:** *Aedes albopictus* is primarily black scaled, with silvery-white scale patterns, but lacks the lyre-shaped scale pattern of the scutum of *Ae*. *aegypti*.

**Fourth Instar Larvae:** *Head*: Head seta 5-C, 6-C, and 7-C, single (Fig. 295b). *Thorax*: Prothoracic seta 1-P medium, 2-5 branched; 2-P short, single; 3-P short, double (sometimes triple); 4-P short, single or double; 5-P long, double; 6-P long, single; 7-P long, double or triple. Mesothoracic and metathoracic setal support plate 9-12 with prominent spine. *Abdomen*: Curved row of 7-12 comb-scales; individual comb-scale thorn-like with strong median spine and several shorter lateral spines. Siphonal index 2.0; siphon with 10-19 evenly spaced pecten-teeth extending to middle of siphon; siphonal tuft inserted distal to pecten-teeth, triple. Anal-saddle extends to near midventral line. **Similar Species:** *Aedes albopictus* has a weaker spine on the meso/metathoracic setal support plates 9-12 and the comb-scales are fringed by finer spicules, whereas *Ae. aegypti* is characterized by a prominent spine on the setal support plates for meso/metathoracic setae 9-12 and with strong subapical spines on the comb-scales (Fig. 295c).

**Biology:** *Phenology*: Multivoltine (Christophers 1960). *Overwintering stage*: Egg, in its temperate distribution (Christophers 1960). *Aedes aegypti* is not known to overwinter in Colorado in any stages. Likewise, this species does not overwinter in the northern limits of its range in the United States (Monaghan et al. 2016). *Larval habitat*: The larvae typically inhabit artificial containers holding water such as flowerpots, tires, cans, clogged rain gutters, etc. The adult females have also oviposited eggs in tree-holes or any natural container-like basin that is capable of holding water (Carpenter and LaCasse 1955; Christophers 1960). *Host preference*: Mammals. The adult female are day feeders and usually do not disperse far from the larval habitats. This species is usually associated with urban areas and are well-adapted to these environments. *Medical importance*: This species is the primary vector of YFV and DENV (Christophers 1960, Schaffner et al. 2013), also a known vector of CHIKV (Reiskind et al. 2008, Schaffner et al. 2013), and a known vector of ZIKAV (Monaghan et al. 2016). *Aedes aegypti* also demonstrated laboratory competence to transmit WNV after inoculation, but did not become infected with WNV orally (Turell et al. 2001, Turell et al. 2005) however, Pitzer et al. (2009) reported wild caught *Ae. aegypti* infected with WNV.

**Comments:** The records for *Ae. aegypti* in Colorado are likely due to a localized incidental introduction of unknown origin. A search for larvae was unsuccessful and subsequent trapping at the site and other nearby locations have failed to collect additional specimens. Semiarid weather conditions and cold winters in Colorado make it unlikely that a reproducing population would establish itself at this location, as this species is primarily collected in tropical, subtropical, and warmer temperate environments (Kraemer et al. 2015).

**Distribution:** This species was only collected on two occasions at a single location in Pueblo (Pueblo County), Colorado (Rose et al. 2015) (Fig. 295d).

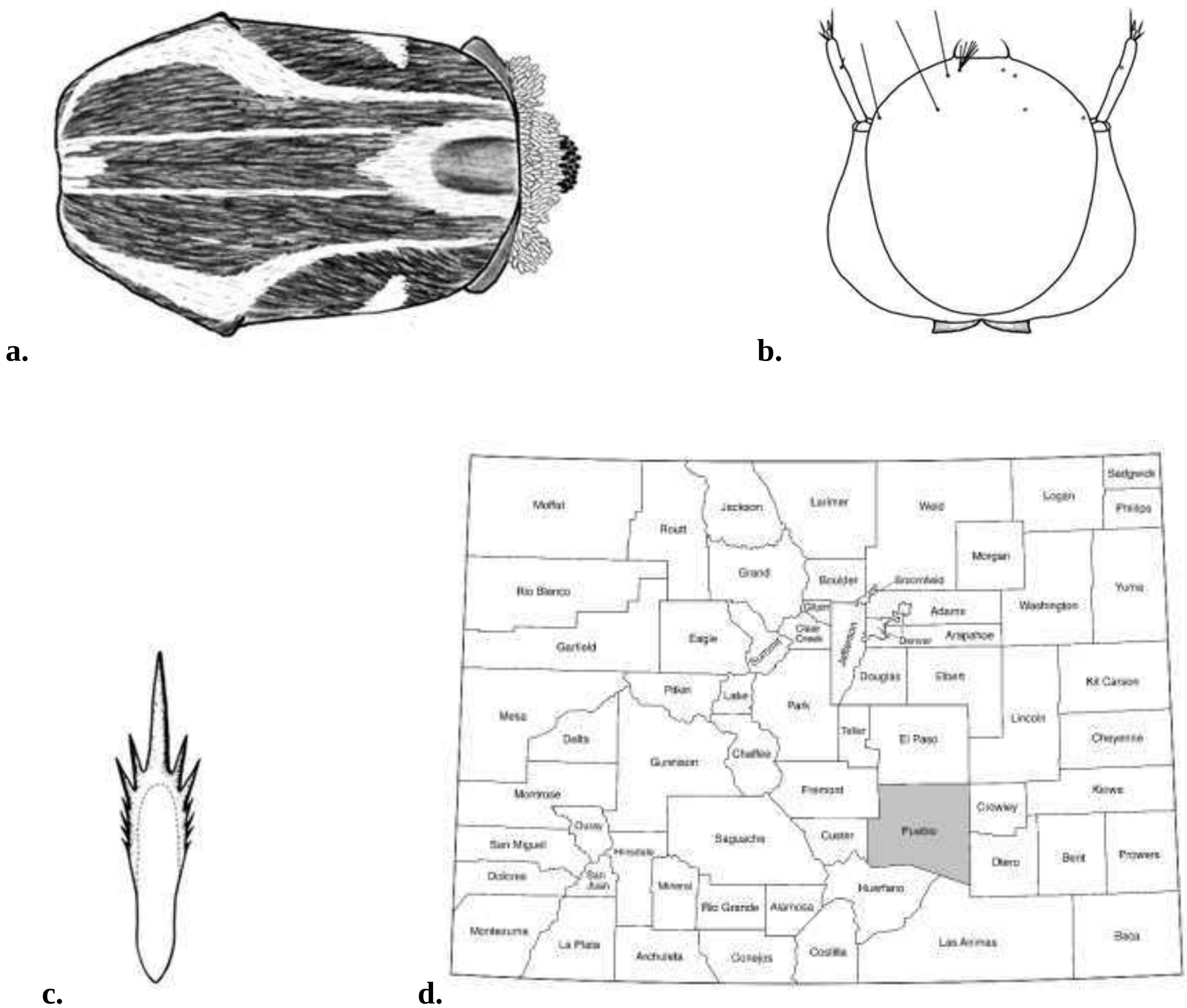



**Figure 295a-d.** *Aedes aegypti*. a) Note the distinct lyre-shaped scale pattern on the scutum; b) Head with seta 5-C, 6-C, and 7-C single; c) Comb-scale; d) County record for *Ae*. *aegypti*.

### *Aedes albopictus* (Skuse)

**Original Description:** Skuse, 1894: 20 [as *Culex*].

**Adult Female:** *Head*: Proboscis dark-scaled. *Thorax*: Scutum covered in dark scales, with conspicuous median longitudinal stripe of silvery-white pale scales (Fig. 296a). *Wing*: Veins with narrow dark-scales and small patch of pale scales at base of costa. *Legs*: Hind tarsi dark-scaled with broad basal bands of white scales on segments 1-4, segment 5 entirely white-scaled. *Abdomen*: Tergites dark-scaled with narrow (sometimes-incomplete) basal transverse band of white-scales widening laterally into sublateral spots; sternites dark-scaled with basal transverse bands of white scales. **Similar Species:** *Aedes aegypti* has a conspicuous silvery-white lyre-shaped scale pattern of the scutum, whereas the scutum of *Ae. albopictus* is marked by a conspicuous median longitudinal stripe of silvery-white sales that extends the length of the scutum and continues onto the head.

**Fourth Instar Larvae:** *Head*: Head seta 5-C single; 6-C single or double; 7-C 2-3 branched. *Thorax*: Prothoracic seta 1-P 2-4 branched; 2-P single; 3-P double; 4-P triple sometimes double; 5-P single rarely double; 6-P single; 7-P usually double. Mesothoracic and metathoracic setal support plate 9-12 with short thin spine. *Abdomen*: Single irregular row of 8-12 comb-scales; individual comb-scale thorn-like with strong apical spine fringed laterobasally with fine spicules (Fig. 296b). Siphonal index 2.0; siphon with 8-14 evenly spaced pecten-teeth; siphonal tuft inserted distal to pecten-teeth, 2-4 branched. Anal-saddle extends more than ⅔ down sides. **Similar Species:** *Aedes aegypti* is characterized by a prominent spine on the setal support plate for meso/metathoracic setae 9-12 and with strong subapical spines on the comb-scales, whereas

*Ae. albopictus* has a weaker spine on the meso/metathorax setal support plate 9-12 and the comb-scales are fringed by finer spicules.

**Biology:** *Phenology*: Multivoltine (Hawley 1988). *Overwintering stage*: Egg (Hawley 1988). *Larval habitat*: This species lays its eggs in natural containers such as tree-holes and bamboo stumps, and man-made containers that collect water such as tires, flowerpots, buckets, cans, children's toys, gutters, etc. (Hawley 1988). *Host preference*: Primarily mammals however, this species is also opportunistic (Hawley 1988, Niebylski et al. 1994, Turell et al. 2005). The adult females are day feeders and avid biters of humans, can be abundant, and are well-adapted to urban environments (Hawley 1988). *Medical importance*: *Aedes albopictus* is primarily a vector of DENV and YFV (Shroyer 1986), also a well-known vector of ZIKAV (Ayers 2016), and CHIKV (Shroyer 1986, Vega Rúa et al. 2014). This species has demonstrated laboratory competence to become infected with bird malaria (LaPointe et al. 2005). Beaman and Turell (1991) reported that *Ae. albopictus* has the ability to transmit Venezuelan equine encephalitis virus (VEEV). *Aedes albopictus* has also demonstrated laboratory competence to transmit WEEV and SLEV (Shroyer 1986), and Japanese encephalitis virus (Huang 1972, Shroyer 1986). Grimstad et al. (1989) reported laboratory results of the transmission of La Cross virus (LACV), and *Ae. albopictus* was shown to be infected with and transmit WNV in the laboratory (Turell et al. 2001, Sardelis et al. 2002, Turell et al. 2005). Mitchell et al. (1996) confirmed Potosi virus (POTV) isolation from wild caught *Ae. albopictus*, and Armstrong et al. (2013) isolated Cache Valley virus (CVV) from *Ae. albopictus* in New Jersey.

**Comments:** The introduction(s) of *Ae. albopictus* to Fort Lupton, Colorado is considered incidental and of unknown origin is unknown. Due to the location in close proximity to a tire storage site, the records are believed to be the result of multiple introductions of eggs in used tires. No evidence has been found of a reproducing population at that site, and no specimens have been reported since 2011. However, the importance of this species as a competent vector of dengue and yellow fever in other parts of the world, as well as a potential bridge vector of other mosquito borne diseases, makes this a species of public health concern should it become established here. However *Ae. albopictus* is primarily a tropical species, and therefore the eggs are unlikely to survive the semi-arid and cold winters of Colorado.

**Distribution:** *Aedes albopictus* was likely introduced in tires coming from Asia, and the species collected demonstrated cold tolerance similar to strains from the more temperate regions of Asia (Hawley et al. 1987). *Aedes albopictus* was first recorded from Fort Lupton, Weld County in 2003 (Bennett et al. 2005). An additional record for this species is based on two specimens from Fruita, Mesa County, collected August 30 and September 6, 2005 (S. DeFeyter, pers. com.) (Fig. 296c).

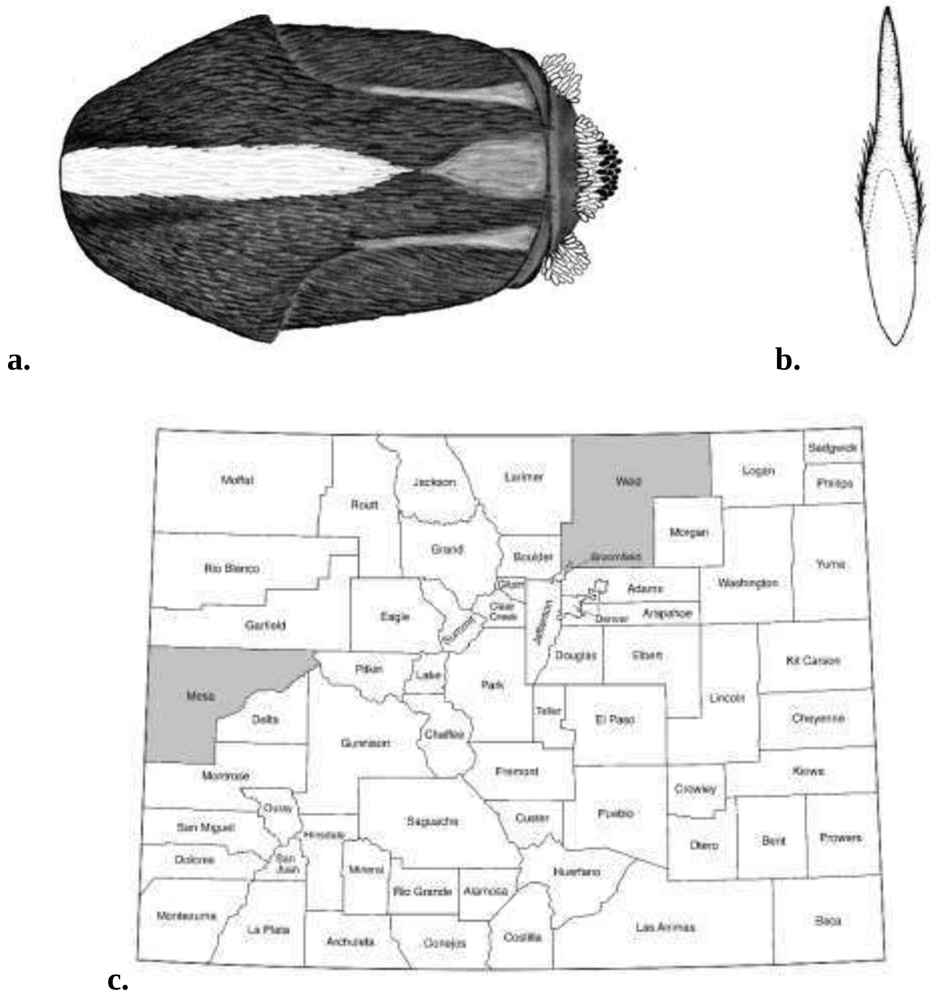



**Figure 296a-c.** *Aedes albopictus*. a) A median longitudinal stripe of silvery-white scales extending the length of the scutum; b) Shape of the individual comb-scale with a strong apical spine fringed by fine spinules laterobasally; c) County records for *Ae. albopictus*.

## ***Aedes campestris*** **Dyar & Knab**

**Original Description:** Dyar & Knab, 1907: 213.

**Adult Female:** *Head*: Proboscis black-scaled, basal ½-⅔ with pale-scales intermixed ventrally. *Thorax*: Scutum marked by broad median stripe of brown scales, lateral margins with bronze-brown scales, remainder covered with narrow yellowish-white scales. *Wing*: Veins with dark and white scales uniformly intermixed with white scales more abundant (Fig. 297a). *Legs*: Tarsal segment 1 with dark and white scales intermixed; hind tarsal segments 2-4 dark-scaled with basal and apical white bands of scales, segment five almost entirely white-scaled. Tarsal claw abruptly curved (Fig. 297b). *Abdomen*: Tergites with cream-white scales, apically, basally, laterally, and medially, creating submedian irregular patches of dark-scales; sternites pale-scaled. **Similar Species:** *Aedes dorsalis* wings are primarily pale-scaled and vein $R_{4+5}$ is dark scaled, whereas $R_{4+5}$ in *Ae. campestris* have dark scales approximately equal in number on veins $R_2$ and $R_3$.

**Fourth Instar Larvae:** *Head*: Head seta 5-C 2-3 branched, rarely four; 6-C single, sometimes double; 7-C 6-10 branched (Fig. 297c). *Thorax*: Glabrous (Fig. 297d). Prothoracic seta 1-P long, single; 2-P short, single; 3-P short, single or double; mesothoracic seta 1-M longer than antennae. *Abdomen*: Triangular patch of 19-33 comb-scales; comb-scale broadly rounded, fringed with subequal spinules, medial spinule stronger. Siphonal index 3.0; siphon with 19-32 pecten-teeth on basal ⅔, with 1-4 distal pecten-teeth detached; siphonal tuft inserted beyond pecten-teeth, as long as width of basal diameter of siphon, 4-6 branched. Anal-saddle extends ⅔ down sides, dorsoapical aspect speculate (Fig. 297e). **Similar Species:** The siphon is long and slender in *Ae. excrucians* (SI 4.5-5.0), whereas a short siphon characterizes *Ae. campestris* (SI 3.0). The mesothoracic seta 1-M is short in *Ae. flavescens*, whereas in *Ae. campestris* 1-M is longer than the antennae.

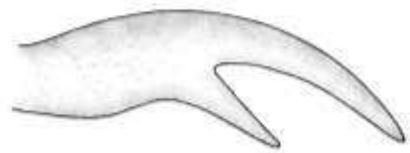
**Biology:** *Phenology*: Wood et al. (1979) reported this species as univoltine in the northern reaches of its range, and possibly multivoltine in the southern reaches in Canada. Similar to

Canada, *Ae. campestris* is likely univoltine at higher elevations in Colorado, and possibly multivoltine at lower elevations. *Overwintering stage*: Egg. *Larval habitat*: The larvae occupy a variety of depressions filled by snowmelt and spring precipitation. Larvae are also known to tolerate alkaline water conditions and occur in temporary pools rich in organic matter and vegetation (Carpenter and LaCasse 1955, Harmston and Lawson 1967, Wood et al. 1979). *Host preference*: Mammals. This species will enter structures to feed on humans. *Medical importance*: Viral isolates from wild caught females and males of this species include WEEV, California serogroup viruses, and rhabdoviruses in New Mexico during surveillance following an epizootic event in equines during 1985 (Clark et al. 1986). This species is not medically important in Colorado even though it has been collected with viral isolates south of the state.

**Comments:** This species typically occurs early in the season, late spring, and early summer in Colorado, and likely univoltine throughout most of its range in the state (Carpenter and LaCasse 1955, Harmston and Lawson 1967, Wood et al. 1979). The adult female readily come to $CO_2$-baited light traps and have been reported to have a flight range of up to 10 miles (Carpenter and LaCasse 1955). This species is not common in Colorado and not considered a major nuisance in the state. Elsewhere, when the females are abundant they can be a biting nuisance, as this species seeks blood meals anytime during the day (Wood et al. 1979). However, *Ae. campestris* is more active during dawn and dusk (Carpenter and LaCasse 1955, Harmston and Lawson 1967). Although not considered common in Colorado, this species may be confused during routine surveillance with the similar and more common *Ae. dorsalis*.

**Distribution:** This species is primarily distributed throughout the western semi-arid regions of the United States extending into Canada and Alaska to the north, northwestern United States to the west, Michigan to the east, and northern Texas to the south (Carpenter and LaCasse 1955, Darsie and Ward 2005). In Colorado, Harmston and Lawson (1967) reported this species from Alamosa, Conejos, Garfield, Mesa, Moffat, Rio Blanco, Routt, and Weld counties. New county records are available for Jackson, Larimer, Logan, Pueblo, and Saguache counties (Fig. 297f).

**a.**



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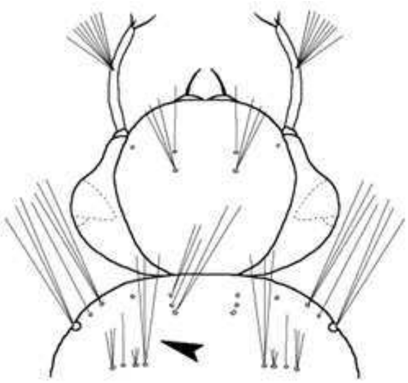
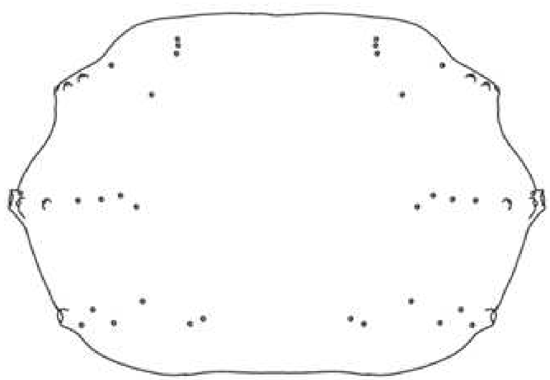
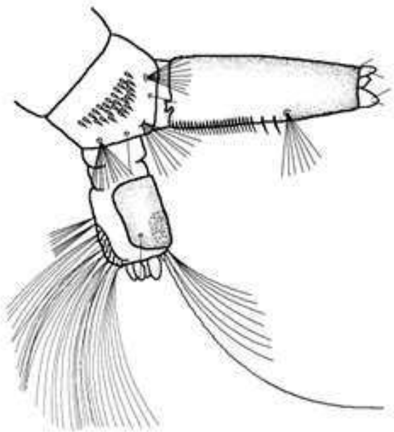


**c.**



**d.**


e.

f.

**Figure 297a-f.** *Aedes campestris*. a) Dark and white scales intermixed, vein $R_{4+5}$ with dark scales equal to veins $R_2$ and $R_3$; b) Tarsal claw curves near origin of the tooth; c) Mesothoracic seta 1-M is longer than its antennae; d) Glabrous thorax; e) Distal segments of abdomen, with a triangular patch of comb-scales; f) County records for *Ae. campestris*. Dark-grey = Harmston and Lawson (1967); Light-grey = post 1967 surveys.

## *Aedes canadensis canadensis* (Theobald)

**Original Description:** Theobald, 1901: 3 [as *Culex*].

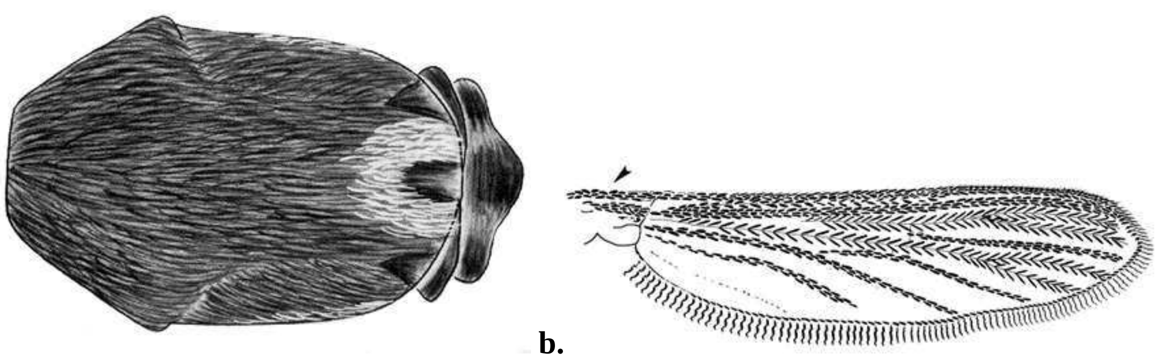
**Adult Female:** *Head*: Proboscis dark-scaled. *Thorax*: Scutum covered in narrow golden-brown scales (Fig. 298a). *Wing*: Veins with narrow, black scales (Fig. 298b). *Legs*: Tarsal segments with basal and apical rings of white scales; hind tarsal segments 1-4 with broad rings of white scales, segment 5 entirely white-scaled. *Abdomen*: Tergites dark-scaled, with conspicuous basolateral patches of white scales; sternites entirely pale-scaled, apices sometimes with dark scales. **Similar Species:** The wings of *Ae. epactius* have a distinct patch of white scales at the base of the costal vein and a broad dark-scaled median longitudinal line that extends the length of the scutum, whereas the wings of *Ae. c. canadensis* are entirely dark-scaled, and the scutum is usually unicolorous.

**Fourth Instar Larvae:** *Head*: Head seta 5-C 4-9 branched; 6-C 4-8 branched; 7-C 8-12 branched. *Thorax*: Prothoracic seta 1-P long, single; 2-P medium to short, single; 3-P short, 1-3 branched; mesothoracic seta 1-M shorter than the antennae (Fig. 298c). *Abdomen*: Patch of numerous comb-scales; comb-scale rounded apically, fringed with slender subequal spinules. Siphonal index 3.0-4.0; siphon with 13-24 evenly spaced pecten-teeth on basal ⅓; siphonal tuft inserted distal to pecten-teeth, 3-8 branched, length of the basal diameter of siphon. Anal-saddle extending ⅔ down sides. **Similar Species:** *Aedes pullatus* mesothoracic seta 1-M is longer than the antennae, whereas *Ae. c. canadensis* mesothoracic seta 1-M is shorter than the antennae.

**Biology:** *Phenology*: Univoltine, possibly bivoltine (Wood et al. 1979). *Overwintering stage*: Egg. *Larval habitat*: Larvae occur in shaded temporary or permanent pools, ditches, pools along stream margins, rich in organic matter, and close to or within wooded areas (Carpenter and LaCasse 1955, Wood et al. 1979). *Host preference*: Primarily small mammals, but this species will also feed on birds, amphibians, and reptiles (Hayes 1961). *Medical importance*: This species is a potential bridge vector of WNV and a vector of EEEV (Turell et al. 2005). California encephalitis virus (CEV) has been isolated from this species (Wood et al. 1979). Gargan et al. (1988) reported laboratory results that implicated this species as a competent vector of Rift Valley fever virus (RVFV). This species has been collected in Connecticut infected with JCV (Andreadis et al. 2008). This species is not abundant in Colorado and is not considered medically important.

**Comments:** The adult females are attracted to $CO_2$-baited light traps, and readily bite humans. This species can be active during the day seeking a blood meal in the cooler shaded forested areas (Carpenter and LaCasse 1955, Wood et al. 1979). *Aedes c. canadensis* is likely univoltine, however it has been collected in June, July, and August which for this species is relatively late in the season as it more commonly emerges earlier, i.e. April, May, and June (Carpenter and LaCasse 1955, Wood et al. 1979). The late season records represents likely long-lived adults or a late emergence due to a rain events that fill depressions not flooded earlier in the season or they may represent a second generation (Wood et al. 1979, Darsie and Hutchinson 2009).

**Distribution:** *Aedes c. canadensis*, a woodland mosquito, is widespread throughout North America primarily in the forested regions (Carpenter and LaCasse 1955). Its range covers eastern North America extending west to Colorado and British Columbia, south into Texas, and into parts of the northwestern United States, north into Alaska (Carpenter and LaCasse 1955, Darsie and Ward 2005). New records are from near Carbondale in Garfield County and Pitkin County. It was first reported in 2005, with subsequent collections confirming the occurrence in these locations (Fig. 298d).



**a.** **b.**

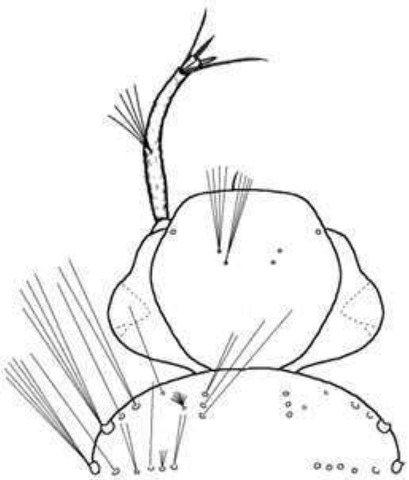
c.  d. 


**Figure 298a-d.** *Aedes canadensis canadensis*. a) Predominately unicolorous scutum of narrow golden-brown scales; b) Entirely dark-scaled wing; c) Mesothoracic seta 1-M is much shorter than the antennae; d) County records for *Ae. c. canadensis*.

## *Aedes cataphylla* Dyar

**Original Description:** Dyar, 1916: 86.

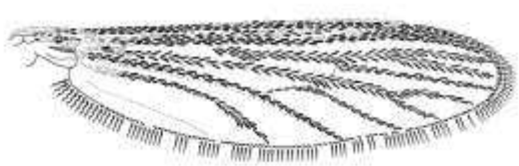
**Adult Female:** *Head*: Proboscis dark scaled, few pale scales on basal ½. *Thorax*: Mesepimeron with scales extending to near ventral margin; lower mesepimeron setae present; postprocoxal scale patch present; hypostigmal scales usually present. *Wing*: Veins with narrow dark scales; conspicuous patch of white scales on base of costa; costa, subcosta, and $R_1$ with dark and pale scales intermixed (Fig. 299a). *Legs*: Tarsi dark-scaled with few pale scales intermixed, distal tarsal segments primarily dark-scaled. *Abdomen*: Tergites dark-scaled with basal transverse bands of white scales; sternites white-scaled (Fig. 299b). **Similar Species:** *Aedes niphadopsis* is characterized by tergites with broad basal bands extending medially to form a continuous longitudinal stripe of pale scales, whereas on *Ae. cataphylla* each tergite is marked only by a defined basal transverse band of pale scales. *Aedes implicatus* wings have only a small patch of pale scales at the base of the costal vein, where on *Ae. cataphylla* a prominent patch of white scales mark the base of the costal vein.

**Fourth Instar Larvae:** *Head*: Head seta 5-C and 6-C long, single (Fig. 299c); 7-C, 3-6 branched. *Abdomen*: Two irregular rows or patch of 10-24 comb-scales; comb-scale thorn-shaped with long median spine and short lateral spinules (Fig. 299e). Siphonal index 3.0-3.5; siphon with 11-20 evenly spaced pecten-teeth on basal $^{1}/_{5}$-$^{2}/_{5}$ of siphon with 3-5 larger detached pecten-teeth reaching near apex of siphon; siphonal tuft inserted within pecten-teeth at basal $^{1}/_{5}$, length of basal diameter of siphon, 2-4 branched (Fig. 299d). Anal-saddle extends $^{3}/_{5}$-$^{4}/_{5}$ down sides; anal-saddle spiculate on dorsoapical aspect. **Similar Species:** *Aedes epactius* comb-scales are not thorn-like and are evenly fringed with subequal spinules, and the larvae are usually found in rock pools and other similar small natural containers, whereas *Ae. cataphylla* is characterized by thorn-like comb-scales with a large apical spine and short lateral spinules.

**Biology:** *Phenology*: Univoltine, Wood et al. (1979) reported a single female of this species completed five ovarian cycles within 40 days indicating a long emergence cycle throughout the mosquito season. *Overwintering stage*: Egg. *Larval habitat*: Larvae occur in temporary pools created by snowmelt and stream run-off during spring. Wood et al. (1979) indicated that the abundance of this species increased with a deep snow-pack. *Aedes cataphylla* prefers pools with ample vegetation such as depressions in grassy meadows or grassy pools along rivers, and ditches. Harmston and Lawson (1967) reported this species occurring in alkaline pools in Middle Park (Grand County), Colorado. *Host preference*: Mammals. This species seeks blood meals day and night (Wood et al. 1979). *Medical importance*: Campbell et al. (1991) reported the first collection of this species in California infected with JCV.

**Comments:** This species is one of the earliest emerging species above 8,500 ft. (2,590 m.) in Colorado, as it is well-adapted to cooler temperatures, with the first adults being observed in late April. It has been collected in association with *Ae. communis, Ae. hexodontus,* and *Ae. pullatus*. Adult females readily come to $CO_2$-baited light traps, and when abundant, adult females are a major biting nuisance in the higher altitudes of Colorado.

**Distribution:** *Aedes cataphylla* is primarily distributed in montane regions of western North America. Its range extends from Alaska to the north, western Colorado and Saskatchewan to the east, New Mexico and Arizona to the south, and northern California, Oregon and Washington to the west (Carpenter and LaCasse 1955, Darsie and Ward 2005). In Colorado, Harmston and Lawson (1967) reported this species at elevations above 8,500 ft. in Boulder, Conejos, Grand, Gunnison, Jackson, La Plata, Larimer, Mesa, Park, Pitkin, Routt, San Miguel, and Summit counties. Additional records are now available from Clear Creek, Jefferson, Montezuma, and Saguache counties (Fig. 299f).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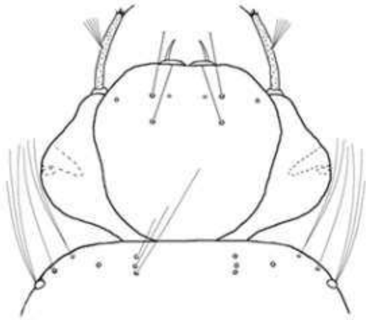
**b.**



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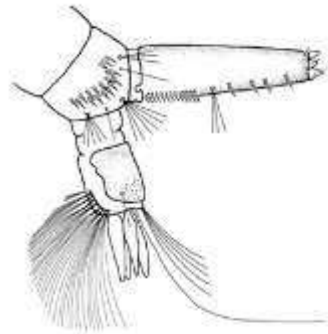

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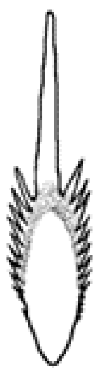

e.



f.

**Figure 299a-f.** *Aedes cataphylla*. a) The pale scales are primarily restricted to the anterior veins of the wing and base of costa; b) Basal transverse bands of white scales on the tergites; c) Setal arrangement and branching of the head and thorax; d) Distal segments of the abdomen; e) Comb-scale; f) County records for *Ae. cataphylla*. Dark-grey = Harmston and Lawson (1967); light-grey = post 1967 surveys.

## *Aedes cinereus* Meigen

**Original Description:** Meigen, 1818: 13.

**Adult Female:** *Head*: Proboscis dark-scaled. *Thorax*: Scutum covered in fine narrow reddish-brown scales, paler on anterior margin, lateral margin above wing base, and prescutellar space. *Wing*: Veins with narrow brown scales. *Legs*: Tarsi dark-scaled; forecoxae with conspicuous patch of dark scales (Fig. 300a). *Abdomen*: Tergites entirely brown-scaled, sometimes with narrow incomplete or complete basal transverse bands of paler brown scales to dingy pale-white scales; abdominal sternites bronze or pale scaled usually with a metallic sheen. **Similar Species:** All black-legged *Aedes* known from Colorado lack golden-bronze scales on the sternites and the patch of dark scales on the forecoxae. *Aedes cinereus* sternites are golden-bronze and the forecoxae are marked with an anterior patch of dark scales.

**Fourth Instar Larvae:** *Head*: Head seta 5-C 5-9 branched; 6-C 4-8 branched; 7-C long, multi-branched; 5-C, 6-C, and 7-C inserted in nearly a straight line (Fig. 300b). *Thorax*: Prothoracic seta 1-P medium, single; 2-P short, single; 3-P short, 2-4 branched. *Abdomen*: Partial double row of 9-16 comb-scales; comb-scales thorn-shaped, fringed with small lateral spinules (Fig. 300d). Siphonal index 4.0-4.5; siphon with 12-21 pecten-teeth extending beyond middle of siphon, with 1-3 distal detached teeth; siphonal tuft inserted beyond pecten-teeth, short, ½ the length of the apical diameter of siphon, 3-5 branched (Fig. 300c). Anal-saddle extends ¾ down sides. **Similar Species:** *Aedes vexans* has head setae 6-C anterior to 5-C, forming a triangle with 7-C, and comb scales with a prominent apical spine, whereas *Ae. cinereus* has head setae 5-C, 6-C, and 7-C inserted in almost a straight line, lacking a prominent apical spine.

**Biology:** *Phenology*: Multivoltine. *Overwintering stage*: Egg. *Larval habitat*: The larvae occur in a variety of depressions, shaded and unshaded in or close to woodland habitats, ranging from temporary to permanent pools created and maintained by snowmelt, stream run-off, and precipitation events throughout the summer season (Wood et al 1979). *Host preference*: Mammals. The senior author (D.A.R) has experienced aggressive feeding behavior while setting light traps during the evening hours just before dusk. However, Wood et al. (1979) reported that this species is not an aggressive host seeker and feeds lower to the ground usually on the legs of its host. *Medical importance*: Andreadis et al. (2004) reported an occasional field isolated of WNV in Connecticut. Multiple JCV isolations have been reported from this species in a ten-year study in Connecticut (Andreadis et al. 2008). Andreadis et al. (2014) also reported that *Ae. cinereus* was collected, and tested positive for isolates of CVC.

**Comments:** *Aedes cinereus* is a common species throughout Colorado. This species can be collected late spring through the summer season as late as August. The adult females readily come to $CO_2$-baited light traps, and when abundant can be a biting nuisance during the daytime in shaded areas, seeking blood meals most aggressively during dawn and dusk.

**Distribution:** *Aedes cinereus* is widespread throughout North America extending as far north as Alaska, and south into parts of northern Florida and Louisiana, and the Sierras of northern California to the west, but absent from the southwestern United States (Carpenter and LaCasse 1955, Darsie and Ward 2005). In Colorado, Harmston and Lawson (1967) reported this species from Eagle, Garfield, Grand, Gunnison, Jackson, Larimer, Mesa, Moffat, Pitkin, and Summit counties. Additional records are available from Boulder, La Plata, Lake, Montezuma, Pueblo, Routt, and Weld counties in Colorado (Fig. 300e).

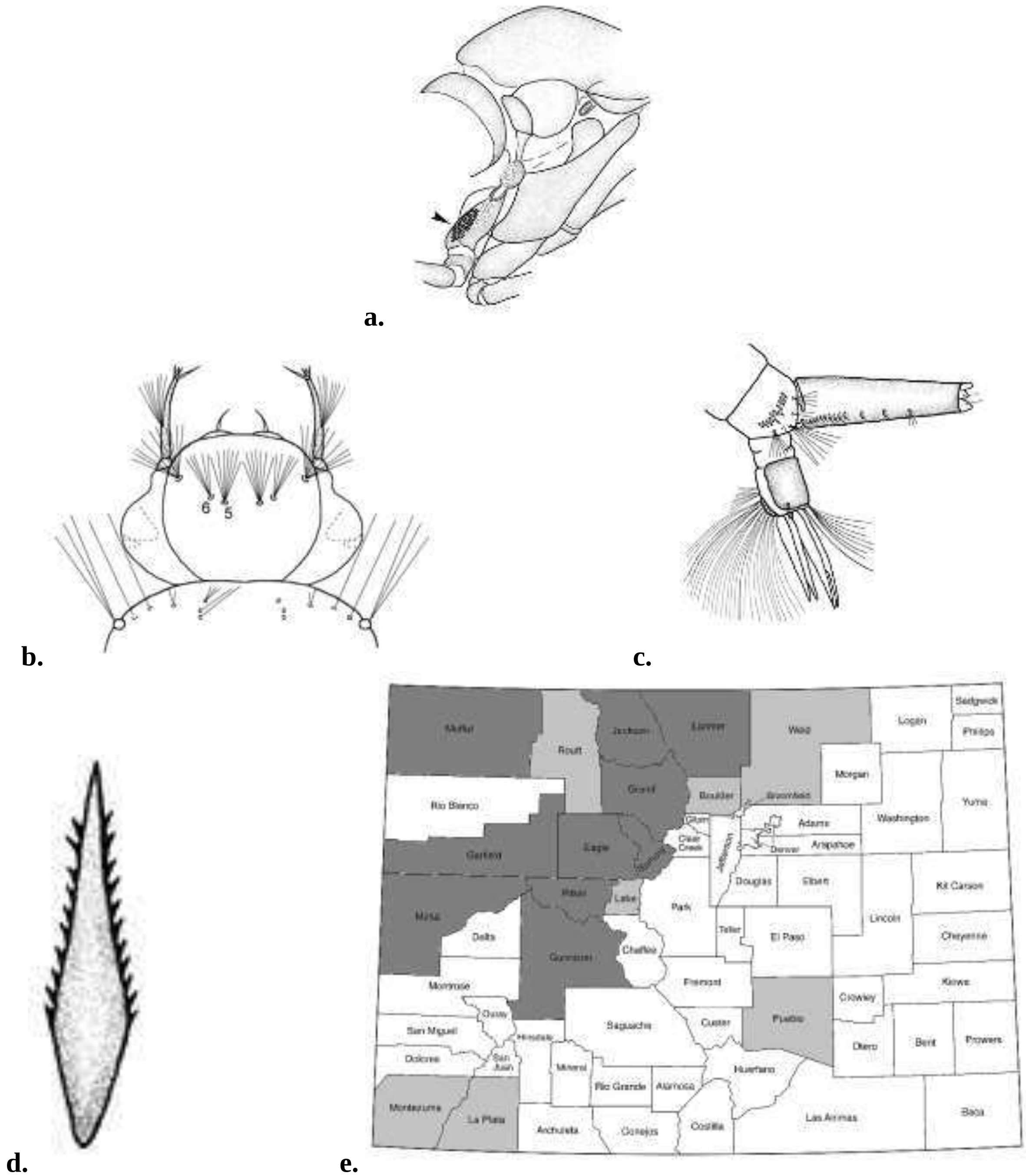


**Figure 300a-e.** *Aedes cinereus*. a) A conspicuous patch of dark scales on the forecoxae; b) Head setae 5-C, 6-C, and 7-C inserted in almost a straight line; c) Distal segments of the abdomen; d) Comb-scale; e) County records for *Ae. cinereus*. Dark-grey = Harmston and Lawson (1967); Light-grey = post 1967 surveys.

## *Aedes communis* (de Geer)

**Original Description:** de Geer, 1776: 316 [as *Culex*].

**Adult Female:** *Head*: Proboscis dark-scaled. *Thorax*: Scutum covered with variable pattern of yellowish-white to yellow and dark-brown scales, dark-brown scales usually confined to a pair of submedian stripes separated by a thin line of pale scales and posterior half-stripes; supraalar setae dark-brown to black; mesepimeron scales extending to near ventral margin (Fig. 301a); lower mesepimeron setae present; hypostigmal scale patch absent; postprocoxal scale patch absent. *Wing*: Veins with dark scales, small patch of white scales at base of costa and $R_1$. *Legs*: Tarsi dark-brown scaled, first segments speckled with few pale scales. *Abdomen*: Tergites brownish-black scaled with basal transverse bands of pale to cream colored scales widening laterally. **Similar Species:** The supraalar setae of *Ae. intrudens* and *Ae. sticticus* are golden to yellow in color and the white scale patch on the mesepimeron does not extend to the ventral margin, whereas the setae on *Ae. communis* are dark-brown to black and the mesepimeron scale patch extends to the ventral margin.

**Fourth Instar Larvae:** *Head*: Head setae 5-C and 6-C long, single sometimes double; 7-C 4-9 branched. *Thorax*: Mesothoracic seta 1-M is shorter than the antennae. *Abdomen*: Many comb-scales in triangular patch (Fig. 301b); individual comb-scale broadly rounded, fringed apically with 4-7 stout spines (Fig. 301c). Siphonal index 2.5-3.0; siphon with 14-21 evenly spaced pecten-teeth not reaching middle of siphon; siphonal tuft inserted distal to pecten-teeth, 4-8 branched. Anal-saddle extends ½-⅔ down sides. **Similar Species:** *Aedes dorsalis* mesothoracic seta 1-M is as long as or slightly longer than the length of the antennae, whereas in *Ae. communis* this seta is shorter than the antennae. *Aedes melanimon, Ae. increpitus,* and *Ae. implicatus* have less than 35 comb-scales, but larvae of *Ae. communis* have 36 or more comb-scales.

**Biology:** *Phenology*: Univoltine. *Overwintering stage*: Egg. *Larval habitat*: Larvae can be collected in some of the first snowmelt pools of the season and this species will occupy snowmelt pools until the snow has completely melted (Wood et al. 1979). This species also occurs in other temporary pools fed by the spring run-off in shaded or unshaded habitats in the forested mountainous regions of the state. Additionally, larvae have also been observed occupying deeper pools without vegetation and shallow grassy ponds indicative of high mountain meadows (Harmston and Lawson 1967). *Host preference*: Mammals. This species is most active at dusk. However, in shaded situations it has been observed seeking blood meals during all parts of the day (Wood et al. 1979). *Medical importance*: McLean et al. (1977) reported laboratory infection and transmission of CEV for this species.

**Comments:** The females of this species readily come to $CO_2$-baited light traps, as this species exhibit obligatory anautogensis, requiring a blood meal before the egg maturation and oviposition. *Aedes communis* occurs at the higher altitudes of the Colorado Rocky Mountains. As mentioned above larvae typically inhabit snowmelt pools in early spring and usually do not occur below 6,500 ft. (1,980 m.). This species has also been collected in mountain valleys in Gunnison County and near the Yampa River in Routt County. When abundant *Ae. communis* can be a biting nuisance. *Aedes communis* adult females are often sympatric with other species of black legged *Aedes*, such as *Ae. hexodontus*, *Ae. cataphylla*, and *Ae. pullatus* (Wood et al. 1979).

**Distribution:** This species is primarily distributed throughout the forested regions of North America including Canada and Alaska to the north, and its range extending into the southern Rocky Mountains to the south (Carpenter and LaCasse 1955, Wood et al. 1979, Darsie and Ward 2005). In Colorado, Harmston and Lawson (1967) reported this species from Boulder, Chaffee, Clear Creek, Conejos, Custer, Grand, Gunnison, Jackson, Larimer, Mesa, Park, Pitkin, San Miguel, and Summit counties. Additional records are available for this species from Eagle, Garfield, Lake, Montezuma, Routt, and San Juan counties (Fig. 301d).

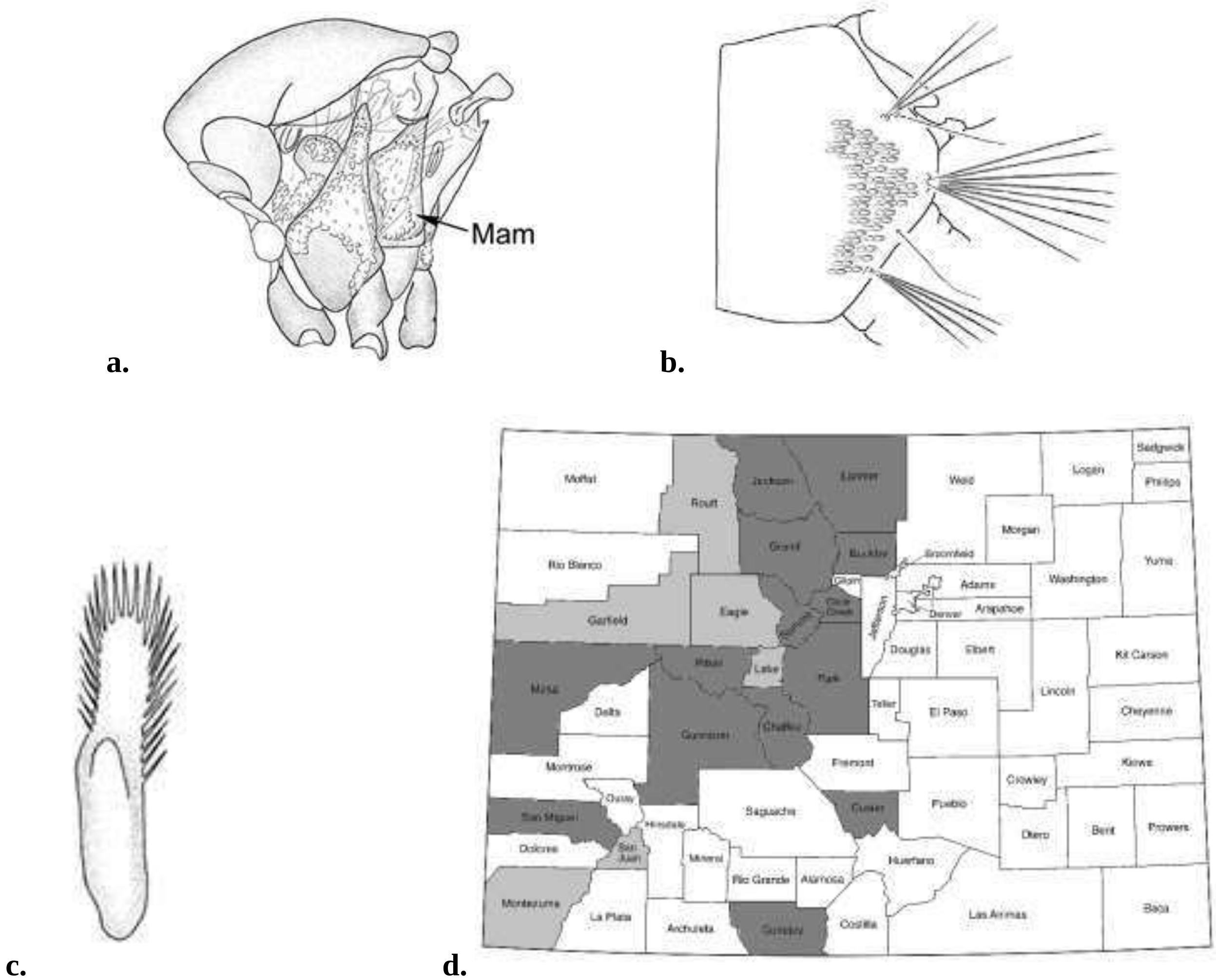


**Figure 301a-d.** *Aedes communis*. a) The scale patch adorning the mesepimeron (Mam) extends nearly to the ventral margin; b) Segment VIII with many comb-scales in a triangular patch; c) Comb-scale; d) County records for *Ae. communis*. Dark-grey = Harmston and Lawson (1967); Light-grey = post 1967 surveys.

## *Aedes dorsalis* (Meigen)

**Original Description:** Meigen, 1830: 242 [as *Culex*].

**Adult Female:** *Head*: Proboscis dark-scaled. *Thorax*: Scutum covered with lanceolate yellowish-white scales; with medial stripe of brown lanceolate scales varying in width or with few brown scales on medial area; posterior brown-scaled half-stripes sometimes present or absent. *Wing*: Veins with narrow dark-brown and white scales intermixed, white scales usually more abundant; darker scales on veins $R_1$, $R_{4+5}$, and Cu (Fig. 302a). *Legs*: Hind tarsus with apical and basal rings of pale to white scales on segments 1-3, segment 4 with basal ring of white scales and few pale scales apically, and segment 5 almost completely pale to white-scaled. *Abdomen*: Tergites primarily pale-scaled with dark scales forming small patches on most segments; last two segments almost entirely white-scaled (Fig. 302b); sternites white-scaled.

**Similar Species:** The costal wing vein on *Ae. melanimon* is dark-scaled, and the abdominal tergites have large areas of dark scales, whereas in *Ae. dorsalis* the costal vein is mostly pale-scaled and only small patches of dark scales occur on the tergites. *Aedes campestris* wing vein $R_{4+5}$ have equal dark and white scales intermixed similar to wing veins $R_2$ and $R_3$, whereas *Ae. dorsalis* wings are primarily white-scaled with wing vein $R_{4+5}$ primarily dark-scaled.

**Fourth Instar Larvae:** *Head*: Head seta 5-C single, sometimes double, rarely triple; 6-C single, rarely double; 7-C multibranched (Fig. 302c). *Thorax*: Prothoracic seta 1-P long, single; 2-P short, single; 3-P short, 1-5 branched. Mesothoracic seta 1-M long, double (Fig. 302c). *Abdomen*: Patch of 19-33 comb-scales; individual comb-scale fringed with spinules (Fig. 302e). Siphonal index 2.5-3.0; siphon with 16-23 evenly spaced pecten-teeth extending to approximately middle of siphon; siphonal tuft inserted distal to pecten-teeth, 4-8 branched (Fig. 302d). Anal-saddle extends ½-⅔ down sides (Fig. 302d). **Similar Species:** Mesothoracic seta 1-M on *Ae. communis, Ae. melanimon* and *Ae. increpitus* is shorter than the antennae, whereas in *Ae. dorsalis* has mesothoracic seta 1-M as long as or longer than the antennae.

**Biology:** *Phenology*: Multivoltine when the conditions are warm and wet (Wood et al. 1979). *Overwintering stage*: Egg. *Larval habitat*: Larvae occupy a variety of freshwater habitats, including highly organically enriched wetlands, ditches, grassy meadow depressions, cooler clear temporary pools of water indicative of forested areas, etc., as well as increasingly alkaline or saline temporary pools (Wood et al. 1979). In Colorado, larvae are often abundant in habitats created by irrigation on the eastern plains (Harmston and Lawson 1967). *Host preference*: Mammals, especially cattle and horses (Harmston and Lawson 1967, Loftin et al. 1997, Turell et al. 2005). *Medical importance*: *Aedes dorsalis* is a potential vector of WEEV, but likely not an important vector that maintains the virus in nature (Reisen et al. 1998). This species is also a competent vector of alpine strains of JCV (Kramer et al. 1993), CEV (Turell et al. 1982b), and a potential vector of WNV (Goddard et al. 2002, Turell et al. 2005, Pitzer et al. 2009).

**Comments:** *Aedes dorsalis* is one of the most abundant mosquitoes in Colorado and a nuisance during the summer months. This species is well adapted to semi-arid lands of the West. It is fairly cold-tolerant, and as such is one of the first species encountered in the spring and last species encountered in the fall at lower elevations of the state. The adult females of *Ae. dorsalis* readily come to $CO_2$-baited light traps as it primarily feeds on mammals. This species also feeds during all parts of the day, especially in shaded areas. Harmston and Lawson (1967) reported this species being widespread throughout the state and present to an altitude of 10,000 ft. (3,050 m.).

**Distribution:** In North American the range of *Ae. dorsalis* extends from Canada and Alaska to the north, Connecticut and Delaware to the east, Colorado to the south, and California to the west. In Colorado, Harmston and Lawson (1967) reported this species from an unspecified "40 of 53 counties." Recent surveying in Colorado has produced confirmed records for the species from Adams, Arapahoe, Alamosa, Boulder, Broomfield, Chaffee, Denver, Douglas, Eagle, El Paso, Garfield, Gunnison, Jefferson, Jackson, Kiowa, La Plata, Larimer, Logan, Montezuma, Mesa, Moffat, Montrose, Morgan, Pitkin, Prowers, Pueblo, Routt, Saguache, Sedgwick, Weld, and Yuma counties (Fig. 302f).

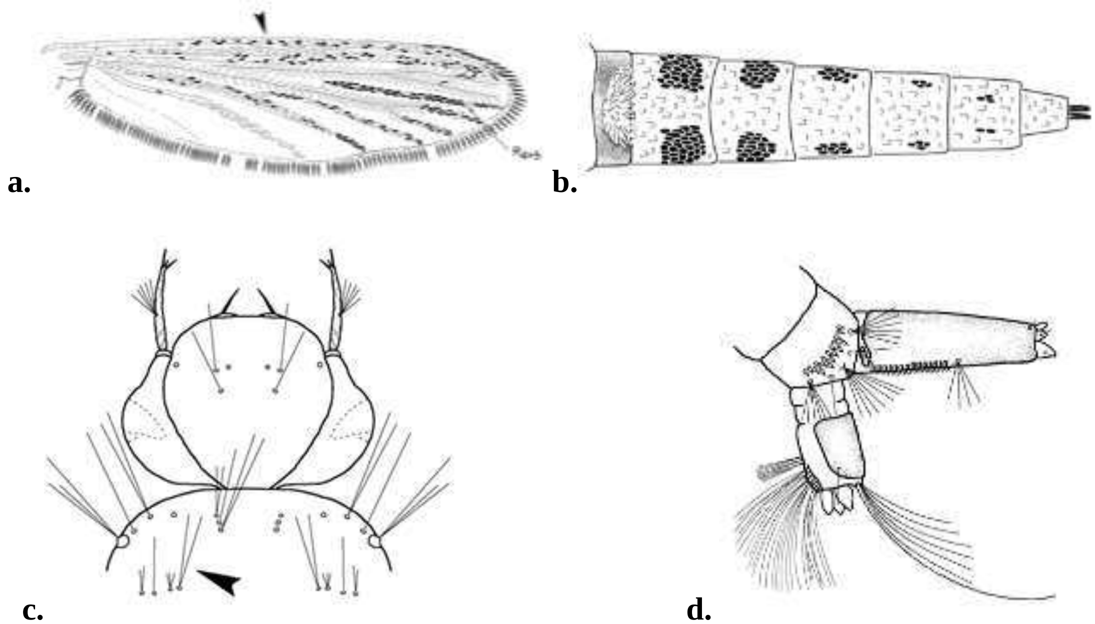

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**Figure 302a-f.** *Aedes dorsalis*. a) Vein $R_{4+5}$ is primarily dark-scaled; b) Tergites of the abdomen; c) Head seta 5-C and 6-C usually single and mesothoracic seta 1-M long and double; d) Distal segments of the abdomen; e) Comb-scale; f) County records for *Aedes dorsalis*. Light-grey = post 1967 surveys.

## *Aedes epactius* Dyar & Knab

**Original Description:** Dyar and Knab, 1908: 53.

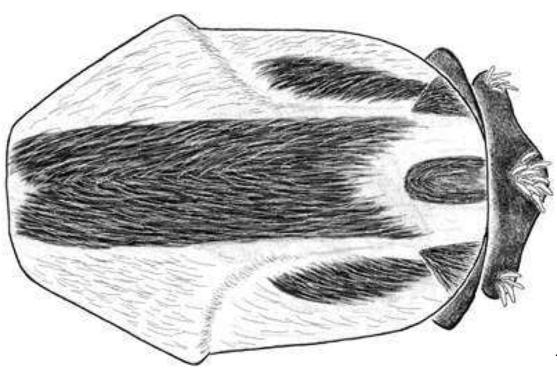
**Adult Female:** *Head*: Proboscis dark-scaled. *Thorax*: Scutum covered in long, narrow pale yellow scales with few dark scales and pale scales intermixed (lateral margins similar), sometimes with one or two median longitudinal stripes of darker scales (Fig. 303a). *Wing*: Veins with narrow dark scales and patch of white scales present on base of costa (Fig. 303b). *Legs*: Tarsi dark-scaled; hind tarsi with white scales basally and apically (apical bands narrower), segment 5 completely white-scaled. *Abdomen*: Tergites dark-scaled with basal band of white scales; sternites I and II entirely pale-scaled; remaining sternites with pale scales basally and medially, and a small dark patch of scales lateroapically. **Similar Species:** On *Ae. c. canadensis*, the wing veins are entirely dark scaled and the scutum is unicolorous, whereas the wing of *Ae. epactius* has a small patch of white scales on the base of the costa, and the scutum is marked by a median longitudinal stripe of darker scales.

**Fourth Instar Larvae:** Head seta 5-C and 6-C single. *Abdomen*: Patch of 18-34 comb-scales; individual comb-scales rounded apically, evenly fringed with small spines apically (Fig 303d). Siphonal index 2.0 (Fig 303c); siphon with 12-21 pecten-teeth, 1-4 of which are detached and extending beyond middle of siphon (Fig 303c); siphonal tuft inserted near middle of siphon within pecten-teeth, multibranched (Fig 303c). Anal-saddle extends approximately ½ down sides (Fig 303c). **Similar Species:** *Aedes cataphylla* comb-scales are thorn-shaped with a large apical spine and seta 1-X is attached to the anal-saddle, whereas, *Ae. epactius* comb-scales are rounded and evenly fringed with small spines apically, and seta 1-X is inserted ventral to the anal-saddle.

**Biology:** *Phenology*: Multivoltine. *Overwintering stage*: Egg. *Larval habitat*: The larvae of this species typically occur in rock pools. This species will inhabit a variety of natural containers such as large leaf axils and artificial containers such as cement basins, oil drums, fountains, and buckets (Lozano-Fuentes et al. 2012, Farajollahi and Price 2013). *Host preference*: Mammals (Farajollahi and Price 2013). *Medical importance*: This species has demonstrated laboratory transmission of JCV (Heard et al. 1991), and vertical transmission of SLEV to its progeny (Hardy et al. 1984).

**Comments:** *Aedes epactius* was considered a synonym of *Ae. atropalpus* (Aitken 1942), but was recognized as a full species by Zavortink (1972). *Aedes atropalpus* occurs only in the eastern United States, whereas *Ae. epactius* is a western species (Darsie and Ward 2005). It is probable that the specimens reported by Harmston and Lawson (1967) as *Ae. atropalpus* are actually *Ae. epactius*. The adult females of this species are avid blood feeders and feed during the dawn and dusk hours, however *Ae. epactius* is apparently rare in Colorado and of therefore apparently of little importance.

**Distribution:** *Aedes epactius* is primarily distributed across the southwestern and southcentral United States, its range extends as far north as Colorado, Nebraska and Utah, Texas to the south, southern California to the west, and Missouri, Arkansas and Louisiana to the east (Darsie and Ward 2005). *Aedes epactius* (as *Ae. atropalpus*) was reported from Archuleta and Montrose counties in Colorado by Harmston and Lawson (1967). Additional records are available from Douglas, Larimer, and Weld counties. More rock pool sampling will likely produce additional county records in the future (Fig. 303e).



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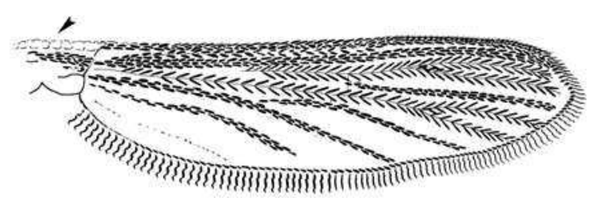

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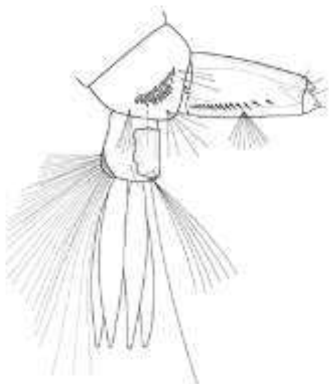
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**Figure 303a-e.** *Aedes epactius*. a) Median stripe of darker scales; b) Patch of white-scales on base of the costal vein; c) Distal segments of the abdomen; d) Comb-scale; e) County records for *Aedes epactius*. Dark-grey = Harmston and Lawson (1967); light-grey = post 1967 records.

## *Aedes excrucians* (Walker)

**Original Description:** Walker, 1856: 429 [as *Culex*].

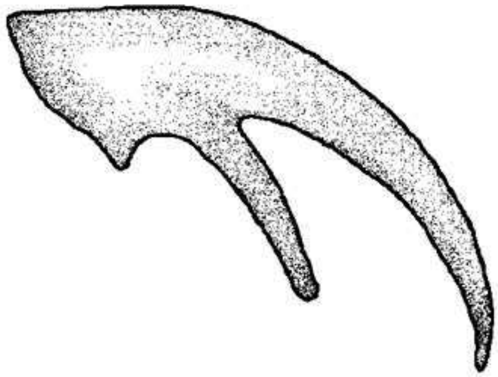
**Adult Female:** *Head*: Proboscis dark-scaled, speckled with few pale scales. *Thorax*: Scutum covered in variable pattern of brown and pale to white scales, with medial brown stripe. *Wing*: Veins primarily dark-scaled, with few pale scales intermixed. *Legs*: Hind tarsi with broad basal bands of pale to white scales on all segments; foreclaw with tooth and main claw nearly parallel, tooth approximately two-thirds the length of the main claw, nearly uniform in thickness from base to tip (Fig. 304a). *Abdomen*: Tergites dark-scaled with basal transverse bands of white scales, sometimes with few to many scattered pale scales apically; sternites white-scaled. **Similar Species:** The foreleg claws of *Aedes increpitus* has the tooth shorter, forming an acute angle at the bend of the main claw, whereas *Ae. excrucians* foreleg claws have the tooth approximately $\frac{2}{3}$ the length and subparallel to the main claw.

**Fourth Instar Larvae:** *Head*: Head seta 5-C long, double sometimes triple; 6-C long, double (seta 5-C or 6-C sometimes single); 7-C long, 4-8 branched (Fig. 304b). *Thorax*: Prothoracic seta 1-P long, single; 2-P short, single; 3-P short, 1-3 branched; 4-P short, single; 5-P and 6-P long, usually single; 7-P long, 1-3 branched (Fig. 304b). *Abdomen*: Patch of 17-33 comb-scales; comb-scale thorn-shape with long stout apical spine fringed with smaller spinules (Fig. 304c). Siphonal index 5.0, slender, tapering from near base; siphon with 16-27 pecten-teeth extending to near middle of siphon, with 1-3 detached pecten-teeth; siphonal tuft inserted distal to pecten-teeth, 3-7 branched, longer than basal diameter of siphon. Anal-saddle extends $^{2}/_{3}$-$^{3}/_{4}$ down sides. **Similar Species:** *Aedes campestris* siphon is short with a siphonal index of less than 4.0, whereas *Ae. excrucians* the siphon is long, tapering from near the base of the siphon to the tip, with a siphonal index of 4.5-5.0.

**Biology:** *Phenology*: Wood et al. (1979) reported this species as univoltine. *Overwintering stage*: Egg (Wood et al. 1979). *Larval habitat*: The larvae of this species occur in a variety of freshwater habitats (Wood et al. 1979) in or near forested areas of the state, including small basins filled by snowmelt or heavy precipitation, flooded roadside ditches, grassy meadows inundated with floodwaters, and riparian overflow pools. *Host preference*: Mammals. *Medical importance*: *Aedes excrucians* has been reported as a potential vector of RVFV (Gargan et al. 1988), and it has also been reported that in Connecticut and New York infected with JCV (Andreadis et al. 2008). Outside of the United States, specifically in western Siberia, this species has been collected, and tested positive for Tahyna virus and Bunyamwera serogroup (Mitchell et al. 1993).

**Comments:** This species can be easily confused with *Ae. increpitus*, and is likely more common in Colorado than has been reported, especially in locations that are primarily coniferous forests at elevations of 8,000 ft. (2,435 m.) or higher. Adult emergence can occur from late-April to early-June, but typically is later in the season than the other woodland snowmelt sympatric species (Wood et al. 1979). The adult females readily come to $CO_2$-baited light traps. When abundant, *Ae. excrucians* can be an annoying pest, as biting can occur throughout the day. This species is however, most active in the evenings and in shaded areas of coniferous forests during the day.

**Distribution:** *Aedes excrucians* is primarily distributed throughout the northern latitudes of coniferous forests in North America. Its range also extends down into southern Rocky Mountains restricted to the forested areas of Colorado, New Mexico, and Utah (Carpenter and LaCasse 1955, Darsie and Ward 2005). In Colorado, Harmston and Lawson (1967) reported this species from Archuleta, Conejos, Chaffee, Grand, Jackson, Larimer, Mesa, San Miguel, and Summit counties. Additional records are available from Grand and Larimer counties (Fig. 304d).



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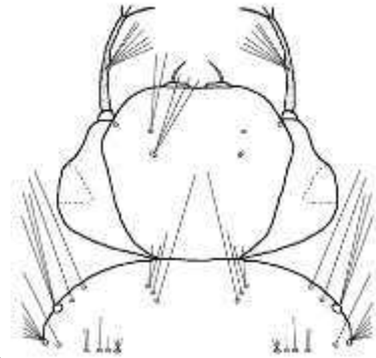

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**Figure 304a-d.** *Aedes excrucians*. a) Tooth on foreclaw is long and runs almost parallel to the main claw; b) Head and thoracic setal arrangement/branching; c) Distal segments of the abdomen; d) Comb-scale; e) County records for *Ae. excrucians*. Dark-grey = Harmston and Lawson (1967); Light-grey = post 1967 surveys.

## *Aedes fitchii* (Felt & Young)

**Original Description:** Felt and Young, 1904: 312 [as *Culex*].

**Adult Females:** *Head*: Proboscis dark-scaled, basal ½ dorsally with scattered pale scales, ventrally with pale scales intermixed; palpi short, dark-scaled, with few pale scales, apices of terminal segment with yellowish-white scales; pedicel with numerous pale scales on inner aspect and dorsally (Fig. 305a). *Thorax*: Scutum with yellowish-white scales and broad medial stripe of narrow brown scales. *Wing*: Veins with brown and yellowish-white scales intermixed. *Legs*: Hind tarsi with broad basal bands of pale scales. *Abdomen*: Tergites primarily dark to bronze-brown scaled, with broad basal dingy pale to yellowish-white scale patches that sometimes forms complete transverse bands, usually also with dingy pale scales medially and apically (Fig. 305b); sternites pale-scaled, with few dark scales intermixed. **Similar Species:** Both *Ae. increpitus* and *Ae. excrucians* have the pedicel with scales restricted to the inner surface, whereas *Ae. fitchii* pale scales extend from the inner surface to the dorsal surface.

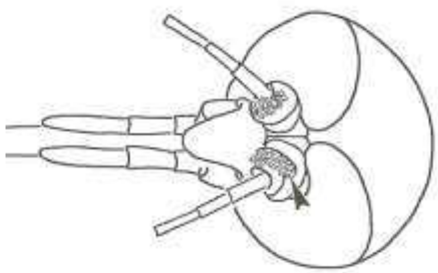
**Fourth Instar Larvae:** *Head*: Head seta 5-C slightly longer than 6-C, 3-4 branched, sometimes double; 6-C 2-3 branched; 7-C reaching beyond insertion of antennal tuft, multi-branched (Fig. 305c). *Thorax*: Mesothoracic seta 1-M long, 1-3 branched (Fig 305c). *Abdomen*: Patch of 12-28 comb-scales; individual comb-scales with apical spine 3-4X as broad and 2X as long as the preapical spine (Fig. 305e). Siphonal index 4.0-5.0, gradually tapering from near base; siphon with 15-24 evenly spaced pecten-teeth, extending to near middle of siphon; siphonal tuft inserted distal to pecten-teeth, 3-6 branched. Anal-saddle extends ⅔ down sides, with spicules posteriorly (Fig. 305d). **Similar Species:** *Aedes increpitus* has head seta 6-C is usually single, whereas *Ae. fitchii* 6-C is 2-3 branched. The siphon on *Ae. flavescens* is not strongly tapered, whereas *Ae. fitchii* the siphon is strongly tapered from the base.

**Biology:** *Phenology*: Univoltine (Wood et al. 1979). *Overwintering stage*: Similar to most *Aedes*, the cooler months of the year including winter is passed in the egg stage (Wood et al.

1979). *Larval habitat*: Larvae occupy a variety of both temporary and semi-permanent snowmelt pools in wooded areas, and less common on prairies (Wood et al. 1979). This species has been observed laying batches of eggs singly on the muddy edges of grassy meadow pools, and in the cracks of sundried temporary pools that flood the following season (Carpenter and LaCasse 1955). The larvae have also been collected in snowmelt pools near the edges of forested areas and near the edges of the snowline. *Host preference*: Mammals. *Medical importance*: This species is not medically important to humans but may be a medically important species regarding epizootic events. Laboratory results implied that this species may be a possible vector of Aleutian disease virus (ADV), which is important virus that affects mink populations (Shen et al. 1973). Shen et al. (1973) also reported that ADV replication occurred in *Ae. fitchii* and there could be a vector-pathogen relationship between the virus and this species of mosquito. Additionally, during a period of CEV surveillance, Artsob et al. (1978) reported collection of *Ae. fitchii* and isolation of snowshoe hare virus (SSHV) from a single pool of adults. More recently, the WRBU reported this species as a possible vector of dog heartworm, however *Ae. fitchii* occurs in the mountainous areas in Colorado, and likely not to encounter canines frequently (www.wrbu.org/speciespages accessed 26 Oct. 2015).

**Comments:** *Aedes fitchii* emergence occurs early in the spring, with later records likely due to delayed egg hatching (Carpenter and LaCasse 1955). The adult females can be a nuisance during all times of the day, especially in shaded areas, with feeding usually ceasing at sunset. However, the females have been observed feeding into the night on bright moonlit nights (Carpenter and LaCasse 1955). In Colorado, this species is a nuisance species in higher elevations of the state.

**Distribution:** *Aedes fitchii* is a woodland mosquito and primarily distributed throughout the forested regions of North America, with its range extending as far south as New Mexico and Colorado, Alaska to the north, west to the California Sierras. This species has also been reported throughout the northeastern states (Carpenter and LaCasse 1955; Darsie and Ward 2005). In Colorado Harmston and Lawson (1967) reported this species from Adams, Archuleta, Boulder, Clear Creek, Eagle, El Paso, Gunnison, Jackson, La Plata, Larimer, Mesa, Moffat, Park, Pitkin, San Miguel, and Weld counties. Additional records are available from Douglas, Grand, Hinsdale, Lake, Montezuma, Saguache, and Summit counties (Fig. 305e).



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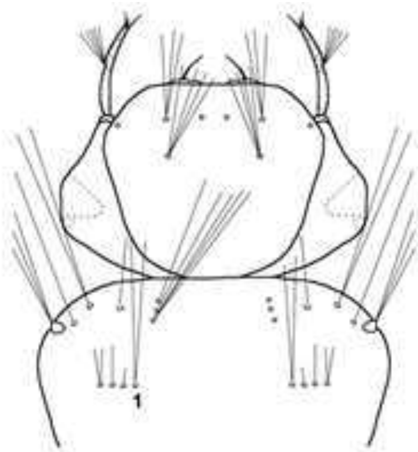


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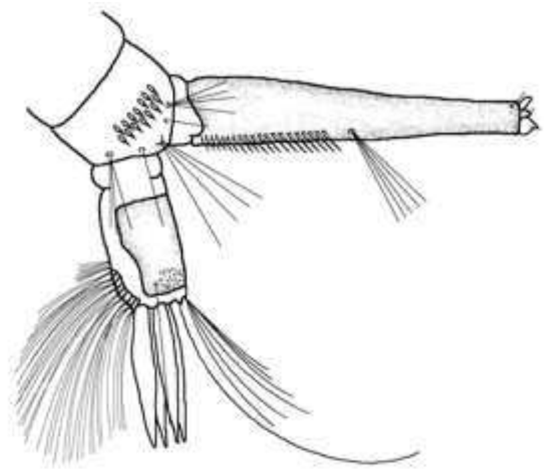

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**Figure 305a-e.** *Aedes fitchii*. a) Pedicel with scales on inner and dorsal surface; b) Tergites; c) Head and thoracic setal arrangement/branching; d) Distal segments of the abdomen; e) Comb-scale; f) County records for *Ae. fitchii*. Dark-grey = Harmston and Lawson (1967); light-grey = post 1967 surveys.

## *Aedes flavescens* (Müller)

**Original Description:** Müller, 1764: 87 [as *Culex*].

**Adult Female:** *Head*: Proboscis dark brown scaled, with yellowish scaled intermixed, less abundant on distal ½. *Thorax*: Scutum covered with narrow yellowish to light-brown scales, with darker median stripe of brown scales (some specimens yellowish and brown scales intermixed). *Wing*: Veins with narrow yellowish-white pale scales with brown scales intermixed, costa primarily pale-scaled. *Legs*: Hind tarsi with broad basal bands of yellowish-white scales, apices dark-scaled. *Abdomen*: Tergites and sternites with dingy yellowish-white scales (Fig. 306a). **Similar Species:** Although also with a primarily pale-scaled abdomen, *Ae. dorsalis* usually has black scale patches on at least some tergites, and has hind tarsi with both basal and apical bands of pale scales, whereas *Ae. flavescens* has only broad basal bands of pale scales. *Aedes fitchii* is characterized by tergites that are primarily dark-scaled with dingy pale scales basally and scattered apically, where the abdominal tergites on *Ae. flavescens* are almost completely covered with dingy yellowish-white pale scales.

**Fourth Instar Larvae:** *Head*: Head seta 5-C longer than 4-C, 3-4 branched, rarely double; 6-C similar in length to 5-C, 2-3 branched; 7-C long, reaching insertion of antennal tuft, multibranched (Fig. 306b). *Thorax*: Mesothoracic seta 1-M short, multibranched (Fig. 306b). *Abdomen*: Patch of 20-36 comb-scales; individual comb-scale with subapical spines approximately half the length of median apical spine (Fig. 306d). Siphonal index 3.2-4.0; siphon with 17-28 pecten-teeth on basal $^{2}/_{5}$ of siphon, sometimes with one or two detached distal pecten-teeth; siphonal tuft inserted distal to pecten-teeth, as long as basal diameter of siphon, 4-7 branched. Anal-saddle extends ⅔ down sides (Fig. 306c). **Similar Species:** Mesothoracic seta 1-M on *Ae. campestris* is as long as its antennae or longer and its comb-scales are not thorn-like, while in *Ae. flavescens* mesothoracic seta 1-M is shorter than its antennae and the comb-scales are thorn-like.

**Biology:** *Phenology*: Univoltine (Wood et al. 1979). *Overwintering stage*: Egg (Wood et al. 1979). *Larval habitat*: The larvae occur in deeper temporary pools typically in the northern states with plains habitats (Carpenter and LaCasse 1955, Wood et al. 1979). The larvae can also be found in the deeper pools of grassy high mountain meadows and wetland habitats maintained by spring run-off and snowmelt. The larvae of this species are largely absent from wooded areas and likely restricted to open areas near streams and high mountain meadows rich in organic matter (Carpenter and LaCasse 1955, Wood et al. 1979). *Host preference*: Mammals. This species seems to prefer cattle for a blood meal rather than human blood (Harmston and Lawson 1967, Wang et al. 2012). *Medical importance*: During an epizootic event in Saskatchewan 1962 involving horses, WEEV was isolated from one pool of *Ae. flavescens*, but not implicated as the primary vector (Spalatin et al. 1963), the WRBU also reported this species as a possible vector of dog heartworm (www.wrbu.org/speciespages accessed 27 Oct., 2015).

**Comments:** *Aedes flavescens* has rarely been collected in Colorado. It is likely restricted to the northern portions of the state in open high mountain meadows and open prairie habitats of the northeastern plains. The adult females likely emerge late in the spring or early summer as the larvae are slow to develop (Wood et al. 1979), however adults are long lived and can be collected later in to the summer season (Carpenter and LaCasse 1955, Harmston and Lawson 1967). Although this species is uncommon in Colorado, the females when present will readily come to a $CO_2$-baited light trap. *Aedes flavescens* is an avid biter and can be a nuisance when abundant (Harmston and Lawson 1967).

**Distribution:** *Aedes flavescens* is distributed throughout the northern latitudes of North America. Its range extends into Alaska to the north, Colorado and Utah to the south, parts of its southwestern range extends into the Pacific Northwest, and northeastern states such as New Hampshire and New Jersey to the east (Carpenter and LaCasse 1955, Darsie and Ward 2005). In Colorado Harmston and Lawson (1967) reported this species from Jackson, Larimer, and Weld counties. An additional record is available from Adams County (Fig. 306e). More intensive collecting on the eastern plains would have likely produced additional records for *Ae. flavescens*.

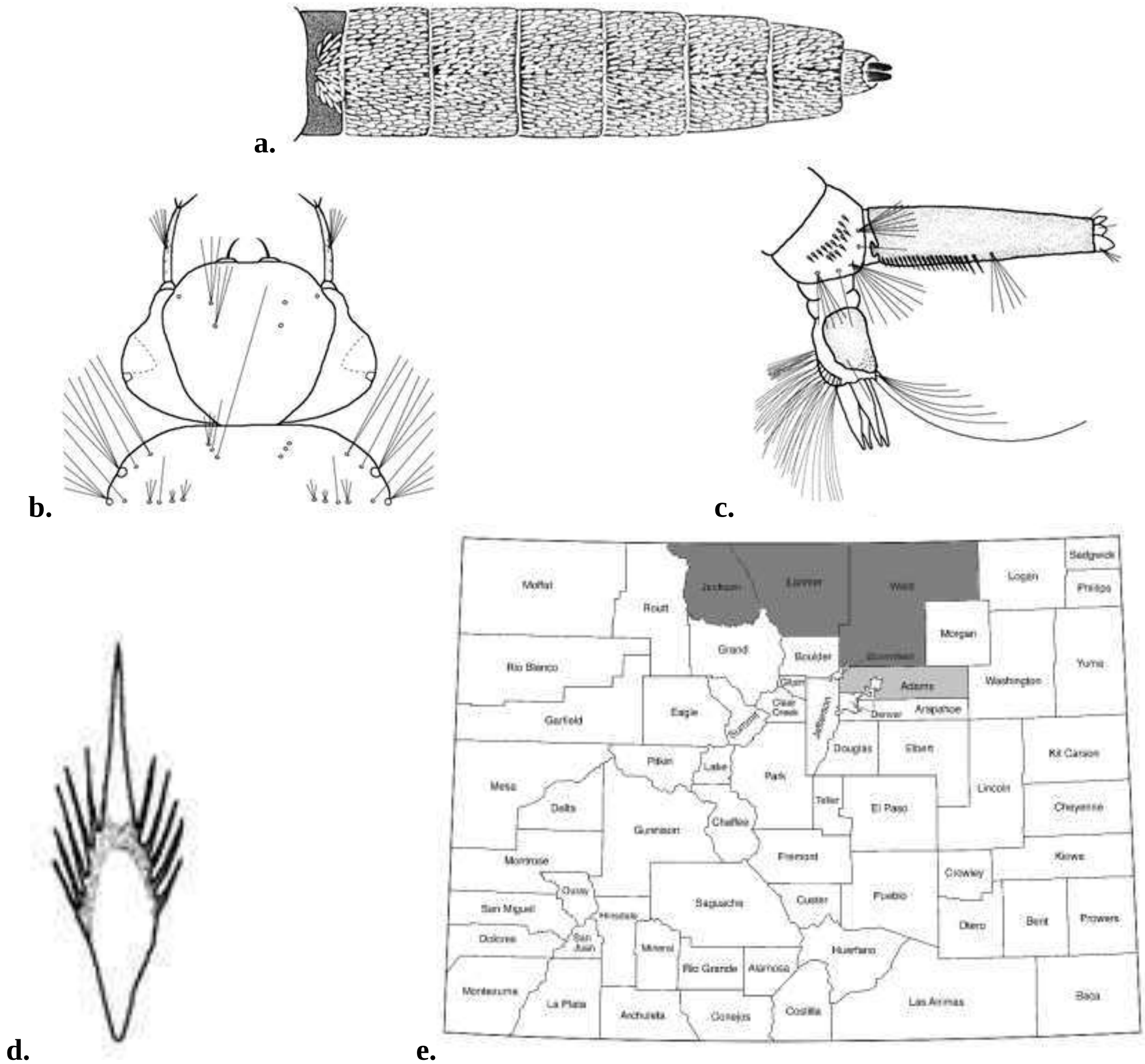



**Figure 306a-e.** *Aedes flavescens*. a) Tergites primarily dingy yellowish-white scaled; b) Head and thoracic setal arrangement/branching; c) Distal segments of the abdomen; d) Comb-scale; e) County records for *Ae. flavescens*. Dark-grey = Harmston and Lawson (1967); Light-grey = post 1967 surveys.

## *Aedes hendersoni* Cockerell

**Original Description:** Cockerell, 1918: 199 [as var. of *triseriatus*].

**Adult Female:** *Head*: Proboscis black-scaled. *Thorax*: Scutum with median longitudinal stripe of dark-brown scales widening distally forming a wrench-like shape on posterior ½ of scutum; prescutellar space, anterior and lateral margins with silvery-white scales (Fig. 307a). *Wing*: Veins with narrow black scales. *Legs*: Hind tarsi black-scaled with bluish metallic sheen. *Abdomen*: Tergites black-scaled with bluish to purplish metallic sheen, rounded patches of white scales laterally; sternites with silvery-white scales. **Similar Species:** The scutum of *Ae. trivittatus* has the two outer stripes of white scales, surrounding a median stripe of dark brown scaling extending from the anterior margin to the posterior margin, whereas the scutum of *Ae. hendersoni* is as above. *Aedes triseriatus* has fewer silvery-white scales laterally and anteriorly with a broader median region of dark-brown scales.

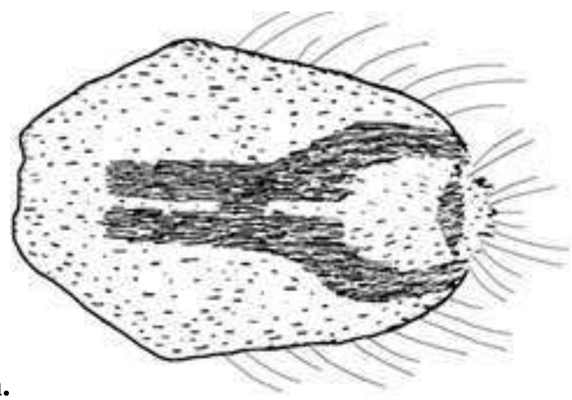
**Fourth Instar Larvae**: *Head*: Antennae ½ the length of the head; antennal tuft long, inserted near middle of antennae, single. Head seta 5-C single, rarely double; 6-C 2-4 branched (Fig. 307b). *Thorax*: Prothoracic seta 1-P long, triple; 2-P medium, single; 3-P short, triple. *Abdomen*: Irregular row of 8-12 comb-scales (Fig. 307c); individual comb-scale gradually tapered from base, rounded apically, fringed with very short spinules (Fig. 307d). Siphonal index 2.5-3.0, acus detached from the base (Fig. 307c); siphon with 20 evenly spaced pecten-teeth reaching near middle of siphon; siphonal tuft inserted distal to pecten-teeth, triple (Fig. 307c). Anal-saddle extends ½ down sides (Fig. 307c). **Similar Species:** The Anal papillae of

*Ae. triseriatus* are not bulbous, dorsal pair are longer than the ventral pair, and the acus is attached to the siphon, whereas the anal papillae and acus on *Ae. hendersoni* are as above.

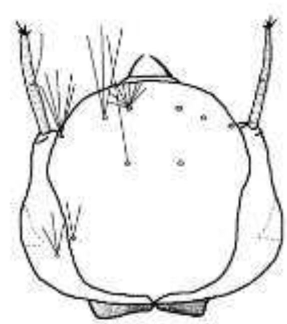
**Biology:** *Phenology*: Multivoltine, this species may have more than one generation each season depending on rainfall and suitable habitat for larval development (Wood et al. 1979). *Overwintering stage*: Eggs overwinter in tree-holes (Wood et al. 1979). *Larval habitat*: The larvae occur in tree-holes created by limbs that have abscised forming a small cavity for water to pool. This species prefers deciduous trees (Carpenter and LaCasse 1955). In Colorado, it is restricted to the lower elevations and typically collected in areas with mature trees such as cottonwoods and elms. *Host preference*: Mammals. *Medical importance*: *Aedes hendersoni* is highly susceptible to oral infection of LACV, however due to its salivary glands not being able to transmit the virus through biting; it is not a competent vector of LACV (Paulson et al. 1992).

**Comments:** *Aedes hendersoni* is a tree-hole species, completing its immature stages (egg, larva, and pupa) within the tree-hole. The adult females readily come to $CO_2$-baited light traps and can be avid biters as this species will readily enter buildings for a blood meal (Carpenter and LaCasse 1955, Harmston and Lawson 1967). The abundance of this species is dependent on rainfall and the tree's production of sap year-to-year (Harmston and Lawson 1967). *Aedes hendersoni* is not a rare species along the Front Range, but certainly less common in Colorado than in eastern regions of the country due to the state's dry climate and lack of extensive deciduous forests. As the riparian gallery forests and urban forests increase in the region, it is expected that abundance of this species will increase. Some records for this species may actually be misidentified specimens of the local but less common *Ae. triseriatus*. The two species are sympatric throughout much of North America, and have been found to be spatially separated vertically, with *Ae. hendersoni* showing a preference for tree-holes in the canopy, whereas *Ae. triseriatus* prefers water containers at or near ground level (Gallaway and Brust 1982).

**Distribution:** *Aedes hendersoni* is distributed throughout the central and eastern United States and parts of the western United States and southern Canada (Breland 1960, Harmston and Lawson 1967, Darsie and Ward 2005). In Colorado, Harmston and Lawson (1967) reported this species from Adams, Arapahoe, Boulder, El Paso, Larimer, and Weld counties. Additional records are available from Broomfield, Denver, Douglas, Garfield, Jefferson, Morgan, and Pueblo counties (Fig. 307e).



**a.**



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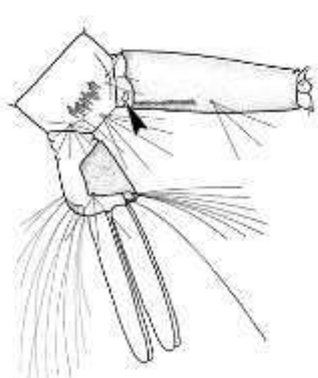

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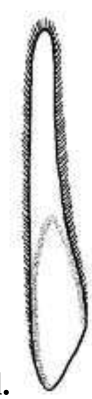


**d.**


**e.**

**Figure 307a-e.** *Aedes hendersoni*. a) Scale pattern on the scutum; b) Setal arrangement/branching of the head; c) Distal segments of the abdomen; d) Comb-scale; e) County records for *Ae. hendersoni*. Dark-grey = Harmston and Lawson (1967); light-grey = post 1967 surveys.

## *Aedes hexodontus* Dyar

**Original Description:** Dyar, 1916: 83.

**Adult Female:** *Head*: Proboscis dark-scaled. *Thorax*: Scutum covered in yellowish-white to yellowish-brown scales with median area of darker scales (in some specimens two distinct median lines of brown scales); proepisternum ventrally with pale scales; postprocoxal scales present; mesepimeron scales extend to ventral margin; mesepimeron setae present; mesokatepisternum scales extend to anterior margin; hypostigmal scale patch absent. *Wing*: Veins with narrow dark scales, patch of pale scales present at base of costa. *Legs*: Tarsi dark-scaled, proximal segments usually speckled with few pale scales. *Abdomen*: Tergites dark-scaled with basal transverse bands of white scales; tergite VII mostly dark-scaled with basolateral patches of white to pale scales (Fig. 308a); sternites entirely pale scaled (sometimes speckled with few dark scales). **Similar Species:** Tergites VII and VIII of *Ae. schizopinax* are primarily white to pale-scaled, whereas VII and VIII on *Ae. hexodontus* are primarily dark-scaled with a narrow basal band of white scales. The sternites on *Ae. punctor* have white to pale scales basally and dark scales arising apically forming a triangular-shaped patch of scales, while in *Ae. hexodontus* the sternites are usually white to pale-scaled, lacking dark scales.

**Fourth Instar Larvae:** *Head*: Head seta 5-C and 6-C usually double sometimes single (Fig. 308b); 7-C 3-6 branched. *Thorax*: Prothoracic seta 1-P long, 2-3 branched; 2-P long, single; 3-P medium, 2-3 branched; 4-P short, single; 5-P long, 2-4 branched, rarely single; 6-P long, single; 7-P long, 3-4 branched (Fig 308b). *Abdomen*: Single row of 5-6 comb-scales (Fig. 308c); comb-scale thorn-shaped with small lateral spinules basally (Fig. 308d). Siphonal index 3.0; siphon with 10-20 evenly spaced pecten-teeth on basal $\frac{1}{3}$-$^{2}/_{5}$; siphonal tuft inserted distal to pecten-teeth, 3-8 branched (Fig. 308c). Anal segment completely ringed by anal-saddle (Fig. 308c). **Similar Species:** Head seta 5-C and 6-C on *Ae. trivittatus* are single and the pecten-teeth extend beyond the middle of the siphon, whereas head seta 5-C and 6-C on *Ae. hexodontus* are usually double and the pecten-teeth do not extend beyond the middle of the siphon.

**Biology:** *Phenology*: Univoltine. *Overwintering stage*: This species passes the winter in the egg stage and hatching will occurs at water temperatures just above freezing (Wood et al. 1979). *Larval habitat*: The larvae often occur in high numbers and occupy variety of freshwater habitats (Wood et al. 1979). In the mountains of Colorado the larvae of this species occupy, but are not limited to, clear clean small temporary pools, ditches, inundated small basins in or near forested areas, dense groves of willows in the riparian zone, and flooded grassy meadows created and maintained by snowmelt and spring run-off (Harmston and Lawson 1967). Wood et al. (1979) also reported that *Ae. hexodontus* can also be collected in temporary pools highly enriched with organic material such as algal blooms. *Host preference*: Mammals. *Medical importance*: This species has tested positive for SSHV (McLean et al. 1977), and Northway virus (NORV) (McLean et al. 1977, Kramer et al. 1993b), however it is not a competent vector of the latter virus. In a study conducted in California, *Ae. hexodontus* has been reported as a competent vector of various strains of JCV, where the adult female was capable of transmitting the viruses 20-25% of the time (Kramer et al. 1993a). Outside of the United States, this species has been collected and tested positive for California serogroup viruses, specifically Inkoo virus (INKV) in Western Siberia (Mitchell et al. 1993).

**Comments:** Similar to Harmston and Lawson (1967), the additional records for this species were collected in counties at altitudes exceeding 8,000 ft. (2,435 m.). *Aedes hexodontus* emergence occurs in early spring as the larvae develop rapidly (Wood et al. 1979), however emergence can be delayed later into the summer months (Carpenter and LaCasse 1955, Harmston and Lawson 1967). The adult females readily come to $CO_2$-baited light traps and can be an important nuisance species when numbers are high, as they are persistent biters in the evening and throughout the day in shaded areas.

**Distribution:** *Aedes hexodontus* is primarily distributed throughout the mountainous regions of western North America and in the northern Canadian provinces (Carpenter and LaCasse 1955, Darsie and Ward 2005). Harmston and Lawson (1967) reported this species from Boulder, Clear Creek, Gunnison, Jackson, Larimer, Mesa, Park, Pitkin, and Summit counties. Additional records are available from Eagle, Garfield, Jefferson, Lake, Montezuma, Saguache, and San Juan counties (Fig. 308e).

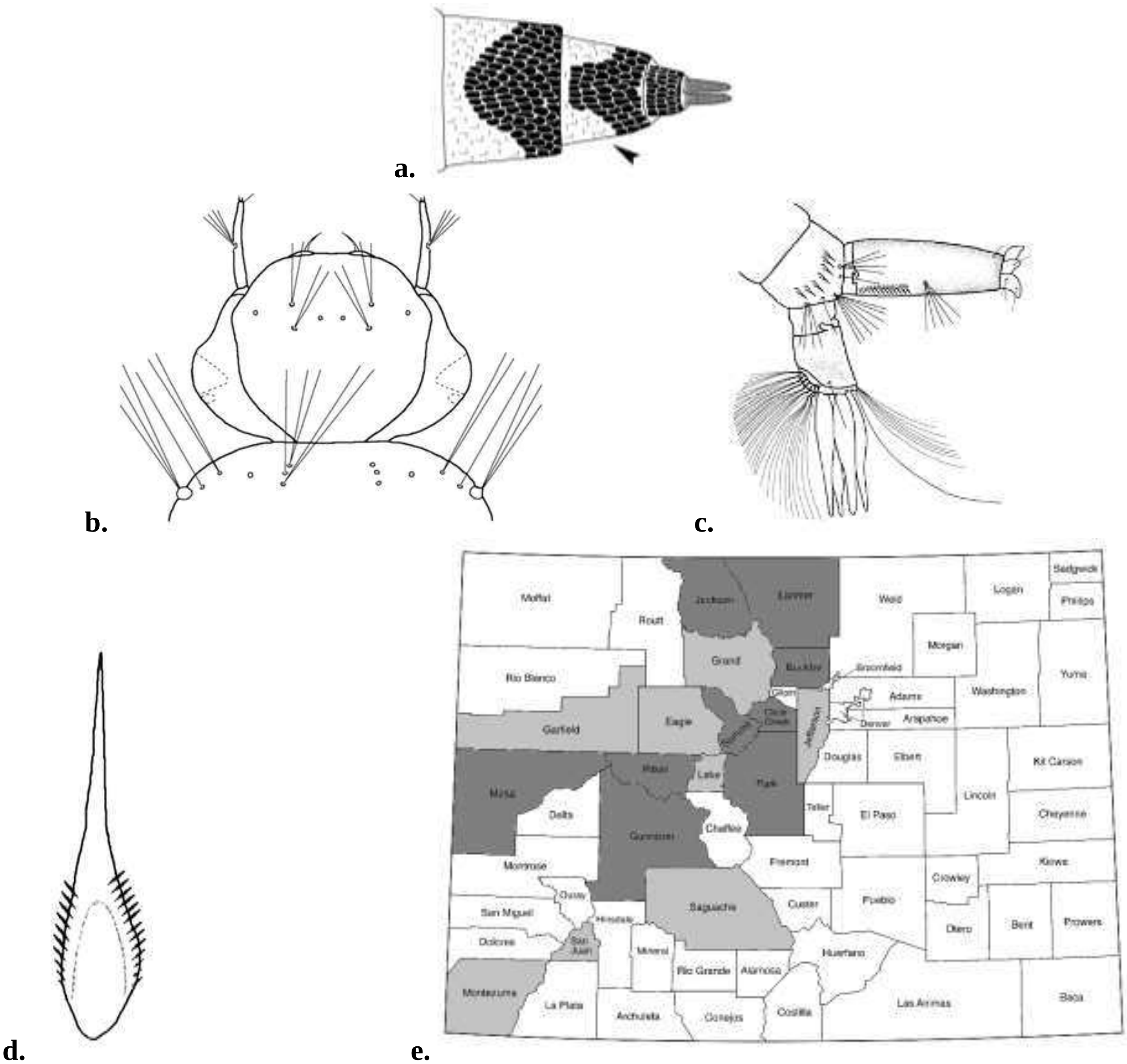



**Figure 308a-e.** *Aedes hexodontus*. a) Segment VII with basolateral patches of white to pale scales; b) Head and thoracic setal arrangement/branching; c) Distal segments of the abdomen; d) Comb-scales; e) County records for *Ae. hexodontus*. Dark-grey = Harmston and Lawson (1967); light-grey = post 1967 surveys.

## *Aedes impiger* (Walker)

**Original Description:** Walker, 1848: 6 [as *Culex*].

**Adult Female:** *Head*: Proboscis dark-scaled. *Thorax*: Scutum covered with bronze-brown scales, anterior and lateral margins, and prescutellar space with yellowish-white scales, scutum with many longer black setae giving it a "hairy" appearance. Postpronotum with setae scattered over posterior ½ (Fig. 310a); mesokatepisternum scale patch not extending to anterior margin; mesepimeron scales extend to near ventral margin; lower mesepimeron setae present; hypostigmal scale patch absent; postprocoxal patch present (Fig. 310a). *Wing*: Veins with narrow dark scales, base of costa usually with a patch of pale scales. *Legs*: Tarsi dark-scaled. *Abdomen*: Tergites dark-scaled with basal transverse bands of white scales; sternites primarily white-scaled, with some sternites dark-scaled apically. **Similar Species:** The scutum of *Ae. hexodontus*, *Ae. punctor*, *Ae. implicatus*, and *Ae. pionips* has few setae and lacks a "hairy" appearance, whereas the scutum of *Ae. impiger* has many longer black setae giving a "hairy" appearance.

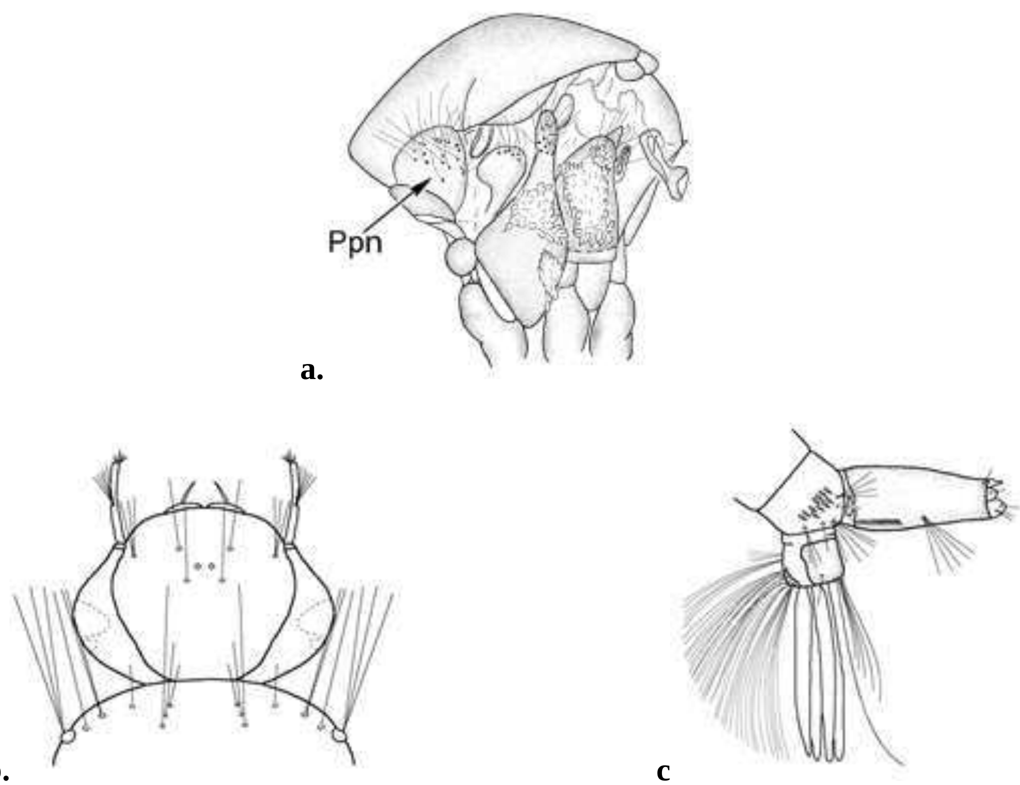
**Fourth Instar Larvae:** *Head*: Head seta 5-C and 6-C long, single; 7-C long, 2-4 branched reaching insertion of antennal tuft (Fig. 310b). *Thorax*: Prothoracic seta 1-P long, single; 2-P medium, single; 3-P short, 1-2 branched (Fig. 310b). *Abdomen*: Two irregular rows of 8-16 comb-scales (Fig. 310c); individual comb-scale with median spine, lateral spinules ½ the length of the median spine (Fig. 310d). Siphonal index 3.0, tapered from near base; siphon with 11-18 evenly spaced pecten-teeth on basal $^{1}/_{3}$ of siphon; siphonal tuft inserted distal to pecten-teeth near or just before middle of siphon, multibranched, longer than basal diameter of siphon (Fig. 310c).

Anal-saddle extends ½ or slightly more down sides (Fig. 310c). **Similar Species:** The comb-scales of *Ae. communis* and *Ae. implicatus* number more than 18, whereas *Ae. impiger* has less than 18 comb-scales. Head seta 5-C and 6-C on *Ae. pullatus, Ae. schizopinax,* and *Ae. fitchii* are multi-branched, while on *Ae. impiger* head seta 5-C and 6-C are usually single.

**Biology:** *Phenology*: Univoltine (Wood et al 1979). *Overwintering stage*: Egg (Wood et al. 1979). *Larval habitat*: *Aedes impiger* can be collected in a variety of snowmelt pools at elevations greater than 7,000 ft. (2130 m) (Carpenter and LaCasse 1955). The larvae of this species occupy some of the first habitats created by the early spring melt events at higher elevations (Carpenter and LaCasse 1955, Harmston and Lawson 1967). Sometimes this species can be collected in rock pools with vegetation and in snowmelt pools directly abutting snowbanks (Carpenter and LaCasse 1955, Harmston and Lawson 1967). *Host preference*: Mammals. The species is known to bite humans (Carpenter and LaCasse 1955, Harmston and Lawson 1967, Wood et al. 1979, Reeves et al. 2013). *Medical importance*: In a study conducted in Greenland, two adult pools of *Ae. impiger* tested positive for *Orthobunyavirus* (Reeves et al. 2013), which is a virus transmitted to cattle. In Colorado, this species is not considered medically important.

**Comments:** This species is uncommon in Colorado and restricted to the high mountains. Harmston and Lawson (1967) reported collecting this species in high mountain pools associated with *Ae. pullatus* and *Ae. hexodontus,* with the adults *Ae. impiger* emerging approximately a week or two before the latter species, as *Ae. impiger* immature stages are completed rapidly relative to the two former species listed above (Wood et al. 1979). The adult females readily come to $CO_2$-baited light traps and can be a nuisance as they actively seek a blood meal throughout the day in shaded areas and full sunlight, since it typically occurs above timberline or treeless regions of the world (Carpenter and LaCasse 1955, Wood et al. 1979). In Colorado, this species is of little medical and economic importance.

**Distribution:** *Aedes impiger* is a primarily an Arctic species with its northern distribution covering the treeless regions of northern Alaska and Canada, extending southward with a disjunct distribution into some high mountain areas of the western United States as far south as Utah and Colorado (Carpenter and LaCasse 1955, Darsie and Ward 2005). In Colorado, Harmston and Lawson (1967) reported this species from Grand, Gunnison, Jackson, and Larimer counties. An additional record is now available from Lake County (Fig. 310e).




a.

b.

c

d.


e.

**Figure 310a-e.** *Aedes impiger*. a) Lateral thorax with placement of scale patches and setae; b) Head and prothoracic setae branching/arrangement; c) Distal segments of abdomen; d) Comb-scale; e) County records for Ae. impiger. Dark-grey = Harmston and Lawson (1967); light-grey = post 1967 surveys.

## *Aedes implicatus* Vockeroth

**Original Description:** Vockeroth, 1954: 110.

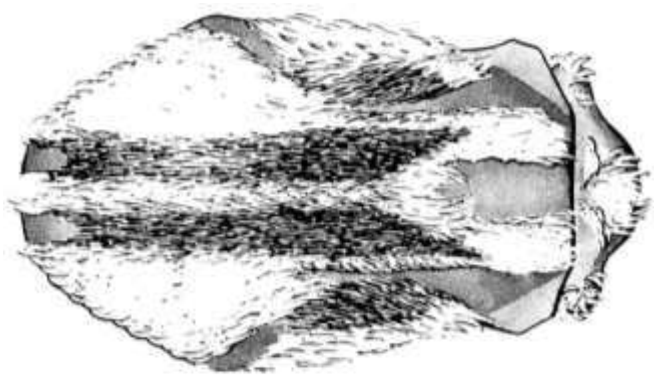
**Adult Female:** *Head*: Proboscis dark-scaled. *Thorax*: Scutum with median paired stripes or single broad median stripe of brown scales (Fig. 311a). Mesokatepisternum scales extend approximately half-way to anterior margin; mesepimeron scales extend to near ventral margin; lower mesepimeron setae present; hypostigmal scale patch usually present of only few scales; postprocoxal scale patch present (Fig. 311b). *Wing*: Veins with narrow dark scales, base of costa with patch of few white scales. *Legs*: Tarsi dark-scaled, first segment streaked with pale scales. *Abdomen*: Tergites dark-scaled with basal transverse bands of white scales; sternites white-scaled. **Similar Species:** *Aedes cataphylla* has a densely scaled hypostigmal patch and the base of the costal vein has a prominent patch of white scales, whereas *Ae. implicatus* has the hypostigmal scale patch of just a few scales, and the costal vein has only a small patch of white scales at the base. The postpronotum on *Ae. impiger* has setae scattered on the posterior ½ and a scutum with many long black setae giving a "hairy" appearance, whereas the postpronotum on *Ae. implicatus* has a single or double row of setae and the scutum lacks long "hairy" setae.

**Fourth Instar Larvae:** *Head*: Head seta 5-C, 1-2 branched; 6-C single (Fig. 311c). *Thorax*: Prothoracic seta 1-P long, single; 2-P medium, single; 3-P short, 1-2 branched (Fig. 311c). *Abdomen*: Patch of 25-35 comb-scales (Fig. 311d); individual comb-scale fringed with stout spinules, median spinule slightly longer and stouter. Siphonal index 3.0-3.5; siphon with 18-24 evenly spaced pecten-teeth on basal $^{2}/_{5}$ of siphon; siphonal tuft inserted distal to pecten-teeth at middle of siphon, triple (sometimes 2 or 4 branched). Anal-saddle extends $^{2}/_{3}$ down sides, anal-saddle posteriorly spiculate. **Similar Species:** Prothoracic setae 1-P and 3-P are usually double and head seta 5-C is usually double (rarely single or triple) in *Ae. increpitus*, whereas 1-P and 3-P are usually single and 5-C is usually single (rarely double) in *Ae. implicatus*.

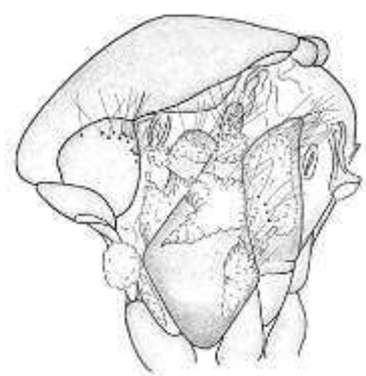
**Biology:** *Phenology*: Univoltine (Wood et al. 1979). *Overwintering stage*: Egg (Wood et al. 1979). *Larval habitat*: The larvae occupy temporary snowmelt pools in grassy meadows and forested areas, and pools created by spring run-off along steams usually protected by willows (Smith 1965, Harmtson and Lawson 1967, Wood et al. 1979). *Host preference*: Mammals. *Medical importance*: McLintock et al. (1976) isolated SSHV from larvae reared to the adult stages that were from samples collected in Canada. The virus likely overwinters in the larval stage (which acts as a reservoir) in the cooler, temperate climate of northern Canada (McLintock et al. 1976). In Colorado, this species is not medically important.

**Comments:** This species emerges in late May and persists through late June to early July. The adult females readily come to $CO_2$-baited light traps and are active seeking a blood meal in shaded areas during the day, and into the night (Carpenter and LaCasse 1955). When *Ae. implicatus* is abundant, it can be an annoying pest (Carpenter and LaCasse 1955). In Colorado, this species is not considered to be an important pest, as it is uncommon and restricted to elevations of 7,000 ft. (2,130 m.) and higher.

**Distribution:** *Aedes implicatus* is primarily distributed throughout Canada and Alaska with its range extending into the northern United States and as far south as New Mexico and Arizona (Carpenter and LaCasse 1955, Darsie and Ward 2005). In Colorado, Harmston and Lawson (1967) reported this species from Gunnison, Jackson, Larimer, Park, Pitkin, San Juan, and San Miguel counties. Additional records are available from Chaffee, Eagle, Gilpin, Grand, Jefferson, Lake, Moffat, and Summit counties (Fig. 311e).



**a.**



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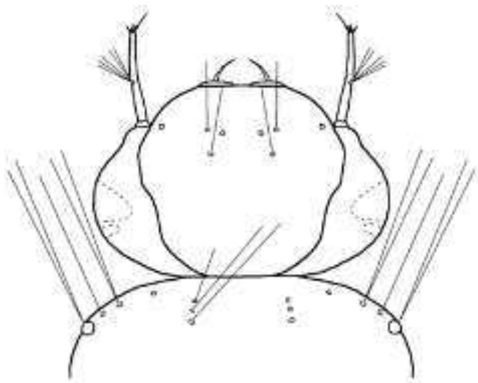

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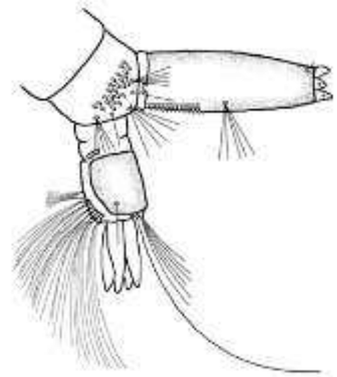


d.


e.

**Figure 311a-e.** *Aedes implicatus*. a) Scale pattern of the scutum; b) thoracic characters; c) Head and thoracic setae arrangement/branching; d) Distal segments of the abdomen; e) County records for *Ae. implicatus*. Dark-grey = Harmston and Lawson (1967); light-grey = post 1967 surveys.

### *Aedes increpitus* Dyar

**Original Description:** Dyar, 1916: 87.

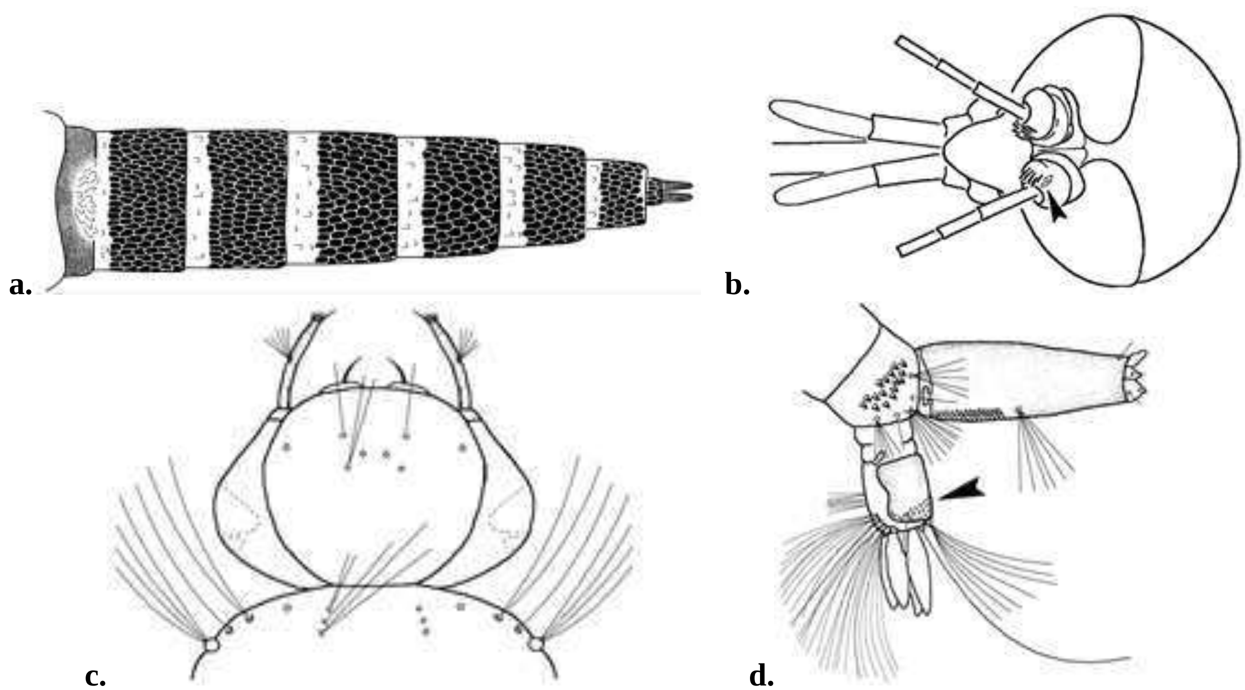
**Adult Female:** *Head*: Proboscis dark-scaled; palpi dark-scaled, apices of segments with white or pale scales. *Thorax*: Scutum usually with median stripe of narrow brown scales, submedian areas of scutum with mixed yellowish-white and brown scales, anterior and prescutellar space with yellowish-white scales. *Wing*: Veins with narrow brown scales with few pale scales intermixed. *Legs*: Hind tarsi with broad basal bands of white scales. *Abdomen*: Tergites dark-scaled with basal transverse bands of white scales widening laterally (Fig. 312a); sternites white-scaled, with lateral black patches of scales on each segment. **Similar Species**: The pedicel of *Ae. fitchii* has many pale scales that extend to the dorsal surface, whereas the pedicel of *Ae. increpitus* has only a few pale-scales restricted to the inner surface (Fig. 312b). The tooth on the foreclaw of *Ae. excrucians* is approximately $^2/_3$ the length of the main claw and subparallel to the claw, while the tooth on the foreclaw of *Ae. increpitus* is less than ½ the length of the main claw, which curves gradually from the base creating an obtuse angle with the tooth.

**Fourth Instar Larvae:** *Head*: Head seta 5-C, 2-3 branched (rarely single or 4-branched); 6-C, 1-2 branched (sometimes triple) (Fig312c). *Thorax*: Prothoracic seta 1-P long, double (rarely single); 2-P medium, single; 3-P short, double (Fig. 312c). *Abdomen*: Patch of 20 or more comb-scales (Fig. 312d); individual comb-scale fringed laterally with small spinules, apically with subequal spinules, median spine slightly longer and stouter. Siphonal index 3.0-3.5; siphon with 16-24 evenly spaced pecten-teeth on basal $^1/_3$ of siphon; siphonal tuft inserted distal to pecten-teeth, 3-7 branched. Anal-saddle extends $^2/_3$-$^3/_4$ down sides, coarsely spiculate apically (Fig. 312d). **Similar Species:** Head seta 5-C on *Ae. melanimon* and *Ae. dorsalis* is single and the pecten-teeth extend to the middle of the siphon, while 5-C on *Ae*. *increpitus* is usually double, and the pecten-teeth are restricted to the basal $^1/_3$ of the siphon. On *Ae. implicatus* the anal-saddle lacks course spicules, prothoracic seta 1-P and 3-P are single, and head seta 5-C is usually single, whereas the anal-saddle on *Ae. increpitus* has course spicules, 1-P and 3-P are usually double, and 5-C is usually double.

**Biology:** *Phenology*: Likely univoltine, however, this species could be bivoltine, as larvae were collected in August after the spring generation had emerged and the larval habitat dried out. However, when the same habitat was flooded again, larvae were again present (Wood et al. 1979). *Overwintering stage*: This species passes the cooler months and winter as eggs (Wood et al. 1979). *Larval habitat*: The larvae of *Ae. increpitus* often occur in high numbers in a variety temporary and permanent basins filled and maintained by spring run-off of rising rivers and streams, irrigational run-off, snowmelt, and heavy precipitation events. *Host preference*: Mammals. *Medical importance*: Kramer et al. (1992) stated that *Ae. increpitus* from California alpine populations are susceptible to CEV and CEV-like viruses but transmission of the viruses was less than three percent. In a study occurring the following year, Kramer et al. (1993a) reported that this species is susceptible to strains of JCV, but apparently acts as a poor vector.

**Comments:** The adults emerge throughout the spring and early summer, and some years may persist later into the season, with some records of adult females as late as August. Since *Ae. imcrepitus* is common and persists throughout much of the summer season, this species is one of the most important nuisance species in Colorado. The adult females readily come to $CO_2$-baited light traps and are most active at dusk, but have been observed seeking blood meals throughout the day, whether clear and sunny or shaded and cloudy.

**Distribution:** *Aedes increpitus* is primarily distributed in the western United States and southwestern Canada, from the Sierra Nevada mountains eastward to western South Dakota, and south to New Mexico and Arizona (Carpenter and LaCasse 1955; Darsie and Ward 2005). This species is widely distributed in Colorado. Harmston and Lawson (1967) reported this species from Adams, Eagle, Garfield, Gunnison, Jackson, Jefferson, La Plata, Larimer, Mesa, Moffat, Montezuma, Ouray, Park, Routt, San Miguel, and Weld counties. Harmston and Lawson (1967) collected this species at elevation range of 4,000-10,000 ft. (1,219.2-3,048.0 m.) with it common in woodland areas, foothills, and the mountain valleys of Colorado. Additional records are available from Arapahoe, Boulder, Broomfield, Chaffee, Denver, Douglas, El Paso, Lake, Montrose, Morgan, Pitkin, Pueblo, Teller, and Yuma counties (Fig. 312e).




**e.**

**Figure 312a-e.** *Aedes increpitus*. a) Scale pattern of the tergites; b) Pedicel with few scales on the inner surface; c) Head and thoracic setae arrangement/branching; d) Distal segments of the abdomen; e) County records for *Ae. increpitus*. Dark-grey = Harmston and Lawson (1967); light-grey = post 1967 surveys.

## *Aedes intrudens* Dyar

**Original Description:** Dyar, 1919: 23.

**Adult Female:** *Head*: Proboscis dark-scaled. *Thorax*: Scutum unicolorous, clothed in bronze-brown narrow curved scales (Fig. 313a). Mesokatepisternum scale patch not reaching anterior margin, extends ½-⅔ across; mesepimeron with lower $^1/_4$-$^1/_3$ bare; lower mesepimeron setae present; hypostigmal scale patch present or absent; postprocoxal scale patch absent (Fig 313b). *Wing*: Veins with narrow dark-brown scales, base of costa with or without small patch of white scales. *Legs*: Tarsi dark-scaled, first tarsal segment with few pale scales intermixed. *Abdomen*: Tergites dark-scaled, with basal transverse bands of white scales slightly widening laterally; sternites grayish-white scaled. **Similar species:** The scale patch on the mesepimeron of *Ae. pullatus* extends to near the ventral margin, whereas the lower $^1/_4$-$^1/_3$ is bare on *Ae. intrudens*.

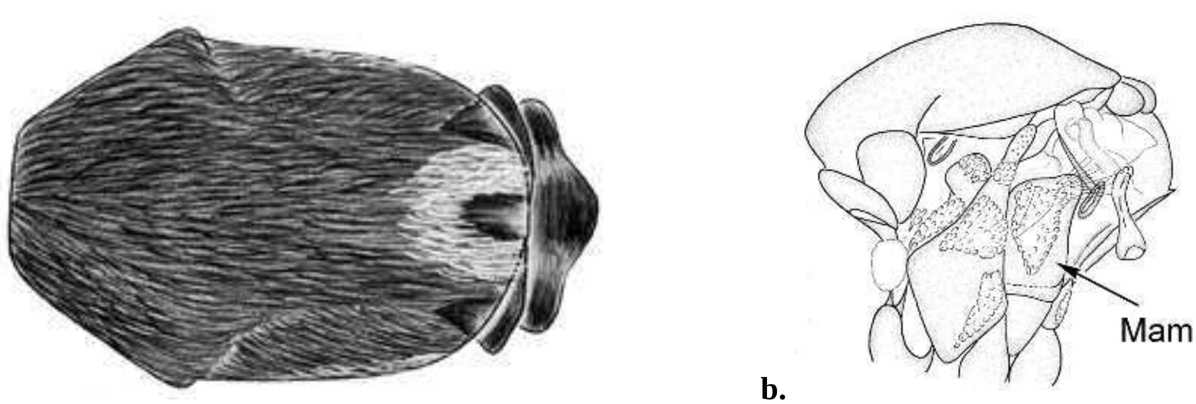
*Aedes implicatus* has a postprocoxal scale patch present, lacking in *Ae. intrudens.* The mesokatepisternum scale patch on *Ae. communis* extends to the anterior margin, while the mesokatepisternum only extends ½-⅔ across on *Ae. intrudens*.

**Fourth Instar Larvae:** *Head*: Head seta 5-C, 3-4 branched; 6-C, 2-3 branched (Fig. 313c); 7-C multibranched, long, extending beyond insertion of antennal tuft. *Thorax*: Prothoracic seta 1-P long, single; 2-P short, single; 3-P short, 2-4 branched; 4-P short, single; 5-P and 6-P long, single; 7-P long, double (Fig. 313c). *Abdomen*: Irregular double row of 12-16 comb-scales (Fig. 313d); individual comb-scale with strong apical spine and minute basolateral spinules (Fig. 313e). Siphonal index 3.0; siphon with 13-18 pecten-teeth on basal ½- $^3/_5$ of siphon, 1-3 detached pecten-teeth; siphonal tuft inserted distal to pecten-teeth (sometimes near base of distal tooth), 4-10 branched (Fig. 313d). Anal-saddle extends $^3/_4$-$^7/_8$ down sides; ventral margin of anal-saddle deeply incised (Fig. 313d). **Similar Species:** The anal saddle of *Ae. vexans* is not deeply incised and the siphonal tuft is short, while the anal-saddle on *Ae. intrudens* is deeply incised and the siphonal tuft is as long or longer than the basal diameter of the siphon.

**Biology:** *Phenology*: Univoltine. *Overwinter stage*: Egg. *Larval habitat*: The larvae occupy deeper temporary and permanent pools in grassy meadows and forested areas created by snowmelt and stream run-off during early spring in Colorado's high country. The larvae also occur in shallow basins such as roadside ditches that are adjacent to forested areas (Carpenter and LaCasse 1955, Wood et al. 1979). *Host preference*: Mammals. Persistent biter of humans and known to enter dwellings to seek a blood meal (Wood et al. 1979). *Medical importance*: In a two-year study conducted in New York City during 1988 and 1989, a single isolate of JCV was obtained from *Ae. intrudens*, but not considered a primary vector (Boromisa and Grayson 1990).

**Comments:** *Aedes intrudens* is well adapted to the high mountains of Colorado. Harmston and Lawson (1967) reported this species occurring at elevations of 8,000 ft. (2,435 m.) or higher. Wood et al. (1979) stated that this species emerges early in the spring, before *Ae. communis* or *Ae. punctor* which it is commonly associated with in its larval habitat. The adult females readily come to $CO_2$-baited light traps and are persistent biters of humans, seeking a blood meal at all times during the day. As *Ae. intrudens* is short-lived (Wood et al. 1979) and due to its relatively low abundance, this species is not an important pest in Colorado.

**Distribution:** *Aedes intrudens* is primarily distributed across the northern latitudes of North America with its range extending into Alaska to the north and Colorado to the south (Carpenter and LaCasse 1955, Darsie and Ward 2005). In Colorado, Harmston and Lawson (1967) reported this species from Grand and Larimer counties. *Aedes intrudens* is relatively uncommon in Colorado, with additional records available from Eagle, Garfield, Gunnison, Jackson, Lake, Moffat, Pitkin, and Routt counties (Fig. 313f).

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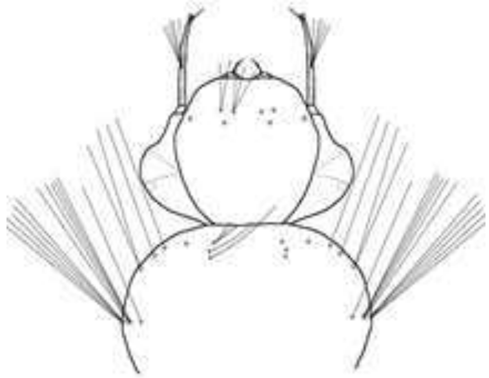

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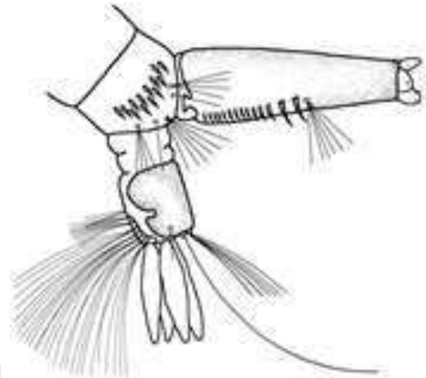


d.

e.


f.

**Figure 313a-f.** *Aedes intrudens*. a) Note the uniform scale color on the scutum; b) Thoracic characters; c) Head and thoracic setal branching; d) Distal segments of the abdomen; e) Comb-scale; f) County records for *Ae. intrudens*. Dark-grey = Harmston and Lawson (1967); Light-grey = post 1967 surveys.

## *Aedes melanimon* Dyar

**Original Description:** Dyar, 1924b: 126.

**Adult Female:** *Head*: Proboscis dark-brown scaled, with few pale scales on basal aspect.

*Thorax*: Scutum marked with median stripe of brown lanceolate scales, sometimes intermixed with yellowish-white scales; remainder of scutum usually covered in yellowish-white lanceolate scales. *Wing*: Veins with narrow brown to brownish-black scales, intermixed with pale scales; costa primarily dark-scaled (Fig. 314a). *Legs*: Hind tarsal segments 1-3 dark-scaled with basal and apical rings of white scales, segment 4 dark-scaled with basal ring of white scales, few apical white scales, segment 5 primarily white-scaled. *Abdomen*: Tergites primarily black-scaled with a longitudinal stripe of white scales, and each tergite with narrow apical and basal bands of white scales (Fig. 314b). **Similar Species:** The costal vein of *Ae. dorsalis* and *Ae. campestris* is primarily pale-scaled with few dark scales intermixed, whereas the costal vein of *Ae. melanimon* is primarily dark- scaled, intermixed with few pale-white scales.

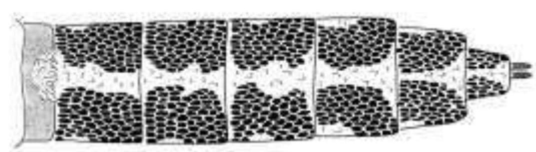
**Fourth Instar Larvae:** *Head*: Head seta 5-C single; 6-C single (seta 5-C and 6-C sometimes double) (Fig. 314c). *Thorax*: Mesothoracic seta 1-M and 2-M short, 2-branched (Fig. 314c). *Abdomen*: Triangular patch of 16-27 comb-scales; individual comb-scale with strong apical spine, fringed with smaller spinules laterally (Fig. 314d). Siphonal index 2.5-3.0; siphon with 16-28 pecten-teeth on basal ½; siphonal tuft inserted distal to pecten-teeth slightly beyond middle of siphon. Anal-saddle extends ½ down sides. **Similar Species:** Mesothoracic seta 1-M on *Ae. dorsalis* is long and usually double, whereas 1-M on *Ae. melanimon* is short and double. The pecten spines on *Ae. increpitus* are only on the basal 1/3 of the siphon, and the anal saddle has coarse spicules apically, whereas the pecten spines on *Ae. melanimon* extend ½ the length of the siphon and the anal saddle lacks coarse spicules.

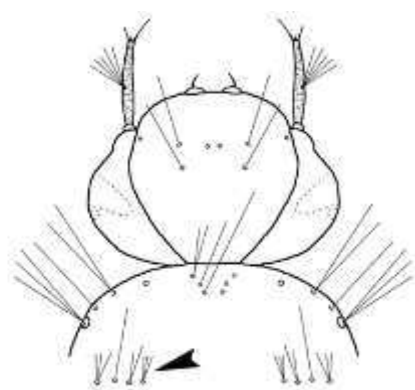
**Biology:** *Phenology*: Multivoltine, this species is capable of producing more than one generation per year (Wood et al. 1979). *Overwintering stage*: This species passes the winter in the egg stage (Wood et al. 1979). *Larval habitat*: The larvae occur in temporary and permanent pools created and maintained by snowmelt, stream run-off, agricultural irrigation, and heavy precipitation events. The larva have been collected in ditches, a variety of wetland habitats such as grassy meadows and marshes, and along streams after spring run-off when the streams recede creating temporary pools along the margins. *Host preference*: Mammals. Harmston and Lawson (1967) found that this species feeds primarily on cattle, and occasionally on horses and other mammals. *Medical importance*: *Aedes melanimon* is a vector of CEV and CE-like viruses in California (Reeves et al. 1983, Jensen and Washino 1991, Kramer et al. 1992), a vector of WEEV in California (Hardy 1987, Jensen and Washino 1991, Turell et al. 2005). *Aedes melanimon* may also serve a minimal role as a secondary bridge vector of WNV (Goddard et al. 2002, Turell et al. 2005).

**Comments:** The adult females of this species readily come to $CO_2$-baited light traps and can be a nuisance when abundant. The females of *Ae. melanimon* most aggressively seek blood meals at dusk, but have been observed biting during the day in shaded areas as well (Harmston and Lawson 1967). Godsey et al. (2010) reported primary host seeking activity occurred for *Ae. melanimon* shortly after sunset to six and a half hours after sunset, followed by continued host seeking throughout the night. This species is common statewide throughout the season, but absent from montane, sub-alpine, and alpine environments (Baker et al. 2009). Since *Ae. melanimon* is considered a potential vector of CE, WEEV, and a secondary bridge vector of WNV, and rather abundant throughout the state, it is considered an economically and medically important species in Colorado.

**Distribution:** *Aedes melanimon* is primarily a western species, extending into southwestern Canada to the north, ranging east to western Nebraska, and south to New Mexico and southern California (Carpenter and LaCasse 1955, Darsie and Ward 2005). In Colorado, this species is widespread. Harmston and Lawson (1967) reported *Ae. melanimon* from Costilla, La Plata, Mesa, Montezuma, Sedgwick, and Weld counties. Additional specimens have been collected from Adams, Alamosa, Arapahoe, Bent, Boulder, Broomfield, Denver, Douglas, Eagle, Garfield, Gunnison, Jackson, Jefferson, Larimer, Logan, Moffat, Montrose, Morgan, Pueblo, Routt, and Saguache counties (Fig. 314e).


**a.**


**b.**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**e.**

**Figure 314a-e.** *Aedes melanimon*. a) Wing with costa primarily dark-scaled; b) Tergites; c) Head and thoracic setae branching; d) Comb-scale; e) County records for *Ae. melanimon*. Dark-grey = Harmston and Lawson (1967); Light-grey = post 1967 surveys.

## *Aedes nigromaculis* (Ludlow)

**Original Description:** Ludlow, 1906b: 83 [as *Grabhamia*].

**Adult Female:** *Head*: Proboscis dark-scaled, with median ring of white to dingy-white scales, sometimes reduced or absent (Fig. 315a). *Thorax*: Scutum with broad median stripe of golden-brown lanceolate scales; dorsal aspect of scutum and prescutellar space with varying shades of yellow lanceolate scales, lateral margins with dark bronze-brown scales (primarily anterior ½). *Wing*: Veins with narrow dark scales, few pale scales intermixed. *Legs*: Hind tarsi dark-scaled, with broad basal bands of white scales (first segment either with narrow-to-broad basal band of white scales, segment 5 entirely white-scales in some specimens. *Abdomen*: Tergites with broad median longitudinal stripe of yellowish-white scales, and basal pale bands expanded laterally, surrounding dark scale patches (Fig. 315b); sternites yellowish-to-white scaled. **Similar**

**Species:** The hind tarsi of *Ae. melanimon* have basal and apical bands of pale scales, whereas the hind tarsi of *Ae. nigromaculis* have only broad basal bands of white scales.

**Fourth Instar Larvae:** *Head*: Head seta 5-C and 6-C long, approximately the length of the antennae, usually single (5-C and/or 6-C sometimes double) (Fig. 315c); 7-C long, reaching beyond insertion of antennal tuft, multibranched. *Thorax*: Prothoracic seta 1-P medium, single; 2-P short, single; 3-P short, single or double (Fig. 315c). *Abdomen*: Irregular row or patch of 6-12 comb-scales (Fig. 315d); individual comb-scale thorn-shaped with small basolateral spinules (Fig. 315e). Siphonal index 2.0-2.5; siphon with 16-23 pecten-teeth extending to apical ⅓ of siphon, with 2-4 detached distal pecten-teeth (Fig. 315d); siphonal tuft inserted distal to pecten-teeth at apical ¼ of siphon, shorter than apical diameter of siphon, 2-5 branched (Fig. 315d). Anal segment completely ringed by anal-saddle (Fig. 315d). **Similar Species:** The pecten-teeth on the siphon of *Ae. trivitattus* and *Ae. hexodontus* are evenly spaced and restricted to the basal ½, whereas the distal 2-to-4 pecten-teeth on *Ae. nigromaculis* are detached and extend to the apical ⅓ of the siphon.

**Biology:** *Phenology*: This species is multivoltine in Colorado especially during wet and warm years. *Overwintering stage*: The egg enters diapause as photoperiod and temperature decrease (Wood et al. 1979). *Larval habitat*: The larvae occur in alkaline temporary pools usually created by agricultural irrigation or heavy precipitation events. Harmston and Lawson (1967) reported this species largely absent from shaded larval habitats, being most abundant in open meadows on the Colorado prairie that are exposed to direct sunlight. *Host preference*: Mammals. *Medical importance*: Hammon and Reeves (1943a) demonstrated laboratory transmission of SLEV by this species, and Blackmore and Winn (1954) reported the first isolation of WEEV in a sample of 20 *Ae. nigromaculis* adult females.

**Comments:** *Aedes nigromaculis* is well adapted to the arid west of the United States, where the eggs hatch as soon as they are flooded and development can be rapid (Harmston and Lawson 1967). The adult females readily come to $CO_2$-baited light traps and are persistent biters while seeking a host. The females are extremely abundant and sometimes the most common species of the eastern plains of Colorado. *Aedes nigromaculis* is also distributed throughout the state, for this reason, *Ae. nigromaculis* is considered an important nuisance pest species in Colorado.

**Distribution:** *Aedes nigromaculis* is primarily distributed in the central and western United States, with its range extending into central regions of Canada to the North, east to the Mississippi River, and into Mexico to the south (Carpenter and LaCasse 1995, Darsie and Ward 2005). In Colorado, Harmston and Lawson (1967) reported this species from Adams, Alamosa, Archuleta, Baca, Bent Chaffee, Costilla, Crowley, Custer, Delta, Eagle, El Paso, Jefferson, Kiowa, Kit Carson, Larimer, Las Animas, Mesa, Moffat, Montezuma, Montrose, Morgan, Park, Prowers, Pueblo, Routt, San Miguel, Sedgwick, Teller, Washington, Weld, and Yuma counties. Additional records have been reported from Arapahoe, Boulder, Broomfield, Denver, Douglas, Garfield, La Plata, and Logan counties (Fig. 315f).

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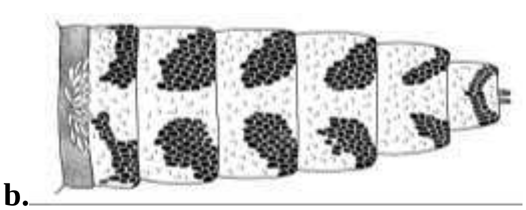
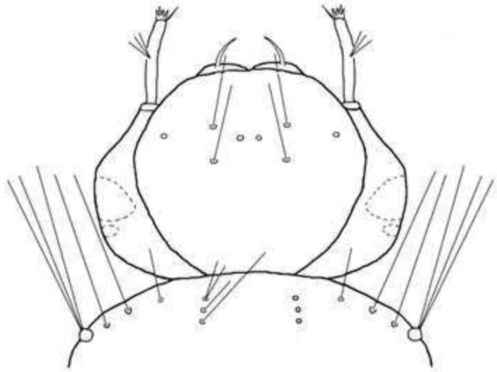
b. 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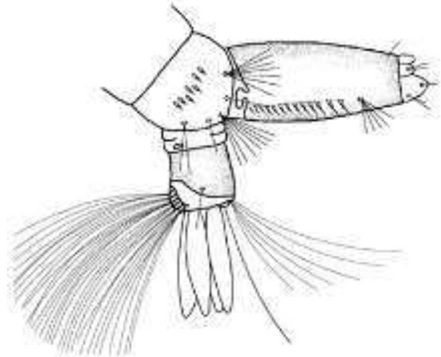
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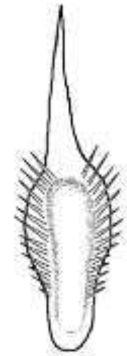
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**Figure 315a-f.** *Aedes nigromaculis*. a) Proboscis with median ring of pale scales; b) Tergites; c) Head and thoracic setae branching; d) Distal segments of the abdomen; e) Comb-scale; f) County records for *Ae. nigromaculis*. Dark-grey = Harmston and Lawson (1967); Light-grey = post 1967 surveys.

## *Aedes niphadopsis* Dyar & Knab

**Original Description:** Dyar and Knab, 1918 (1917): 166.

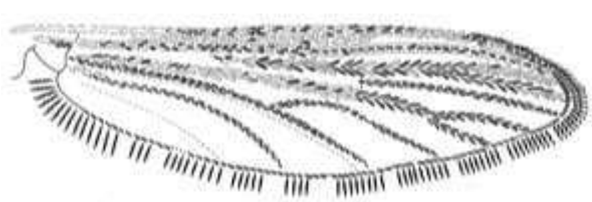
**Adult Female:** *Head*: Proboscis dark-scaled, with white scales intermixed. *Thorax*: Mesokatepisternum scale patch extends to anterior margin; mesepimeron bare on lower ¼; lower mesepimeron setae present, rarely absent; hypostigmal scale patch present; postprocoxal scale patch present. *Wing*: Veins with dark and pale scales intermixed, pale scales more abundant on costa, subcosta, and $R_1$ (Fig. 316a). *Legs*: Legs mostly dark and pale scales intermixed, presenting a grayish appearance. *Abdomen*: Tergites dark-scaled, with broad basal bands of white scales and a median longitudinal stripe of white scales surrounding submedian patches of dark scales (Fig. 316b); sternites white-scaled. **Similar Species:** The tergites on *Ae. cataphylla* are marked by broad basal bands of white scales lacking a median longitudinal stripe of white scales, whereas the tergites on *Ae. niphadopsis* have broad basal bands of white scales and a median longitudinal stripe of white scales surrounding submedian patches of dark scales. *Aedes spencerii* lacks a hypostigmal scale patch, present in *Ae. niphadopsis.*

**Fourth Instar Larvae:** *Head*: Head seta 5-C and 6-C long, single, sometimes 2-branched; 7-C long, reaching near insertion of antennal tuft, multibranched (Fig. 316c). *Thorax*: Prothoracic seta 1-P long, 2-branched; 2-P medium, single; 3-P short, 2-branched (Fig. 316c). *Abdomen*: Irregular single or partial double row of 8-14 comb-scales (Fig 316d); individual comb-scale with subequal spinules approximately ½ the length of apical spine (Fig. 316e). Siphonal index 3.5-4.0; siphon with 8-14 pecten-teeth on basal ⅓, with 1 or 2 distal detached pecten-teeth; siphonal tuft inserted distal to pecten-teeth before middle of siphon, 3-7 branched (Fig. 316d). Anal-saddle extends ½-⅔ down sides. **Similar Species:** The pecten on *Ae. spencerii*, *Ae. idahoensis* and *Ae. cinereus* extends beyond the middle of the siphon, whereas the pecten-teeth on *Ae. niphadopsis* are restricted to the basal ⅓ of the siphon.

**Biology:** *Phenology*: Univoltine. *Overwintering stage*: Egg. *Larval habitat*: The larvae occur in small temporary ground pools and grassy meadows filled by snowmelt, irrigation, and spring run-off by rising rivers and streams (Carpenter and LaCasse 1995). *Host preference*: Mammals. *Medical Importance*: Unknown.

**Comments:** Carpenter and LaCasse (1955) reported this species as being one of the earlier emerging species of western North America, with adult emergence observed in Utah early in the month of May. Late collection records in Jackson County, Colorado could be due to the higher elevations at which the adults were collected (greater than 8,000 ft. at all three trap locations). Adult females can be annoying as they seek blood-meals throughout the day in shaded and full sunlit situations, although most intensely at dusk (Carpenter and LaCasse 1995). *Aedes niphadopsis* is considered rare in Colorado.

**Distribution:** *Aedes niphadopsis* is a western United States species, recorded from portions of California, Idaho, Nevada, Oregon, Utah, and Wyoming (Carpenter and LaCasse 1955, Darsie and Ward 2005). Recent surveying has provided the first records of this species occurring in Colorado from Jackson and Mesa counties. Thirteen female specimens were collected in June 2013 and 4 specimens in early-June 2014 from Jackson County (Rose et al. 2015). The record from Mesa County is based on two females collected in early May 2006 (S. DeFeyter, pers. com.) (Fig. 316f).



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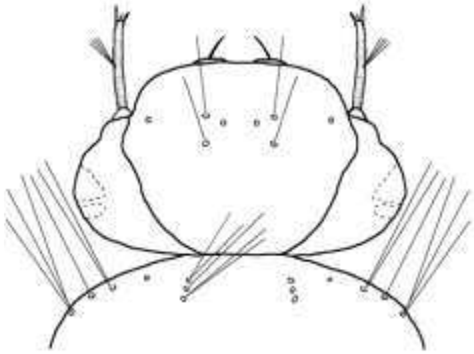

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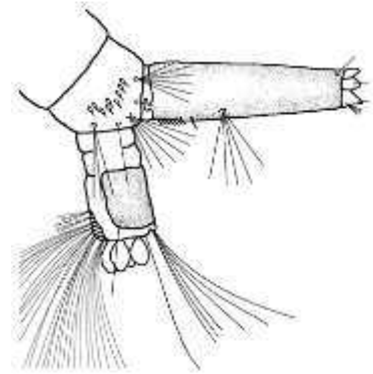

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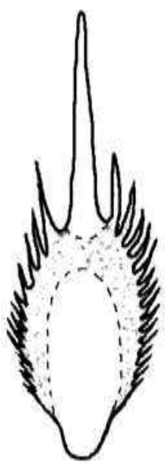

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**Figure 316a-f.** *Aedes niphadopsis*. a) The wing vein scale pattern; b) Scale pattern on the tergites; c) Head and thoracic setae branching; d) Distal segments of the abdomen; e) Comb-scale; County records for *Ae. niphadopsis*. Light-grey = post 1967 surveys.

## *Aedes pionips* Dyar

**Original Description:** Dyar, 1919: 19.

**Adult Female:** *Head*: Proboscis dark-scaled. *Thorax*: Mesokatepisternum scale patch extends to anterior margin; mesepimeron scale patch extends to near ventral margin; lower mesepimeron setae present, rarely absent; hypostigmal scale patch absent; postprocoxal scale patch present;

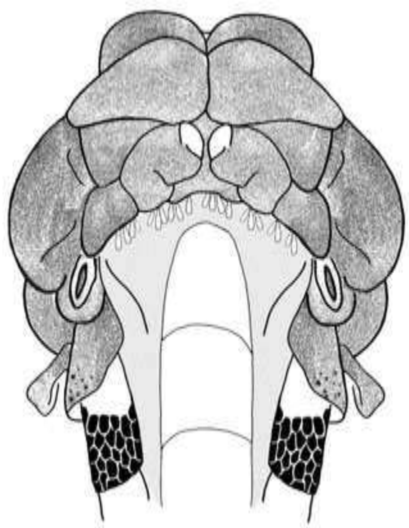
proepisternum with anterior surface fully scaled; supraalar setae dark-brown to black; scutellar setae dark-brown to black. *Wing*: Veins with narrow dark-brown scales; base of costa and sometimes $R_1$ with small patch of white scales. *Legs*: Tarsi dark-brown scaled; front tarsal claw slightly elongate. *Abdomen*: Tergites dark-scaled, with basal transverse bands of white scales, very narrow medially and widening laterally; sternites grayish-white scaled with apical bands of dark-scales. **Similar Species:** The supraalar and scutellar setae on *Ae. hexodontus* are yellowish-brown, and the postmetasternal scales are usually absent (at most 2 to 3 present), whereas the supraalar and scutellar setae are dark-brown to black and there are 13 or more postmetasternal scales are present on *Ae. pionips* (Fig. 317a).

**Fourth Instar Larvae:** *Head*: Head seta 5-C, 4-6 branched; 6-C, 3-6 branched; 7-C multibranched. *Thorax*: Prothoracic seta 1-P long, single; 2-P and 3-P medium, single; 4-P short, single; 5-P long, 2-3 branched; 6-P long, single; 7-P long, 3-branched. *Abdomen*: Patch of greater than 60 comb-scales (Fig. 317b); individual comb-scale fringed apically with subequal spinules. Siphonal index 2.5; siphon with 20-33 evenly spaced pecten-teeth on basal $^2/_5$ of siphon; siphonal tuft inserted distal to pecten-teeth near middle of siphon, 4-8 branched. Anal-saddle extends $^2/_3$-$^3/_4$ down sides. **Similar Species:** The patch of comb-scales that mark the abdomen of *Ae. pullatus* numbers less than 60, whereas the patch of comb-scales on the abdomen of *Ae. pionips* numbers 60 or more, usually greater than 70. The comb-scale of *Ae. impiger* is characterized by a strong apical spine, whereas the comb-scale of *Ae. pionips* is slightly rounded and fringed by subequal spinules.

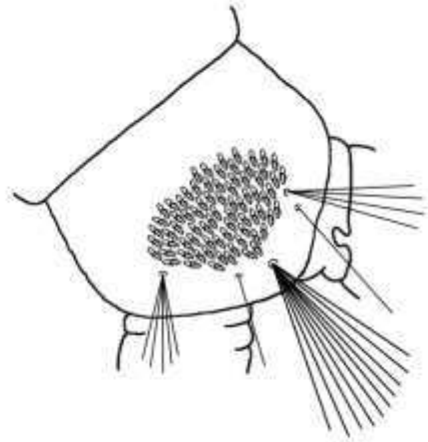
**Biology:** *Phenology*: Univoltine. *Overwintering stage*: Egg. *Larval habitat*: The larvae occur during early spring and develop slowly (Carpenter and LaCasse 1955, Wood et al. 1979), Harmston and Lawson (1967) collected the larvae of *Ae. pionips* in bog pools sheltered by willows and other montane shrubs. Carpenter and LaCasse (1955) reported this species as a "pioneer" of exploiting new and unique larval habitats. They reported that females are opportunistic when seeking locations for oviposition, as the larvae have been collected from diverse habitats including inundated tire tracks, animal hoof prints, depressions in bogs, and deep ponds. *Host preference*: Likely mammals, although biting records are limited and have not included humans (Harmston and Lawson 1967). Wood et al. (1979) stated that adult females would land on a host, but not probe the skin with its proboscis. *Medical importance*: Unknown.

**Comments:** The adults usually emerge midsummer due to the slow developing larvae, which is later than sympatric species such as *Ae. pullatus, Ae. communis*, *Ae. excrucians*, and *Ae. hexodontus* (Carpenter and LaCasse 1955, Harmston and Lawson 1967, Wood et al. 1979). The larvae and adults of this species have been collected at elevations at approximately 9,000 ft. (2,740 m.) (Harmston and Lawson 1967). This species is uncommon in Colorado and not considered important medically or economically.

**Distribution:** *Aedes pionips* is distributed across Canada, southern Alaska, and areas of the northern Rocky Mountains of the United States (Carpenter and LaCasse 1955, Darsie and Ward 2005). In Colorado, Harmston and Lawson (1967) reported this species from Boulder, Grand, Gunnison, and Jackson counties. Additional specimens have been collected from Summit County (Fig. 317c).



**a.**



**b.**


**c.**

**Figure 317a-c.** *Aedes pionips*. a) Postmetasternal sclarite with 13 or more scales; b) Segment VII with a patch of 60 or more comb-scales; c) County records for *Ae. pionips*. Dark-grey = Harmston and Lawson (1967); Light-grey = post 1967 surveys.

## ***Aedes pullatus* (Coquillett)**

**Original Description:** Coquillett, 1904: 168 [as *Culex*].

**Adult Female:** *Head*: Proboscis dark-scaled. *Thorax*: Scutum covered in yellowish-brown scales, with a narrow bare median line bordered by narrow parallel stripes of light-brown scales, bordered laterally by broader bare stripes (Fig. 318a). Mesokatepisternum with densely scaled patch extending to anterior margin; mesepimeron scale patch extends to near ventral margin; lower mesepimeron setae present; dense hypostigmal scale patch present (Fig. 318b); postprocoxal scale patch absent. *Wing*: Veins with narrow blackish-brown scales; white scale patch at base of costa, $R_1$, and anal vein. *Legs*: First tarsal segment dark-brown scaled with few pale scales intermixed; remaining tarsi dark-brown scaled. *Abdomen*: Tergites dark-scaled with basal transverse bands of white scales; sternites white-scaled with apical patches of dark scales.

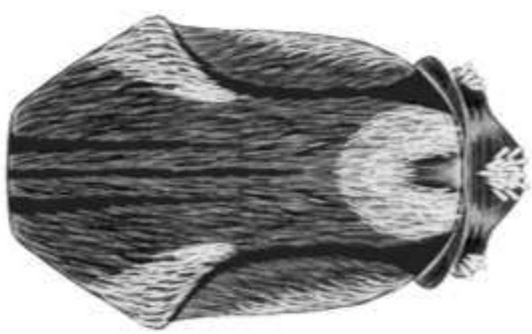
**Similar Species:** The scutum of *Ae. intrudens* is covered by nearly unicolorous scales and the mesepimeron is bare on the lower ¼, whereas the scutum of *Ae. pullatus* is unique, marked by a pair of bare submedian stripes, and the mesepimeron scale patch extends to near the ventral margin.

**Fourth Instar Larvae:** *Head*: Head seta 5-C, 5-8 branched; 6-C, 3-5 branched; 7-C, long, reaching near insertion antennal tuft, 8-13 branched (Fig. 318c). *Thorax*: Prothoracic seta 1-P long, 2-branched; 2-P medium, single; 3-P medium, 2-branched. Mesothoracic seta 1-M long, single; 5-M long, 2-branched (Fig. 318c). *Abdomen*: Triangular patch of 35-55 comb-scales (Fig. 318d); individual comb-scale fringed with subequal spines, apical spines of approximately same length (Fig. 318e). Siphonal index 3.0-3.5; siphon with 13-25 evenly spaced pecten-teeth on basal $^{2}/_{5}$; siphonal tuft inserted distal to pecten-teeth, longer than basal diameter of siphon, 5-8 branched. Anal-saddle extends $^{2}/_{3}$ down sides (Fig. 318d). **Similar Species:** Prothoracic seta 3-P on *Ae. pionips* is single and segment VIII is marked by more than 70 comb-scales, whereas 3-P is 2-branched and segment VIII is marked by less than 60 comb-scales on *Ae. pullatus*.

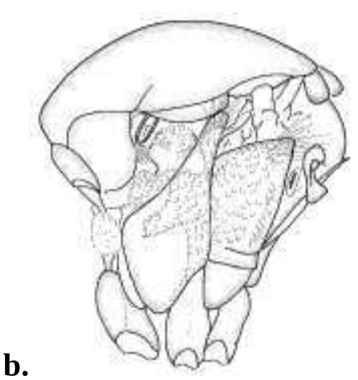
**Biology:** *Phenology*: Univoltine. *Overwinter stage*: Egg. *Larval habitat*: The larvae occupy a variety of temporary snowmelt pools in open mountain meadows, and temporary pools created by spring run-off near mountain streams and rivers (Wood et al. 1979). The larvae appear very early in the spring and can survive under the ice (Wood et al. 1979). *Host preference*: Mammals. *Medical importance*: Unknown.

**Comments:** Harmston and Lawson (1967) reported this species as the most abundant species occurring at elevations between 7,500-12,000 ft. (2,280-3,660 m.). The larvae emerge throughout the season with adults being observed and collected as late as August (Carpenter and LaCasse 1955, Harmston and Lawson 1967; Wood et al. 1979). Autogeny for this species has been reported from field collections and confirmed in the laboratory by Nikolaeva (1982). The adult females readily come to $CO_2$-baited light traps. *Aedes pullatus* is an annoying pests seeking blood meals at all times of the day, especially when cloudy. Since this species is active during most of the mosquito season in Colorado, abundant in Colorado's high country, and seeks blood meals throughout the day, it is an important nuisance species in mountainous areas of the state.

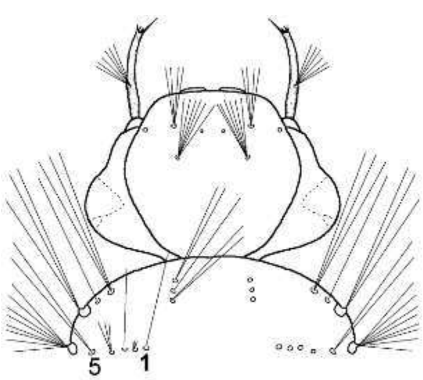
**Distribution:** *Aedes pullatus* is Holarctic, and primarily distributed throughout mountainous regions of North America. Its range extends north into Alaska, south into Arizona and New Mexico, west into California, Oregon, and Washington, and small disjunct pockets in eastern Canada and Michigan (Carpenter and LaCasse 1955, Darsie and Ward 2005). In Colorado, Harmston and Lawson (1967) reported this species from Archuleta, Boulder, Chaffee, Clear Creek, Conejos, Costilla, Custer, Delta, Eagle, Garfield, Grand, Gunnison, Jackson, La Plata, Larimer, Mesa, Mineral, Moffat, Ouray, Park, Pitkin, Rio Grande, Routt, San Miguel, and Summit counties. Additional records have been reported from Jefferson, Lake, and San Juan counties (Fig. 318f).



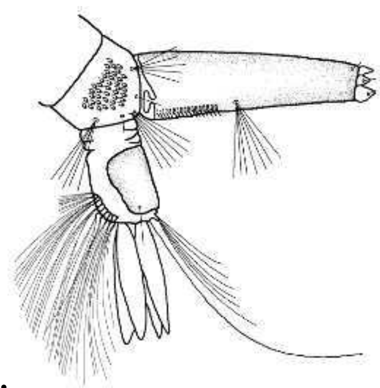
**a.**



**b.**




**c.**



**d.**

e.


f.

**Figure 318a-f.** *Aedes pullatus*. a) Scutum; b) Lateral thorax, with conspicuous hypostigmal scale patch; c) Head and thoracic setae branching; d) Distal segments of the abdomen; e) Comb-scale; e) County records for *Ae. pullatus*. Dark-grey = Harmston and Lawson (1967); Light-grey = post 1967 surveys.

## *Aedes punctor* (Kirby)

**Original Description:** Kirby, 1837: 309 [as *Culex*].

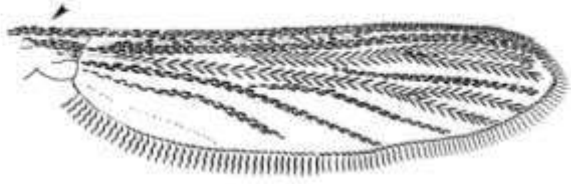
**Adult Female:** *Head*: Proboscis dark-scaled. *Thorax*: Scutum covered in yellowish scales, with broad median longitudinal stripe of dark-brown or black scales; posterior ½ of scutum usually with submedian areas of dark scales; scutellum with light-brown setae on lobes; supraarlar setae yellowish-brown. Mesokatepisternum scale patch extends to anterior margin; mesepimeron scale patch extends to ventral margin; lower mesepimeron setae present; hypostigmal scale patch absent; postprocoxal scale patch present; proepisternum fully scaled on anterior surface. *Wing*: Veins with dark scales, sometimes with small patch of white scales on base of costa (Fig. 319a). *Legs*: Tarsi dark-scaled. *Abdomen*: Tergites dark-scaled with basal transverse band of white scales; sternites with grayish-white scales, apices with black scales forming triangular patch (Fig. 319b). **Similar species:** Dark-brown or black supraarlar and scutellar setae and 13 or more postmetasternal scales characterize *Ae. pionips*, whereas the supraarlar and scutellar setae are yellowish-brown and few or zero postmetasternal scales are present on *Ae. punctor*. The sternites of *Ae. hexodontus* are primarily white-scaled, whereas the sternites of *Ae. punctor* are primarily grayish-white scaled with dark scales arising apically forming a triangular patch on each segment.

**Fourth Instar Larvae:** *Head*: Head seta 5-C and 6-C, 1-2 branched; 7-C, 3-6 branched. *Thorax*: Integument glabrous (Fig. 319c); prothoracic seta 1-P long, 1-2 branched; 2-P long, single; 3-P long, single. *Abdomen*: Irregular single or double row of 10-19; individual comb-scale thorn-shaped with small basolateral spinules (Fig. 319d). Siphonal index 3.0; siphon with many evenly spaced pecten-teeth on basal $^1/_3$-$^2/_5$ of siphon; siphonal tuft inserted distal to pecten-teeth, 3-6 branched. Anal segment completely ringed by anal-saddle. **Similar Species:** The comb of *Ae. hexodontus* is marked by 4-9 comb-scales, whereas the comb of *Ae. punctor* has 10-19 comb-scales. The siphon of *Ae. nigromaculis* has one or more detached pecten-teeth, whereas the siphon of *Ae. punctor* has evenly spaced pecten-teeth. *Aedes trivittatus* has comb scales with the apical spine only slightly longer than the subapical spiules, whereas the comb scales on *Ae. punctor* are distinctly thorn-shaped with the apical spine at least 4x the length of the spinules.

**Biology:** *Phenology*: Univoltine. *Overwinter stage*: Egg. *Larval habitat*: Harmston and Lawson (1967) reported collecting the larvae of this species in bog-type habitat at approximately 9,000 ft. (2,740 m.) surrounded by trees and montane shrubs. *Aedes punctor* also occurs in grassy marsh habitats surrounded by forest (Wood et al. 1979). *Host preference*: Mammals, in a study conducted in south-central Sweden this species fed primarily on rabbits (Jaenson 1990). Little is known of its host seeking and biting behaviors (Harmston and Lawson 1967). *Medical importance*: *Aedes punctor* has yielded isolation of CEV in western Canada (McLean et al. 1977), Tahyna virus and INKV from the California serogroup in western Siberia (Mitchell et al. 1993), and JCV in New York (Boromisa and Grayson 1990). This species is not considered medically important in Colorado.

**Comments:** The eggs of *Ae. punctor* hatch in early spring and the development is rapid relative to other mosquito species found in the same habitat (Carpenter and LaCasse 1955, Wood et al. 1979). The adults of this species have been collected from mountainous areas of the state from late May to mid-July. This species is rare in Colorado, and therefore of little importance.

**Distribution:** *Aedes punctor* a Holarctic species is primarily distributed across the northern latitudes of North America (Canada and Alaska). Its range extends into Alaska to the north, Colorado to the south, Oregon and British Columbia to the west, and the northeastern United States and Canada to the east (Carpenter and LaCasse 1955, Harmston and Lawson 1967, Darsie and Ward 2005). In Colorado, Harmston and Lawson (1967) reported this species from Boulder, Grand, Gunnison, and Summit counties. Additional records are available from Eagle, Larimer, and Park counties (Fig. 319e).



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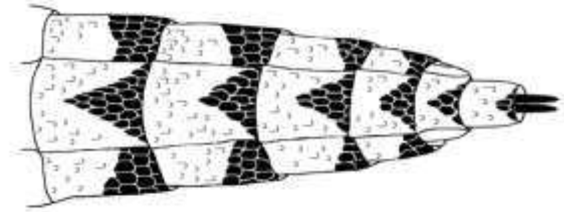

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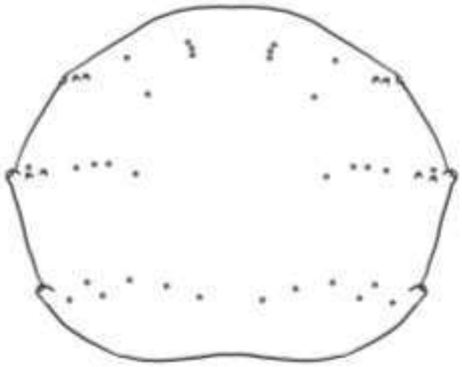
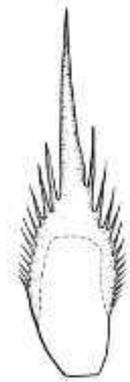
c.



d.




e.

**Figure 319a-e.** a) Base of costa dark scaled; b) Sternites; c) Smooth thorax; d) Comb-scale; e) County records for *Ae. punctor*. Dark-grey = Harmston and Lawson (1967); Light-grey = post 1967 surveys.

## *Aedes schizopinax* Dyar

**Original Description:** Dyar, 1929: 1.

**Adult Female:** *Head*: Proboscis dark-scaled, ventral aspect with yellowish-gray scales, darker apically (Fig 320a). *Thorax*: Mesokatepisternum scale patch extends to anterior margin; mesepimeron scale patch extends to ventral margin; lower mesepimeron setae present; hypostigmal scale patch absent; postprocoxal scale patch present; proepisternum with scales on anterior aspect (Fig 320b). *Wing*: Veins with narrow dark-scales; base of costa with patch of few to many pale scales. *Legs*: Tarsi dark-scaled, proximal segments streaked with pale scales. *Abdomen*: Tergites dark-scaled with basal transverse bands of white scales widening laterally forming lateral patches of white scales; segments VII almost entirely pale-scaled (Fig 320c); sternites white scaled. **Similar Species:** Tergites VII and VIII on *Ae. hexodontus*, *Ae. pionips*, and *Ae. punctor* are dark and pale scaled, whereas tergites VII and VIII on *Ae. schizopinax* are primarily white to pale scaled.

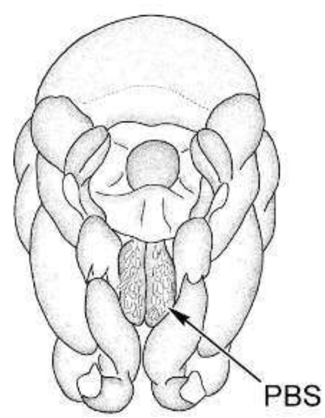
**Fourth Instar Larvae:** *Head*: Head seta 5-C, 3-4 branched; 6-C, 2-3 branched. *Thorax*: Prothoracic seta 1-P long, 3-4 branched; 2-P long, single; 3-P long, 2-3 branched. Mesothoracic seta 1-M, 3-6 branched. *Abdomen*: Patch of about 40 comb-scales (Fig. 320d); individual comb-scale with long median spine and small basolateral spinules. Siphonal index 3.0; siphon with 14-19 evenly spaced pecten-teeth on basal $^{2}/_{5}$ of siphon; siphonal tuft inserted distal to pecten-teeth near middle of siphon, 3-5 branched, as long as basal diameter of siphon. Anal-saddle extends to near midventral line (Fig. 320d). **Similar Species:** The comb of *Ae. punctor* and *Ae. impiger* is marked by less than 18 comb-scales, whereas the comb of *Ae. schizopinax* is marked by a patch of about 40 comb-scales. The comb-scales of *Ae. pullatus* are rounded apically and fringed with small spinules, while the comb-scales of *Ae. schizopinax* have a long apical spine and small basolateral spinules.

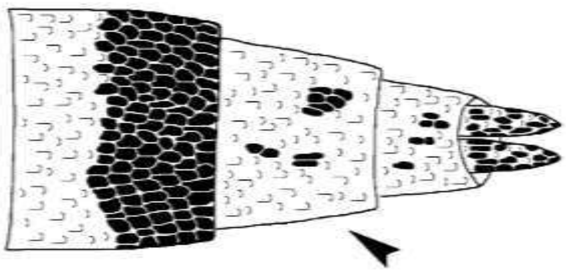
**Biology:** *Phenology*: Univoltine. *Overwintering stage*: Egg. *Larval habitat*: The larvae occupy highly organic and sometimes alkaline temporary and permanent pools in open meadows (Harmston and Lawson 1967) and imprints created by animals and humans, including deer and cattle hoof imprints to shallow ruts created by motor vehicles (Carpenter and LaCasse 1955, Harmston and Lawson 1967). *Host preference*: Mammals. *Medical importance*: Unknown.

**Comments:** The adult females are attracted to $CO_2$-baited light-traps, but little is known about their feeding behavior (Carpenter and LaCasse 1955, Harmston and Lawson 1967). Harmston and Lawson (1967) reported that this species is not known to feed on humans and otherwise little is known about their biology. Due to the rarity of this species and reluctance to feed on humans, *Ae. schizopinax* is considered of little economic and medical importance in Colorado.

**Distribution:** *Aedes schizopinax* is a western species, primarily distributed in the mountainous regions of western North America including California, Colorado, Idaho, Montana, Nevada, New Mexico, Utah, and Wyoming, with a disjunct population in Alberta, Canada (Carpenter and LaCasse 1955, Darsie and Ward 2005). In Colorado, Harmston and Lawson (1967) reported this species from Boulder, Gunnison, Jackson, Jefferson, Park, and San Miguel counties. Additional records have been reported from Larimer, Ouray, and Park counties (Fig. 320e).

**a.**


**b.**




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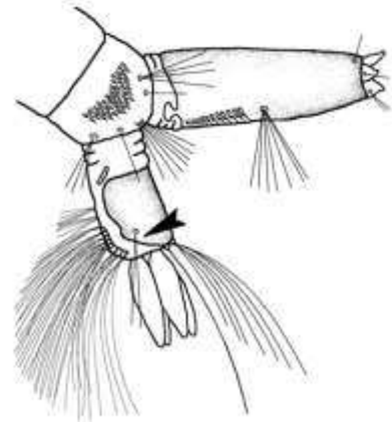


d.


e.

**Figure 320a-e.** *Aedes schizopinax*. a) Scale pattern on the proboscis; b) Proepisternum with anterior surface scaled; c) Scale pattern of segment VII and VIII; d) Distal segments of the abdomen; e) County records for *Ae. schizopinax*. Dark-grey = Harmston and Lawson (1967); Light-grey = post 1967 surveys.

### *Aedes spencerii idahoensis* (Theobald)

**Original Description:** Theobald, 1903: 250 [as *Grabhamia*; as var. of *spencerii*].

**Adult Female:** *Head*: Proboscis dark-scaled. *Thorax*: Postpronotum scales on dorsal ½ mostly white to rust-colored, ventral ½ whitish; mesepimeron with scales extending to near ventral margin; mesepimeron setae absent; hypostigmal scale spot usually absent (when present with only a few scales); mesokatepisternum scale patch extends to anterior margin; postprocoxal scales present. *Wing*: Veins with narrow pale and dark scales appearing to alternate; costa, $R_1$, $R_{4+5}$, Cu ($Cu_1$ and $Cu_2$) entirely dark-scaled, with remaining veins primarily pale scaled. *Legs*: Tarsi primarily dark-scaled, proximal segments pale on posterior surface, distal segments dark-scaled. *Abdomen*: Tergites dark-scaled with broad basal transverse band of white to pale scales; sternites with grayish-white scales (Fig. 309a). **Similar Species:** The tergites of *Ae. s. spencerii* have basal, apical, and a median longitudinal line of white to pale scales leaving only small patches of dark scales, in contrast to *Ae. s. idahoensis* where the tergites have only basal transverse bands of white to pale scales.

**Fourth Instar Larvae:** *Head*: Head seta 5-C and 6-C single (sometimes seta 5-C or 6-C double but not both); 7-C long, 2-7 branched, reaching beyond insertion of antennal tuft. *Thorax*: Aculeate. Prothoracic seta 1-P medium, single; 2-P short, single; 3-P short, single or double; 4-P short, single; 5-P long, single; 6-P long, single; 7-P long, 3-4 branched. *Abdomen*: Patch of 14-29 comb-scales (Fig. 309b); individual comb-scale with median spine narrow at its base, medium length, with prominent lateral spinules on basal aspect (Fig. 309c). Siphonal index 2.5; siphon with 12-24 pecten-teeth extending beyond middle of siphon; siphonal tuft inserted distal to pecten-teeth, 3-5 branched, much shorter than basal diameter of siphon. Anal-saddle extends to near midventral line (Fig. 309b). **Similar Species:** *Aedes s. spenserii* has 13 or fewer comb-scales, each with a median spine that is broad at its base, whereas *Ae. s. idahoensis* has 14 or more comb-scales and the median spine is narrow at its base.

**Biology:** *Phenology*: Likely multivoltine. *Overwintering stage*: Egg. *Larval habitat*: The larvae occur in temporary pools usually created by snowmelt and spring run-off or heavy spring rains, and maintained by monsoonal moisture later in the season. The larvae have been collected in roadside ditches, grassy meadows, overflow pools created by spring run-off, and pools near shaded streams (Harmston and Lawson 1967). *Host preference*: Mammals. *Medical importance*: Unknown.

**Comments:** Unlike many species in the subgenus *Ochlerotatus*, *Ae. s. idahoensis* is likely multivoltine as the adults and larvae can be collected throughout the season (Wood et al. 1979). The adult females readily come to $CO_2$-baited light-traps. Females are often abundant during the spring in high mountain valleys, and can be an annoying biting pest. Resting adult females, when disturbed, have been observed avidly seeking a blood meal during all parts of the day. Since this species can be extremely abundant and an annoying pest during the spring, *Ae. s. idahoensis* is considered an important nuisance species in Colorado's high country.

**Distribution:** *Aedes spencerii idahoensis* is distributed throughout the northwestern United States and southwestern Canada, with its range extending into parts of the plains states of the northcentral United States, and south into the Rocky Mountains of New Mexico (Carpenter and LaCasse 1955, Darsie and Ward 2005). Harmston and Lawson (1967) reported this species from Archuleta, Boulder, Chaffee, Costilla, Custer, El Paso, Garfield, Gunnison, Jackson, La Plata, Larimer, Mesa, Moffat, Park, Pitkin, Rio Blanco, San Miguel, and Weld counties. Additional records are available from Adams, Alamosa, Broomfield, Eagle, Grand, Jefferson, Montezuma, Pueblo, Routt, Saguache, Teller, and Weld counties (Fig. 309d).

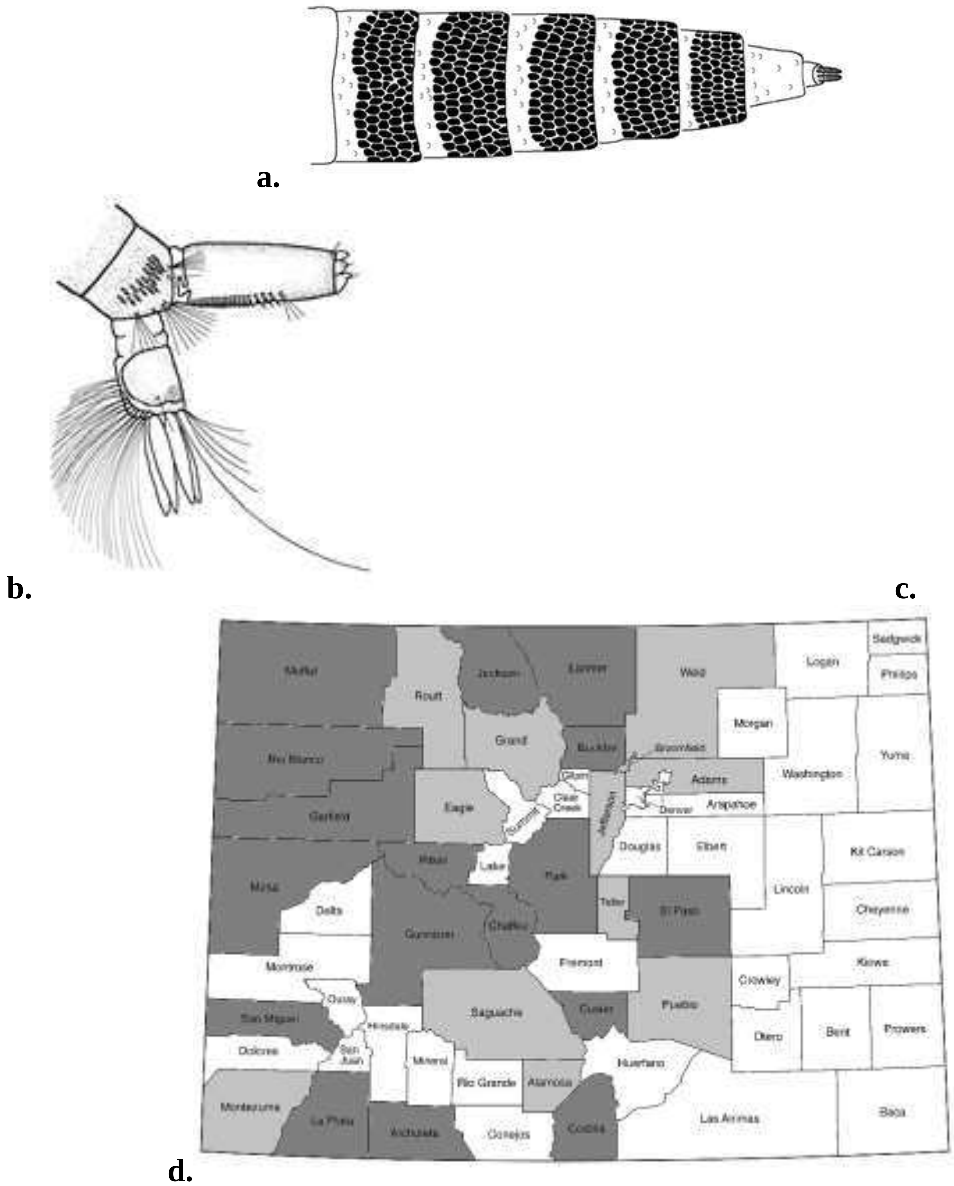



**Figure 309a-d.** *Aedes spencerii idahoensis*. a) Scale pattern adorning the abdominal tergites; b) Distal segments of the abdomen; c) Comb-scale; d) County records for *Ae. spencerii idahoensis*. Dark-grey = Harmston and Lawson (1967); light-grey = post 1967 surveys.

## *Aedes spencerii spencerii* (Theobald)

**Original Description:** Theobald, 1901: 99 [as *Culex*].

**Adult Female:** *Head*: Proboscis dark-scaled. *Thorax*: Posterior pronotum primarily with narrow dark brown scales on dorsal half; mesokatepisternum scale patch extends to anterior margin; mesepimeron scales extend to near ventral margin; lower mesepimeron setae present; hypostigmal scale patch absent; postprocoxal scale patch present. *Wing*: Costa, $R_1$, $R_{4+5}$, and cubital vein dark-scaled, remaining veins white-scaled (Fig. 321a). *Legs*: Tarsi dark-scaled, posterior surface of proximal segments with few pale scales intermixed, distal segments dark-scaled. *Abdomen*: Tergites dark scaled with a median longitudinal stripe of white scales and narrow apical and basal bands of white scales, surrounding patches of dark-scales on each tergum (some specimens with terga almost entirely white-scaled) (Fig. 321b); sternites pale-scaled. **Similar Species:** The abdominal tergites of *Ae. s. idahoensis* are marked by only basal transverse bands of white-scales, whereas the tergites of *Ae. s. spencerii* are dark scaled with a median longitudinal stripe of white scales and narrow apical and basal bands of white scales.

**Fourth Instar Larvae:** *Head*: Head seta 5-C and 6-C single (one or the other sometimes 2-branched) (Fig. 321c). *Thorax*: Aculeate/spiculate. Prothoracic seta 1-P medium, single; 2-P short, single; 3-P short, 1-2 branched (Fig. 321c). *Abdomen*: Single row or irregular double row of 7-13 comb-scales; comb-scale with long gradually tapered apical spine, fringed with minute lateral spinules basally (Fig. 321e). Siphonal index 2.0-2.5; siphon with 13-17 pecten-teeth on basal $^1/_2$-$^3/_5$ of siphon, with 1-3 detached pecten-teeth; siphonal tuft inserted distal to pecten-teeth, shorter than basal diameter of siphon, 2-4 branched. Anal-saddle extends to near midventral line (Fig. 321d). **Similar Species:** The comb of *Ae. s. idahoensis* has 14 or more comb-scales and the apical spine is narrow at its base, whereas the comb of *Ae. s. spencerii* has 13 or fewer comb-scales and the apical spine is broad at the base.

**Biology:** *Phenology*: Usually univoltine, possibly multivoltine (Carpenter and LaCasse 1955). *Overwinter stage*: Egg. *Larval habitat*: The larvae occur in a variety of aquatic habitats including both permanent and semipermanent pools created by spring run-off, snowmelt, significant precipitation events, and irrigated grassy meadows, ditches along roadsides, and inundated depressions near wooded areas (Carpenter and LaCasse 1955). *Host preference*: Mammals. *Medical importance*: Unknown.

**Comments:** *Aedes spencerii spencerii* is usually a spring species with the eggs hatching in late April and May across its range, however in favorable conditions that include late season precipitation and warm temperatures, larvae have been observed as late as September (Carpenter and LaCasse 1955). The adults are diurnal, and the adult females are “bloodthirsty” seeking a blood meal during all times of the day (Carpenter and LaCasse 1955). Carpenter and LaCasse (1955) stated that in regions where this species is abundant, it is an extremely annoying pest making life outside in recreation and rural areas intolerable. In Colorado, this species is uncommon and considered of little economic importance as a pest species.

**Distribution:** *Aedes spencerii spencerii* is primarily distributed and most abundant across the northern latitudes of the prairie regions in the United States and Canada, west into Montana and British Columbia, and east to New York and Ontario (Carpenter and LaCasse 1955, Darsie and

Ward 2005). In Colorado, this species was recently collected in Jackson and Moffat counties (Rose et al. 2015) (Fig. 321f).

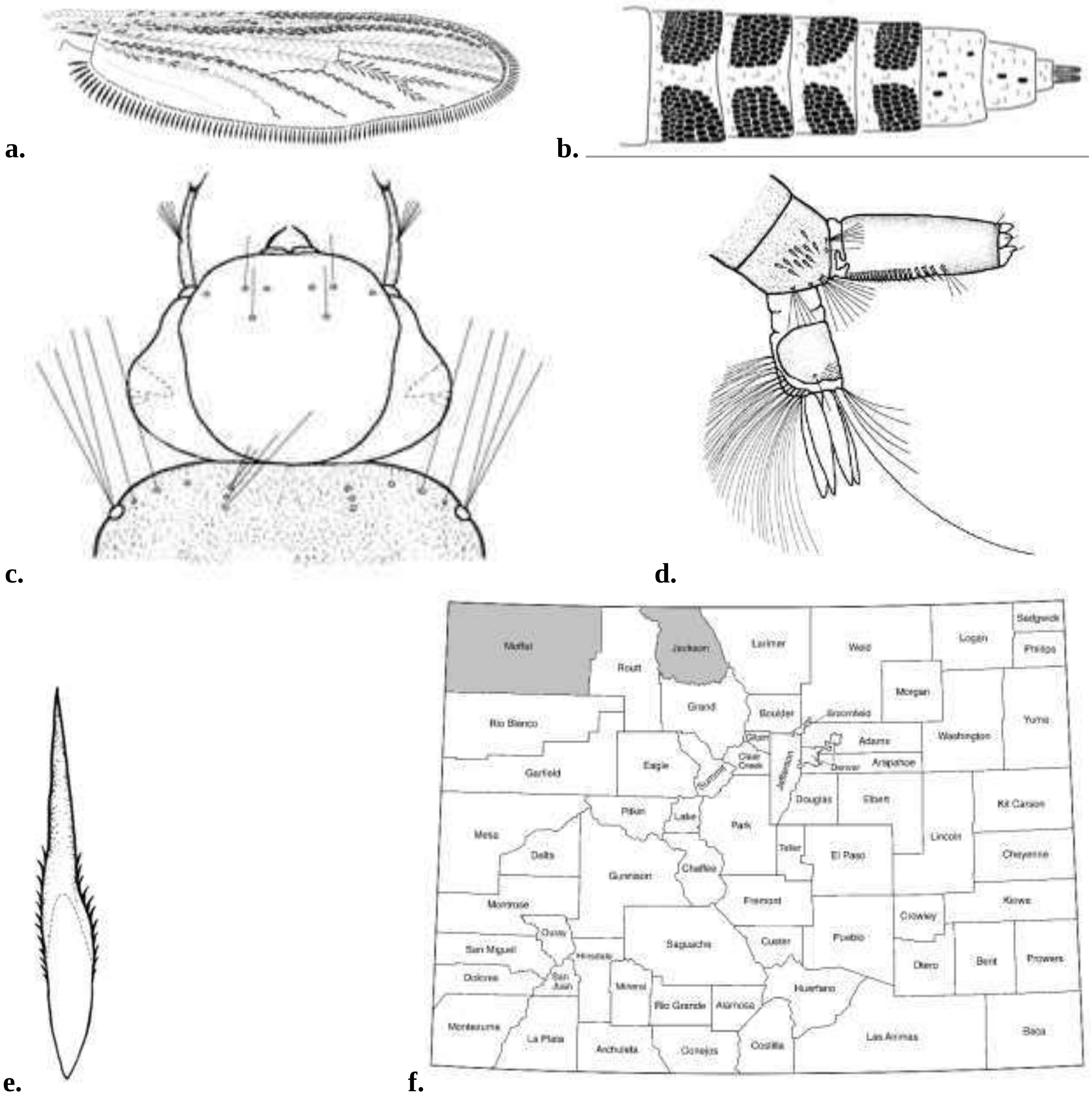



**Figure 321a-f:** *Aedes spencerii spencerii*. a) Wing; b) Tergites VII and VIII primarily white-scaled; c) Head and thoracic setae branching; d) Distal segments of the abdomen; e) Comb-scale; f) County records for *Ae. spencerii*. Light-grey = post 1967 surveys.

## *Aedes sticticus* (Meigen)

**Original Description:** Meigen, 1838: 1 [as *Culex*].

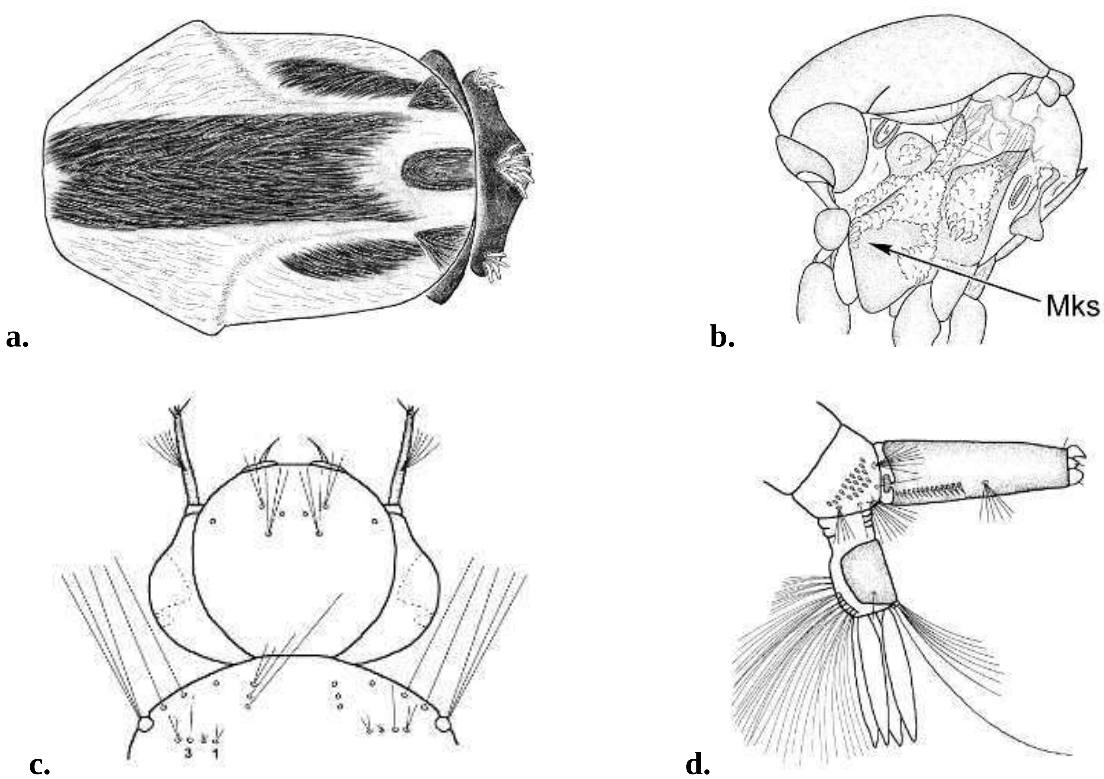
**Adult Female:** *Head*: Proboscis dark-scaled. *Thorax*: Scutum covered in narrow pale scales and marked by a broad median stripe of golden-brown scales extending to prescutellar space, often separated medially by a fine narrow line of pale scales; two posterior half-stripes of golden-brown scales present lateral to the median stripe (Fig. 322a). Mesokatepisternum with narrow line of pale scales extending to anterior margin (Fig. 322b); mesepimeron bare on lower $^{1}/_{3}$-$^{1}/_{4}$; lower mesepimeron setae absent; hypostigmal scale patch absent; postprocoxal scale patch present. *Wing*: Veins with narrow dark scales, sometimes with small patch of white scales on base of costa. *Legs*: Tarsi dark-scaled. *Abdomen*: Tergites with narrow basal transverse bands of white scales widening on laterally forming small basal triangular patch of white scales; sternites almost entirely white-scaled, apices of distal segments with few dark scales. **Similar Species:** The scutum of *Ae. intrudens* is covered in unicolorous scales, whereas the scutum of *Ae. sticticus* is conspicuously marked by a dark-scaled median longitudinal stripe flanked by dark-scaled posterior half-stripes. The scutum pattern on *Ae trivittatus* has a narrow median stripe of dark scales flanked by two equally wide white-scaled stripes, with lateral margins dark scaled, whereas the scutum on *Ae. sticticus* is as above.

**Fourth Instar Larvae:** *Head*: Head seta 5-C, 2-4 branched; 6-C 1-3 branched (Fig. 322c). *Thorax*: Prothoracic seta 1-P long, single; 2-P medium, single; 3-P short, 1-2 branched. Mesothoracic seta 1-M short, 2-branched; seta 3-M medium, single (Fig. 322c). *Abdomen*: Patch of 18-25 comb-scales (Fig. 322d); comb-scale thorn-shaped, with strong median spine and small lateral spinules. Siphonal index 2.5-3.0; siphon with 15-20 evenly spaced pecten-teeth extending to near middle of siphon; siphonal tuft inserted distal to pecten-teeth, short, 4-6 branched; anal-saddle extends to near midventral line (Fig. 322d). **Similar Species:** Head seta 5-C and 6-C on *Ae. dorsalis* and *Ae. melanimon* are single and mesothoracic seta 1-M is multibranched. While 5-C and 6-C on *Ae. sticticus* are multibranched and 1-M is 2-branched. The siphonal index on *Ae. flavescens* is more than 3.0, whereas it is less than 3.0 on *Ae. sticticus*.

**Biology:** *Phenology*: Univoltine. *Overwinter stage*: Egg. *Larval habitat*: The larvae occur in a variety of depression and overflow pools along streams (Harmston and Lawson 1967). *Host preference*: Mammals. Primarily cattle, followed by rabbits, horses, and humans, respectively (Harmston and Lawson 1967). *Medical importance*: This species has tested positive for SLEV (Hammon and Reeves 1943), JCV (Andreadis et al. 2008), Tahnya virus (Hubálek et al. 2010), and WNV (Andreadis et al. 2004). However, *Ae. sticticus* is not a primary vector of any of the viruses listed.

**Comments:** The adults typically emerge from late May through June with some adults collected as late August. The records later in the season are likely due to habitat that is not subjected to spring run-off or lacking adequate snowmelt to fill low-lying depressions, relying on late season flooding from heavy precipitation or irrigation for the eggs to hatch (Carpenter and LaCasse 1955, Harmston and Lawson 1967). The adult females are a nuisance species as they are persistent feeders throughout the day (Carpenter and LaCasse 1955). Carpenter and LaCasse (1955) reported that this species even feeds during inclement weather conditions, seeking a blood meal during bright, sunny, and even windy days. Due to this species affinity to seek a blood meal throughout the day, *Ae. sticticus* can be an annoying pest in Colorado during spring and early summer in the vicinity of larval habitats.

**Distribution:** *Aedes sticticus* is distributed across most of North America at elevations below 7,000 ft. (2,130 m.), however it is largely absent from the southwestern United States (Carpenter and LaCasse 1955, Darise and Ward 2005). In Colorado, Harmston and Lawson (1967) reported this species occurring primarily east of the Continental Divide from Adams, Conejos, El Paso, La Plata, Larimer, Pueblo, Sedgwick, and Weld counties. Additional records are available from Arapahoe, Chaffee, Eagle, Moffat, and Routt counties (Fig. 322e).




**e.**

**Figure 322a-e.** *Aedes sticticus*. a) Scutum; b) Mesokatepisternum with scales extending to anterior margin; c) Head and thoracic setae branching; d) Distal segments of the abdomen; e) County records for *Ae. sticticus*. Dark-grey = Harmston and Lawson (1967); Light-grey = post 1967 surveys.

### *Aedes triseriatus* (Say)

**Original Description:** Say, 1823: 12 [as *Culex*].

**Adult Female:** *Head*: Proboscis dark-scaled. *Thorax*: Scutum broad median stripe of narrow dark-brown scales, stripe wider distally and covers most of the posterior ½; lateral margins and prescutellar space with silvery-white scales (Fig. 323a). *Wings*: Veins with narrow dark scales. *Legs*: Tarsi dark-scaled. *Abdomen*: Tergites dark-scaled with bluish-sheen, basal patches of silvery-white scales laterally; sternites white-scaled. **Similar Species:** The scutum of *Ae. hendersoni* has a narrower median stripe of dark-brown scales and more silvery-white scales on the scutal fossa and laterally, whereas the scutum of *Ae. triseriatus* has a broader median stripe of dark-brown scales that cover most of the scutal fossa and fewer silvery-white scales laterally. The scutum of *Ae. trivittatus* has two sub-median stripes of white scales separated by a median stripe of dark-scales that extend the length of the scutum, whereas the scutum of *Ae. triseriatus* is as above.

**Fourth Instar Larvae:** *Head*: Head seta 5-C longer than 6-C, single; 6-C, 2-4 branched; 7-C short, multibranched. *Thorax*: Prothoracic seta 1-P long, 2-4 branched; 2-P medium, single; 3-P short, 2-4 branched. *Abdomen*: Single or partial double row of 8-15 comb-scales; comb-scale long, gradually tapered, and evenly fringed with short spinules (Fig. 323d). Siphonal index 2.5-3.0; siphon with 17-22 evenly spaced pecten-teeth extending to near middle of siphon; siphonal tuft inserted distal to pecten-teeth, 1-3 branched; acus usually attached (Fig. 323c). Anal-saddle extends ⅔ down sides; anal-gills with dorsal pair longer than ventral pair and as long as anal-saddle or slightly longer (Fig. 323b). **Similar Species:** The acus on the siphon of *Ae. hendersoni* is detached and the anal-papillae are approximately the same length, whereas the acus on *Ae. triseriatus* is attached and the anal papillae vary in length with the dorsal pair distinctly longer than the ventral pair.

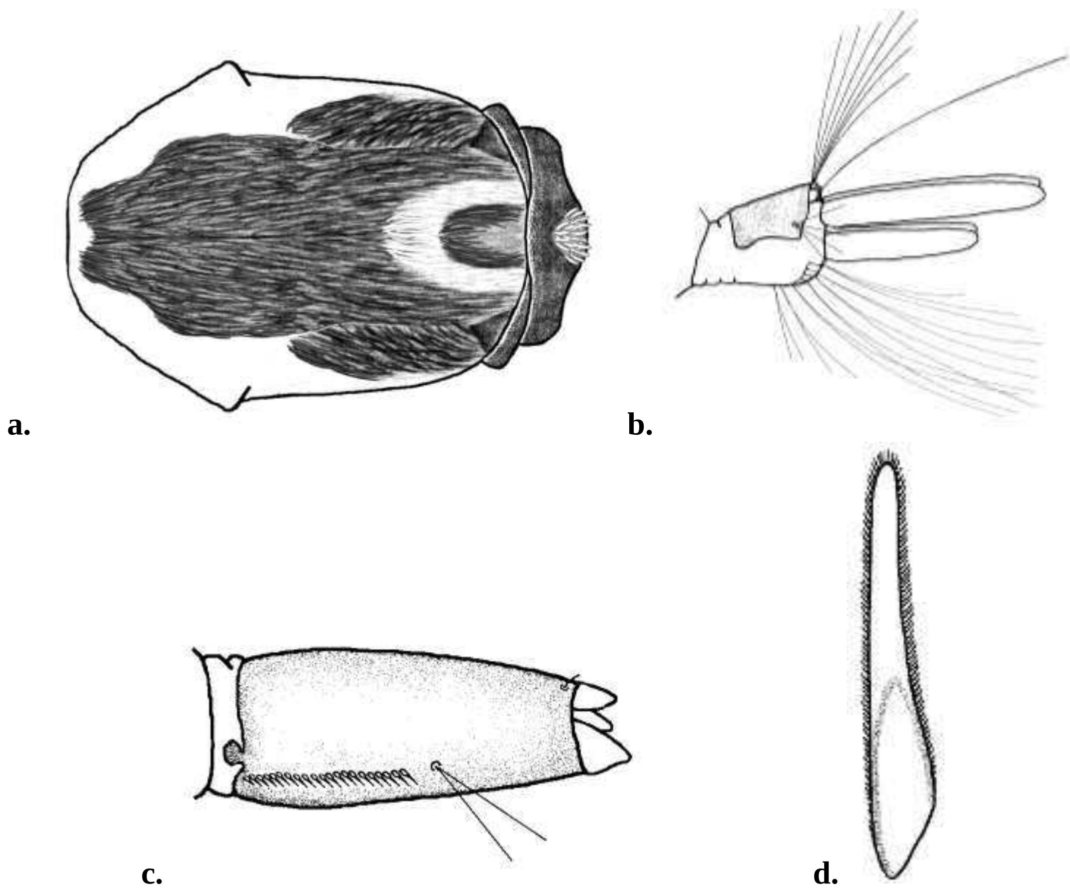
**Biology:** *Phenology*: Multivoltine. *Overwintering stage*: Egg. *Larval habitat*: The larvae occur in a variety of tree-holes in deciduous trees and they have also been collected from artificial containers such as wooden tubs, barrels, and troughs (Carpenter and LaCasse 1955). *Host preference*: Mammals and birds (Molaei et al. 2008). Jackson et al. (2012) reported that once this species is infected with LACV or a virus, it reduces its blood meal size, however, the avidity to refeed increases, likely increasing the probability of horizontal transmission of the virus. *Medical importance*: This species is the primary vector of the LACV (Grimstad et al. 1977, Westby et al. 2015). *Aedes triseriatus* is also a possible vector of WNV (Erickson et al.

2006). Laboratory infection of EEEV and Highlands J virus has been confirmed (Hildreth and Beaty 1984), as well as YFV (Bennett et al. 1938), SLEV and WEEV (Turell et al. 1982a), VEEV (Vaughan et al. 1999), and laboratory transmission of DENV (Freier and Grimstad, 1983). This species may also play a role as a possible vector of canine heartworm (Debboun et al. 2005). *Aedes triseriatus* is an uncommon species in Colorado and therefore is not considered to be important in arbovirus transmission.

**Comments:** *Aedes triseriatus* adult females lay their eggs slightly above the waterline in tree-holes and sometimes artificial container singly or small groups of two to five eggs. The adult females readily come to $CO_2$-biated light traps. Carpenter and LaCasse (1955) reported that this species is crepuscular and most active during the early morning and evening hours, however this species will seek a host during the day-time hours if disturbed. In Colorado this species is likely rare, as it has thus far only been reported from one county. It could be more common than records indicate, as it is easily misidentified for the more common *Ae. hendersoni*. The two species are sympatric throughout much of North America and have been found to be spatially separated vertically, with *Ae. hendersoni* showing a preference for tree-holes in the canopy, whereas *Ae. triseriatus* prefers water containers at or near ground level (Gallaway and Brust 1982).

**Distribution:** *Aedes triseriatus* is widely distributed in the eastern United States and southern Canada, with its range extending south into the Florida Keys and west into Colorado (Carpenter and LaCasse 1955, Darsie and Ward 2005). This species has not been reported west of the Mississippi River by Darsie and Ward (2005). Fred C. Harmston collected this species in

Greeley (Weld County), Colorado, during June and July 1965, the specimens were rediscovered and the identification confirmed by the senior author (D.A.R). The adult specimens are housed at the Center for Disease Control and Prevention (Fort Collins, Colorado). It is unknown why the species was omitted by Harmston and Lawson (1967).




**e.**

**Figure 323a-e.** *Aedes triseriatus*. a) Scutum; b) Anal segment and gills; c) Siphon with attached acus; d) Comb scale; e) County record for *Aedes triseriatus*. Light-Grey = post 1967 surveys.

## *Aedes trivittatus* (Coquillett)

**Original Description:** Coquillett, 1902: 193 [as *Culex*].

**Adult Female:** *Head*: Proboscis dark-scaled. *Thorax*: Scutum with two submedian stripes of narrow white to yellowish-white scales extending the length of the scutum, separated by median stripe of brown scales equal in width to white stripes (Fig. 324a); lateral margins with bronze-brown scales; anterior margin and prescutellar space with white to yellowish-white scales. *Wing*: Veins with narrow dark-brown scales. *Legs*: Dark-scaled; posterior aspect of first tarsal segment pale-scaled. *Abdomen*: Tergites dark-brown to black-scaled, with basolateral patches of white scales often forming triangular patches (some specimens with narrow inconspicuous basal white bands of scales on some proximal segments) (Fig. 324a); sternites white to pale-white-scaled. **Similar Species:** The scutum of *Ae. hendersoni* and *Ae. triseriatus* has densely scaled areas of bright silvery-white scales anteriorly and laterally, surrounding a wrench-shaped stripe of dark scales, whereas the scutum of *Ae. trivittatus* has two submedian stripes of narrow white to yellowish-white scales extending the length of the scutum separated by median stripe of brown scales equal in width to white stripes, and dark scales laterally.

**Fourth Instar Larvae:** *Head*: Head seta 5-C and 6-C single; 7-C, 4-9 branched. *Thorax*: Speculate/aculeate (Fig. 324b). Prothoracic seta 1-P medium, single; 2-P short, single; 3-P short, single. *Abdomen*: Patch of 17-26 comb-scales; comb-scale thorn-shaped, apical spine twice as broad and 1 ⅓x as long as subapical spines (Fig. 324d). Siphonal index 2.0; siphon with 14-19 dark evenly spaced pecten-teeth extending beyond middle of siphon; siphonal tuft inserted distal to pecten-teeth, shorter than basal diameter of siphon, 4-9 branched. Anal segment completely ringed by anal-saddle (Fig. 324c). **Similar Species:** The siphon of *Aedes nigromaculis* has 2-4 detached pectent-teeth and the comb has less than 17 comb-scales, whereas the pecten-teeth of *Ae. trivittatus* are evenly spaced and the comb has 17-25 comb-scales. Head seta 5-C and 6-C on *Aedes hexodontus* usually double, whereas the 5-C and 6-C are usually single on *Ae. trivittatus*.

**Biology:** *Phenology*: Multivoltine (Wood et al. 1979). *Overwintering stage*: Eggs overwinter in the soil (Wood et al. 1979). *Larval habitat*: The larvae occupy a wide variety temporary habitats (Wood et al. 1979), including temporary pools created by rivers overflowing their banks during spring run-off, snowmelt at lower elevations in the grassy meadows of the woodlands of the foothills, depressions filled by heavy precipitation, and temporary pools created by irrigation in Colorado (Harmston and Lawson 1967). Breeland et al. (1961) reported that the first instar larvae are uncommonly collected because larvae remain within vegetation near the substrate and in the water column, rarely coming to the surface. *Host preference*: Mammals, typically small including rabbits and squirrels (Pinger and Rowley 1975), however, Molaei et al. (2008) reported this species seeks a blood meal from both mammals and bird species. These authors found that *Ae. trivittatus* fed on deer, humans, and smaller mammals such as cats and rabbits (Molaei et al. 2008). This species is a persistent host seeker, feeding at dusk and during all portions of the day, especially when resting vegetation is disturbed (Carpenter and LaCasse 1955). *Medical importance*: Primary vector of trivittatus virus (TVTV) (Pinger et al 1975; Watts et al 1976), likely a bridge vector of WNV (Andreadis et al. 2004, Tiawsirisup et al. 2004, Lukacik et al. 2006), CVV was isolated from this species (Calisher et al. 1986), and a suitable vector of dog heartworm (Christensen and Andrew 1976).

**Comments:** This species is a nuisance throughout Colorado below 7,500 ft. (2,290 m.) elevation. It is not usually the most abundant species along the Front Range of Colorado, or for that matter state-wide, but it is present throughout the entire mosquito season. This species readily comes to CO2-baited light traps and can be abundant at times in harborage areas close to their larval habitats, where blood-thirsty females can be quite vexing when disturbed. *Aedes trivittatus* has the capacity to vector diseases, however it is likely not a medically important species in Colorado relative to more competent vectors of WNV.

**Distribution:** *Aedes trivittatus* is primarily distributed throughout the eastern United States with its range extending north into southcentral and southeastern Canada, Texas to the south, and parts of Idaho and New Mexico to the west (Carpenter and LaCasse 1955, Darsie and Ward 2005). Harmston and Lawson (1967) reported this species from Adams, Arapahoe, Bent, Boulder, Costilla, Crowley, Denver, Douglas, El Paso, La Plata, Larimer, Logan, Morgan, Prowers, Pueblo, Sedgwick, Washington, Weld, and Yuma counties. Additional records are available from Baca, Broomfield, Fremont, Lincoln, and Montrose counties (Fig. 324e).

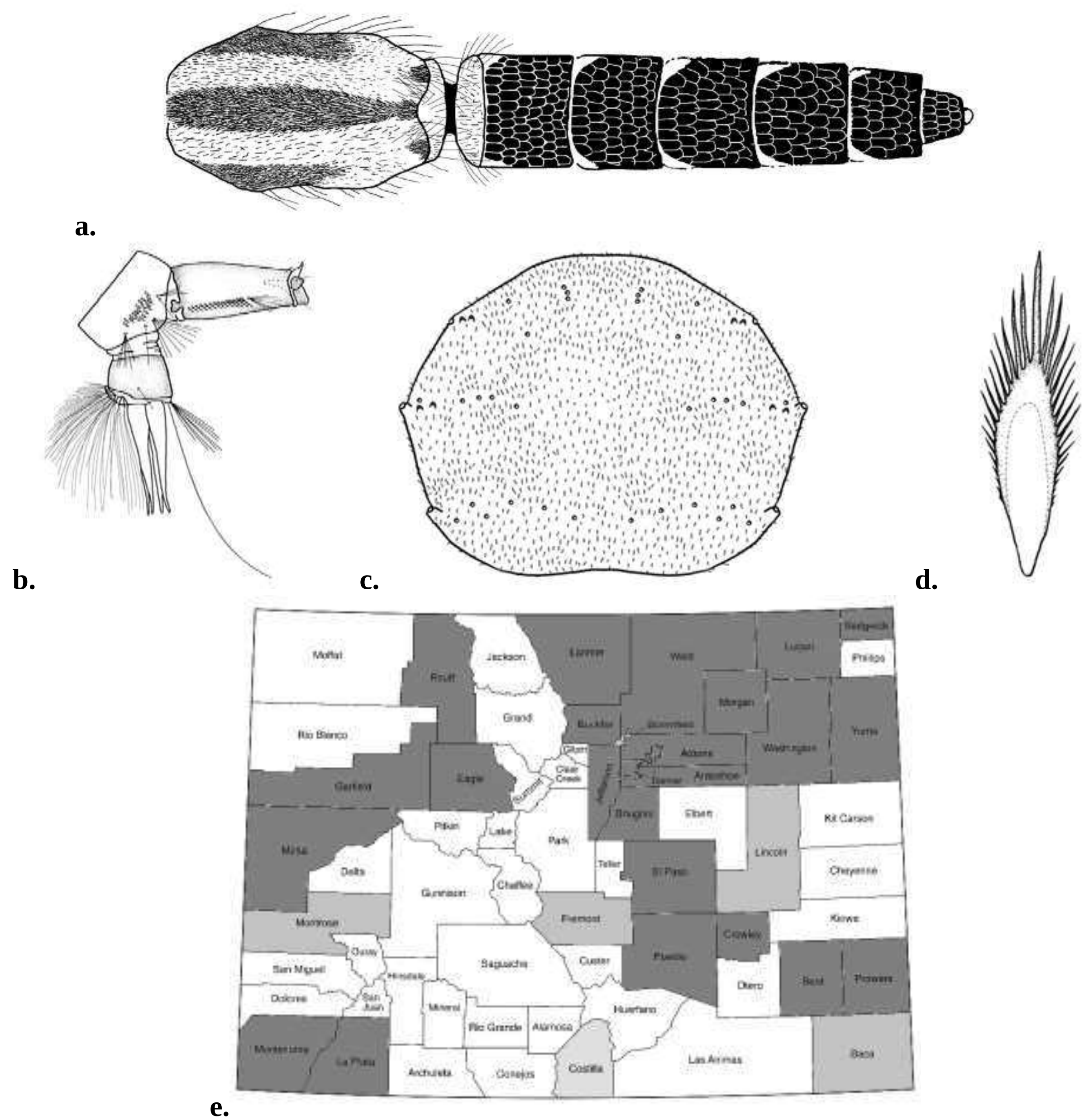



**Figure 324a-e.** *Aedes trivittatus*. a) Pale scaled stripes extend the length of the scutum and the primarily dark scaled tergites; b) Distal segments of the abdomen; c) Aculeate thorax; d) Comb-scale; e) County records for *Ae. trivittatus*. Dark-grey = Harmston and Lawson (1967); Light-grey = post 1967 surveys.

## ***Aedes vexans*** **(Meigen)**

**Original Description:** Meigen, 1830: 241 [as *Culex*].

**Adult Female:** *Head*: Proboscis dark-scaled with few light-brown scales intermixed. *Thorax*: Scutum covered with narrow golden-brown scales, lighter scales anteriorly, posterolaterally, and on prescutellar space. *Wing*: Veins with narrow dark scales. *Legs*: Tarsi dark-scaled with narrow (less than ⅓ the length of tarsal segment) basal bands of white to pale-white scales, rarely inconspicuous or absent on the fore and middle tarsi (Fig. 325a). *Abdomen*: Tergites dark-brown to black-scaled with basal posteriorly bilobed bands of white to pale-white scales, indented medially to form more or less the letter B on most segments (Fig. 325b); sternites pale-scaled, each with dark-brown scales forming a "V" shape with base pointing anteriorly. **Similar Species:** The tarsi of *Ae. increpitus* and *Ae. excrucians* have broader white bands, normally ⅓ or more the length of the segment and these species have straight basal transverse bands of white scales on the tergites, whereas the tarsi on *Ae. vexans* have narrow white bands, and the abdominal banding is medially indented as described above.

**Fourth Instar Larvae:** *Head*: Head seta 5-C, 3-5 branched; 6-C 2-3, branched; 7-C multi-branched (Fig 325c). *Thorax*: Prothoracic seta 1-P medium, single; 2-P short, single; 3-P short, 1-3 branched (Fig. 325c). *Abdomen*: Single of irregular double row of 9-12 comb-scales (Fig 325d); comb-scale thorn-shaped with strong apical spine fringed with small lateral spinules (Fig. 325e). Siphonal index 3.0-3.5; siphon with 14-20 pecten-teeth extending beyond middle or siphon, with 1-3 detached pecten-teeth; siphonal tuft inserted distal to pecten-teeth, length less than the apical diameter of siphon, 3-6 branched (Fig. 325d). Anal-saddle extends $^7/_8$ down sides

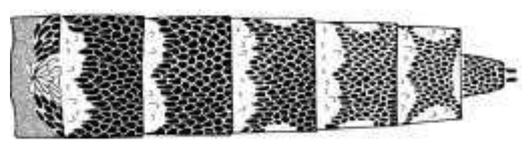
(Fig. 325d).  **Similar Species:**  Head seta 5-C, 6-C, 7-C on *Ae. cinereus* are inserted in approximately a straight line when compared to *Ae. vexans* where 6-C is inserted anterior to 5-C.

**Biology:**  *Phenology*:  Multivoltine.  *Overwintering stage:*  Egg.  *Larval Habitat*:  The larvae occupy a variety of temporary aquatic habitats including but not limited to irrigation and roadside ditches, inundated grassy meadows, pools created by spring runoff and precipitation, and cattail marshes (Harmston and Lawson 1967).  *Host preferences*:  Mammals.  This species primarily feed on larger mammals, especially domestic livestock such as cattle and horses (Harmston and Lawson 1967), but often a persistent bitter of humans.  *Medical Importance*: This species is a suitable bridge vector of WNV (Turell et al. 2001, Turell et al. 2005, Barker et al. 2009), and Anderson et al. (2015) reported field collected *Ae. vexans* yielded isolation of six different viruses from North Dakota as follows CVV, JCV, POTV, SSHV, TVTV, and WNV.

**Comments**: *Aedes vexans* is the primary nuisance floodwater mosquito species throughout Colorado below 8,000 ft. (2,435 m.), as often extremely abundant along the Front Range of Colorado and the lower elevations of the Western Slope.  Adults are one of the first species to emerge in the spring and last to fly in autumn, and has a flight range of up to 25 -30 miles (Gjullin et al. 1950).  *Aedes vexans* is moderately susceptible to WNV infection, and individuals with a disseminated infection readily transmited the virus (Turell et al. 2005).  The occurrence of dense populations in some areas of Colorado and its preference for mammal blood, this species could serve as a potential bridge vector of WNV as reported by Turell et al. (2005).  The medical importance of this species should not be underestimated.

**Distribution:** *Aedes vexans* is widespread globally and throughout North America with its range covering every state in the lower contiguous 48 states, also extending into southern Alaska and the majority of Canada to the north (Carpenter and LaCasse 1955, Darsie and Ward 2005). In Colorado, Harmston and Lawson (1967) reported this species from 34 of 53 counties and indicate that this species likely occurs everywhere in Colorado below 8,000 ft. (2,435 m) in elevation. Additional records support Harmston and Lawson (1967) findings. As Harmston and Lawson (1967) did not report specific counties, the records below indicate the counties that have confirmed specimens of *Ae. vexans* during post-1967 surveys (Fig. 325f).

**a.**



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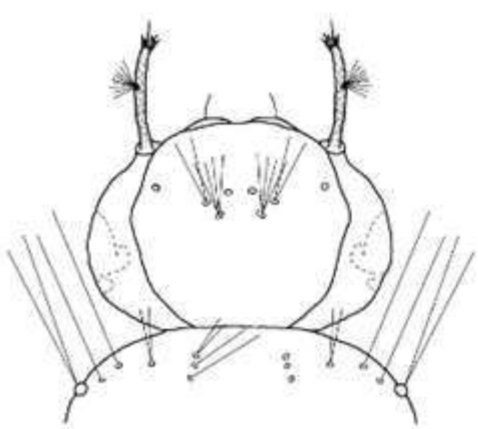

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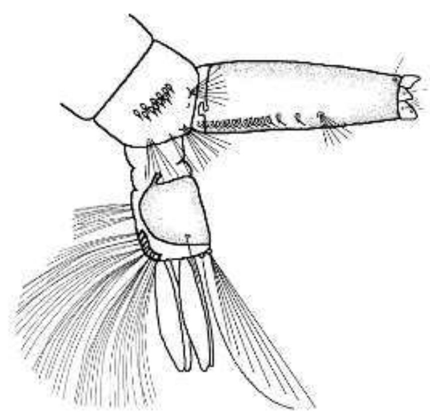


**d.**


e.

f.

**Figure 325a-f.** *Aedes vexans.* a) Narrow basal bands on the tarsi; b) Tergites; c) Head and thoracic setae branching; d) Distal segments of the abdomen; e) Comb-scale; f) County records for *Ae. vexans*. Light-grey = post 1967 surveys.

### *Anopheles barberi* Coquillett

**Original Description:** Coquillett, 1903: 310.

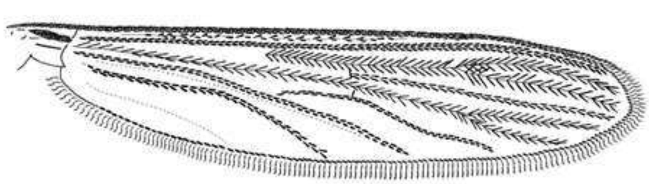
**Adult Female:** *Head*: Proboscis dark-scaled; palpi approximately as long as proboscis, dark-scaled. *Thorax*: Integument brown, shiny; scutum with long dark setae at least ½ as long as the width of the scutum. *Wing*: dark-scaled, slightly broadened (Fig. 326a). *Legs*: Dark-scaled. *Abdomen*: Integument brown, densely covered in with dark-brown setae. **Similar Species:** The apical fringe on the wing of *An. earlei* has a silvery-bronze spot, whereas the apical fringe on the wing of *An. barberi* is entirely dark-scaled. The wings of *An*. *hermsi/freeborni* are characterized by distinct densely scaled spots, while the wings of *An. barberi* lack spots.

**Fourth Instar Larvae:** *Head*: Heat seta 2-C simple, widely spaced; 3-C shorter than 2-C, usually simple, sometimes bifid; 4-C simple or bifid; 5-C through 7-C short, single (Fig. 326b). *Thorax*: Slightly spiculate. Prothoracic 1-P long, sparsely feathered; 2-P slightly longer than 1-P, with many lateral branches; 3-P short, simple; 9-P, 10-P, and 12-P long, simple; 11-P minute. *Abdomen*: Accessory dorsal seta 0 obsolete; palmate seta 1 rudimentary on segments I, well developed on segments II-VII, leaflets with apical serrations; antepalmate seta 2 long, apically branched, lateral to palmate 1 on segments IV and V; lateral seta 6 long, plumose on segments I-VI. Pecten with approximately 12 stout spines. **Similar Species:** Head seta 5-C through 7-C on all other species of *Anopheles* known from Colorado are multibranched, whereas 5-C through 7-C on *An. barberi* are short and single.

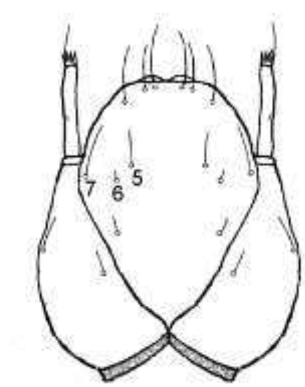
**Biology:** *Phenology*: Multivoltine. *Overwintering stage*: Early instar larvae, sometimes found frozen solid in ice (in its northern distribution) (Carpenter and LaCasse 1955, Wood et al. 1979). *Larval habitat*: Larvae occupy tree holes and stump holes of a variety of tree species, widespread throughout North America (Carpenter and LaCasse 1955). Carpenter and LaCasse (1955) also indicate that this species can be collected from artificial containers filled with leaf litter and other plant debris. *Host preference*: Mammals (Wood et al. 1979). This species is a persistent biter of humans (Carpenter and LaCasse 1955). *Medical importance*: Horsfall (1955) stated that *An. barberi* have been infected with *Plasmodium vivax* malaria in laboratory conditions, but is not considered an important vector of malaria in nature (Horsfall 1955, Carpenter and LaCasse 1955).

**Comments:** Adults of this species typically emerge in June, and the larvae can be collected throughout the mosquito season (Carpenter and LaCasse 1955). Wood et al. (1979) reported that larvae of this species not only filter feed, but also predaceous on early instar larva of mosquitoes. Carpenter and LaCasse (1955) state that the adult females and males readily come to $CO_2$-baited light traps, and interestingly the males have been observed in greater numbers in the traps. The adult females readily enter structures to feed on humans but seem to be rather "nervous" feeders and are reluctant to finish a blood meal in a single feeding (Carpenter and LaCasse 1955). The adults have been observed resting in houses, culverts, and underneath bridges during the day (Carpenter and LaCasse 1955). This species has been rarely collected in Colorado.

**Distribution:** *Anopheles barberi* is primarily distributed throughout the eastern United States with its range extending as far north as southeastern Canada, south into southeast Texas and Florida, all along the Atlantic Coast to the east, and west into Colorado (Carpenter and LaCasse 1955, Darsie and Ward 2005). This species has only been recorded recently based on a single specimen from Thornton (Adams County). It was collected 14 September 2012 during late season mosquito surveillance by Colorado Mosquito Control (Fig. 326c).



**a.**




**b.**


**c.**

**Figure 326a-c.** *Anopheles barberi*. a) The wing is entirely dark-scaled; b) Head seta 5-C through 7-C short and single; c) The single record for *An. barberi* (Adams County).

## *Anopheles earlei* Vargas

**Original Description:** Vargas, 1943: 9.

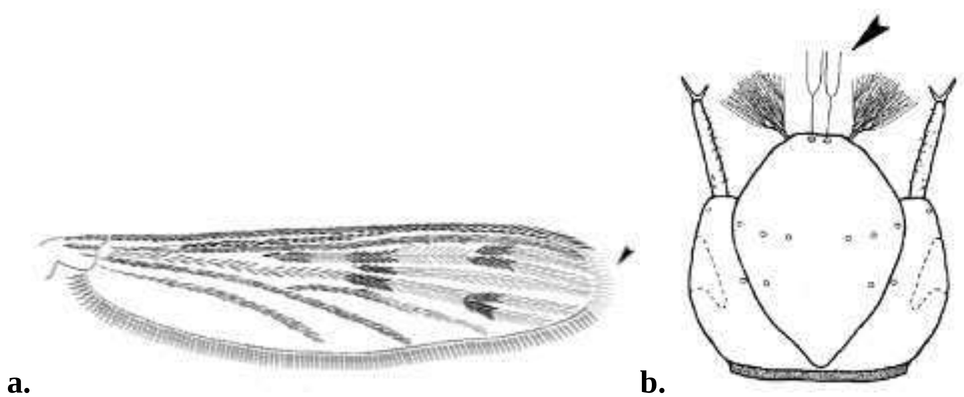
**Adult Female:** *Head*: Proboscis dark-brown scaled; palpi approximately as long as proboscis, with dark-brown scales. *Thorax*: Integument of scutum unscaled, with medial whitish or "frosty" stripe, brown laterally; stripe with short, pale-yellowish hairs, lateral areas with longer, dark setae. *Wing*: Veins with narrow, dark scales; denser distinct raised dark-scaled patches present on base of $R_2$ and $R_3$, between fork of $R_{2+3}$, base of $R_{4+5}$, medial vein, and base of $M_{1+2}$ and $M_{3+4}$; apex of wing fringe with silver to bronze scales (Fig. 327a). *Legs*: Dark-brown scaled; apices of femora and tibiae with few yellowish-white scales. *Abdomen*: Integument dark-brown with frosted areas, covered with pale-yellow to brown setae. **Similar Species:** The wings of *An. franciscanus* and *An. punctipennis* have contrasting white and black scale spots, whereas the apex of the wing on *Ae. earlei* has a distinct silver to bronze fringe scale patch, but all other wing scales are dark.

**Fourth Instar Larvae:** *Head*: Head seta 2-C, distally 2-5 branched (Fig. 327b), rarely simple, usually separated at base by width of one tubercule; 3-C densely dichotomously branched; 4-C short, 2-5 branched; 5-C to 7-C large, plumose. *Thorax*: Prothoracic seta 1-P short, simple; 2-P long, 10-12 branched; 3-P short, simple. *Abdomen*: Segment IV and V dorsal seta 0 obsolete or reduced, simple; segments I and II seta 1 palmate, simple, segments III-VII well developed, approximately equal in size to each other; leaflets with serrations on apical half; segments IV and V seta 2 antepalmate, usually 2-6 branched. Siphon absent; pecten with approximately 8 long spines. **Similar Species:** Head seta 3-C is single on *An. franciscanus*, while 3-C is plumose on *An. earlei*. Head seta 2-C is single and lacking distal branching on *An. hermsi/freeborni* and *An. punctipennis*, whereas 2-C distally is 2-5 branched on *An. earlei*.

**Biology:** *Phenology*: Multivoltine. *Overwintering stage*: Adult male and female (Wood et al. 1979). *Larval habitat*: The larvae occur in clear, cold pools with emergent and floating vegetation, pools along slow flowing stream margins, and snowmelt pools at higher elevations, bogs, and marshes (Carpenter and LaCasse 1955). *Host preference*: Mammals such as cattle, goats and sheep, as well as beavers, and horses (Anderson and Gallaway 1988). *Medical importance*: Very little is known about the vector potential of this species. Pratt (1952) reported that this species is likely an unimportant vector of disease in North America.

**Comments:** Since Harmston and Lawson (1967), this species has been recorded more commonly in the state, however little is still know about the behavior of *An. earlei*. The adult females readily come to $CO_2$-baited light traps, and they can be a nuisance in areas where they are abundant. Harmston and Lawson (1967) reported collecting this species in culverts and under bridges in the northern parts of Colorado. Adults of *An. earlei* overwinter in buildings, caves, and mammal burrows. This species has been observed trying to feed on humans when disturbed, readily entering the home to seek a host (Carpenter and LaCasse 1955). Since this species is relatively uncommon and not a known vector of disease in nature, therefore likely of little importance in the state.

**Distribution:** *Anopheles earlei* is primarily distributed throughout the northern regions of North America. Its range extends as far south as Colorado, Alaska to the north, northeastern United States in the east, and British Columbia in the west (Carpenter and LaCasse 1955; Darsie and Ward 2005). Harmston and Lawson (1967) report this species from Arapahoe, Boulder, Clear Creek, El Paso, Jefferson, and Larimer counties. Additional records are available for Douglas, Jackson, La Plata, Mesa, Montezuma, Moffat, Pueblo, and Routt counties (Fig. 327c).



**c.**

**Figure 327a-c.** *Anopheles earlei*. a) The apex of the wing margin fringe with a conspicuous silvery-bronze spot of scales; b) Head seta 2-C single, with 2-5 branches distally; c) County records for *An. earlei*. Dark-grey = Harmston and Lawson (1967); Light-grey = post 1967 surveys.

### *Anopheles franciscanus* McCracken

**Original Description:** McCracken, 1904: 12.

**Adult Female:** *Head*: Proboscis dark-scaled; palpi approximately the length of proboscis, with black scales, apex of segments 2, 3, and 4 with narrow band of white scales, terminal segment apically dark-scaled (Fig. 328a). *Thorax*: Integument of scutum with a broad medial longitudinal frosted stripe extending the length of scutum, laterally dark-brown; frosted strip covered with narrow yellowish-white scales and pale-yellow setae, lateral areas with dark-brown setae. *Wing*: Veins black and yellowish-white scaled, arranged in contrasting lines and spots (Fig. 328b). *Legs*: Dark; apices of femora and tibiae pale. *Abdomen*: Integument dark-brown to black, covered with golden setae. **Similar Species:** The palpi are entirely dark-scaled on *An.*

*punctipennis*, while the apices of segments 2, 3, and 4 on the palpi of *An. franciscanus* are marked by a conspicuous narrow ring of white to pale-white scales.

**Fourth Instar Larvae:** *Head*: Head seta 2-C long, single, basal tubercles separated by more than the width of one tubercle; 3-C long, simple; 4-C long, simple; head setae 5-C to 7-C large, plumose (Fig. 328c). *Thorax*: Prothoracic seta 1-P short, 2-4 branched; 2-P long, stout, laterally multi-branched; 3-P simple, 2x as long as seta 1-P; 9-P, 10-P, and 12-P long, simple; seta 11-P short, simple. *Abdomen*: Segments I-VII dorsal seta 0 absent; segments I and II seta 1 rudimentarily palmate, segments III-VII seta 1 palmate, well developed; leaflets long, slender, serrations extending beyond median aspect of leaflet; segment IV antepalmate seta 2 single to triple branched, segment V usually single; segments I-III lateral abdominal seta 6 long, plumose. Posterior spiracular plates lacking long, sclerotized projections (tails) and arising from the inner caudal margin. **Similar Species:** Head seta 3-C is multi-branched and plumose on all other *Anopheles* known to occur in Colorado except *An. barberi*, whereas 3-C on *An. franciscanus* is long and simple. *An. barberi* has head setae 5-C, 6-C and 7-C small and usually single, while these setae are large and plumose on *An. franciscanus*.

**Biology:** *Phenology*: Multivoltine. *Overwintering stage*: Adult females have been collected in California (Bohart and Washino 1978). *Larval habitat*: The larvae of this species occur in spring-fed pools, seeps, and pools created by runoff along stream margins, all of which are exposed to full sunlight, with ample vegetation such as duckweed, and dense growths of green algae (Carpenter and LaCasse 1955, Harmston and Lawson 1967, Wood et al. 1979). *Host preference*: Mammals. This species prefers blood meals from larger mammals such as livestock including cattle, horses, and sheep (Carpenter and LaCasse 1955, Harmston and Lawson 1967). *Medical importance*: In laboratory settings *An. franciscanus* has been infected with *Plasmodium vivax*, however due to this mosquito preferring livestock as a host, it is not considered an important vector of malaria (www.wrbu.org/speciespages accessed on 30 November 2015). This species has also tested positive for WNV in New Mexico (Pitzer et al. 2009).

**Comments:** This species occurs later in the summer, usually in the months of July-September. Adult females of this species are crepuscular, active only during dawn and dusk hours of the day, in-turn seeking shelter during daytime hours close to their larval habitat (Carpenter and LaCasse 1955). Adult females are attracted to $CO_2$-baited light traps, however, it is not known to be an extreme biting nuisance to humans. Due to the low numbers experienced in Colorado, and affinity for larger mammals as a host, *An. franciscanus* is apparently of little medical importance in Colorado.

**Distribution:** *Anopheles franciscanus* is a species of the southwest, USA with its distribution extending to Oregon in the north, and parts of western Texas, Nebraska, and Kansas to the east (Carpenter and LaCasse 1955, Harmston and Lawson 1967, Darsie and Ward 2005). Harmston and Lawson (1967) reported this species from Bent, Cheyenne, Conejos, Costilla, Delta, Eagle, La Plata, Lincoln, Logan, Mesa, Montezuma, Montrose, Prowers, Pueblo, San Miguel, and Weld counties of Colorado. Additional specimens were collected more recently, but only duplicating already known county records (Fig. 328d).

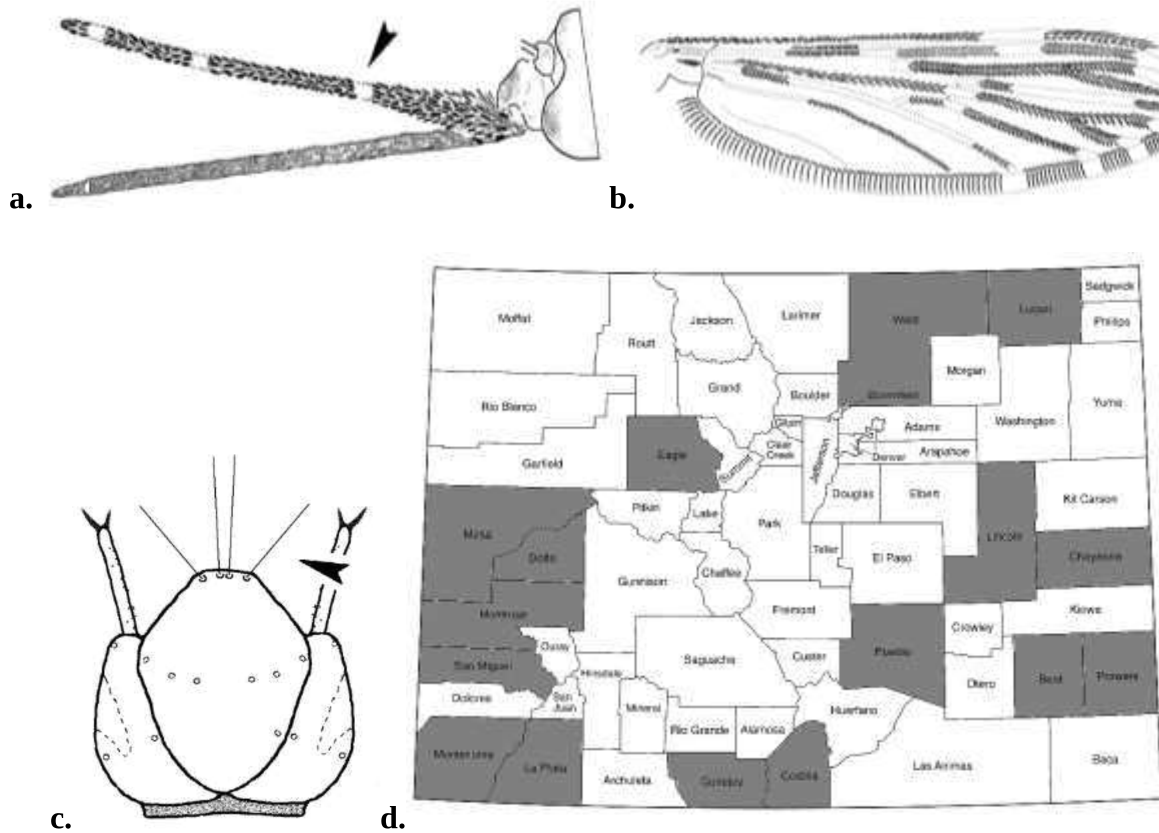



**Figure 328a-d.** *Anopheles franciscanus*. a) Segments 2, 3, and 4 of the palps have a narrow apical ring of pale scales; b) veins with yellowish-white contrasting lines and spots of scales; c) Head seta 3-C long, and single; d) County records for *An. franciscanus*. Dark-grey = Harmston and Lawson (1967).

## *Anopheles hermsi* Barr & Guptavanij

## and

## *Anopheles freeborni* Aitken

**Original Description:** Barr and Guptavanij, 1988: 353.

**Original Description:** Aitken, 1939: 192.

**The following description includes both cryptic species. Adults can only be distinguished using genetic information (Porter and Collins 1991, Hayden et al. 2001).**

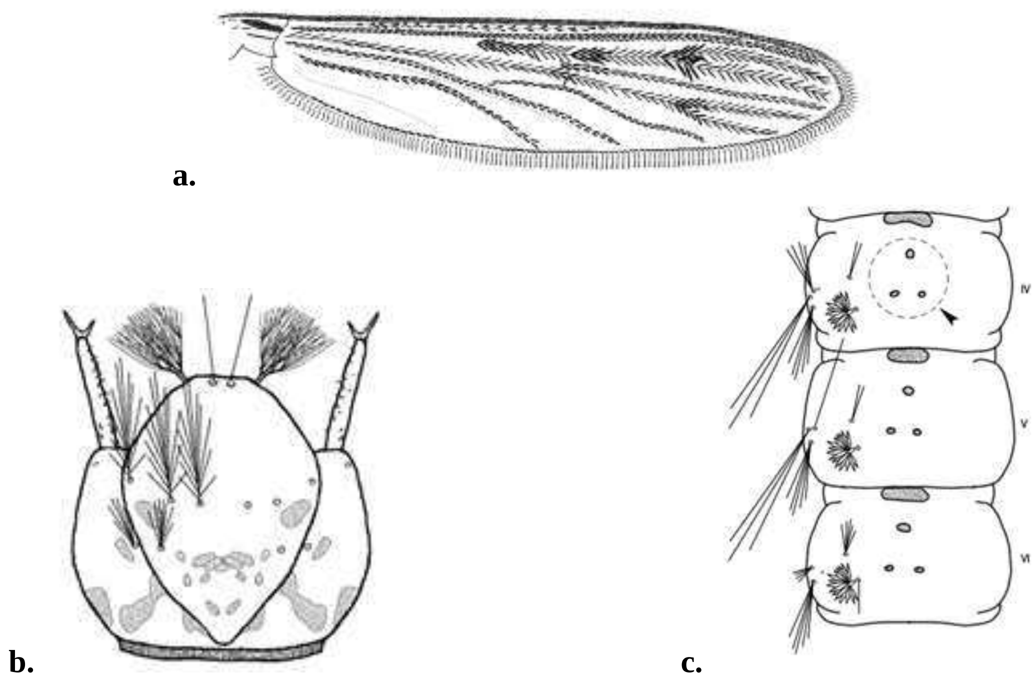
**Adult Female:** *Head*: Proboscis dark-scaled; palpi approximately the length of proboscis, dark-scaled, basal segment with raised scales. *Thorax*: Scutal integument brown to black, medial area marked by grayish-brown median and submedian stripes; scutum with pale-yellow to golden-brown setae, more abundant medially. *Wing*: Veins with narrow dark scales; distinct densely dark-scaled spots (Fig. 329a). *Legs*: Dark-scaled; apices of femora and tibiae pale-scaled. *Abdomen*: Integument brown to black, with yellowish-brown setae. **Similar Species:** The wings of *An. barberi* lack the distinct dense patches of dark-scales, while the wings of *An. hermsi/freeborni* have distinct densely dark-scaled spots. The apex of the wing fringe of *An. earlei* has a distinct patch of silvery-bronze scales, while the wing fringe of *An. hermsi/freeborni* is entirely dark-scaled.

**Fourth Instar Larvae:** *Head*: Head seta 2-C simple, basal tubercles separated by less than the diameter of one tubercle (Fig. 329b); 3-C with dense dichotomous branching; 4-C short, 2-branched near base or middle. *Abdomen*: Segments IV and V accessory dorsal seta 0 obsolete; segments I and II palmate seta 1 rudimentary, well developed on segments III-VII; leaflets with serrations on apical half; antepalmate seta 2, 1-3 branched on segments IV and V; lateral seta 6 long, plumose on segments I-III. *Anopheles freeborni* can be distinguished from *An. hermsi* by the sum of the branches on abdominal lateral setae 13-III, 2-IV, 2-V, and 2-VI, totaling 28 or greater on *An. freeborni*, and totaling between 22 and 28 on *An. hermsi* (Barr & Guptavanij 1988). **Similar Species:** Abdominal segments IV and V have only 1 small accessory tergal plate, the antennal seta tuft is located within the basal ⅓ of the antenna, and the dorsal integument of the head is banded on *An. punctipennis*, whereas on *An. hermsi/freeborni* segments IV and V have 3 small accessory tergal plates (Fig. 329c), the antennal seta tuft is located at or distal to the basal ⅓ of the antenna, and the dorsal integument of the head has spots (Fig. 329b).

**Biology:** *Phenology*: Multivoltine. *Overwintering stage*: Adult male and female (Carpenter and LaCasse 1955). *Larval habitat*: The larvae occupy a variety of freshwater habitats including roadside ditches, seeps, streambed pools, inundated grassy meadows, and temporary pools created by agricultural run-off, usually open to sunlight most of the day and with an abundance of algae (Carpenter and LaCasse 1955, Harmston and Lawson 1967, Wood et al. 1979). *Host preference*: Mammals. *Medical importance*: These mosquitoes were historically the primary vector of malaria in the western United States (Porter and Collins 1990, Fritz and Washino 1993, Collins and Jeffery 1999); and a vector of WEEV (Carpenter and LaCasse 1955, www.wrbu.org/speciespages accessed on 16 December 2015).

**Comments:** Adult females of these species readily come to $CO_2$-baited light traps and when abundant are a biting nuisance to humans. Adults of *An. hermsi* and *An. freeborni* are morphologically indistinguishable, requiring molecular testing for separation (Porter and Collins 1991, Hayden et al. 2001). Abdominal setae branching of mature fourth instar larvae are used to distinguish *An. freeborni* from *An. hermsi* and other morphologically similar species (Barr and Guptavanij 1988).

**Distribution:** The *Anopheles hermsi/freeborni* is primarily a western species complex in North America *usually* not extending east of the Continental Divide (Carpenter and LaCasse 1955, Harmston and Lawson 1967). Its range extends into southwest Canada to the north, Colorado and New Mexico to the east, parts of northwest Texas to the south, and along the Pacific Coast to the west (Carpenter and LaCasse 1955, Darsie and Ward 2005). Harmston and Lawson (1967) reported all members of this complex as *An. freeborni*, with records from Chaffee, Delta, Dolores, Eagle, El Paso, Fremont, Garfield, Gunnison, Mesa, Montrose, Montezuma, Pueblo, Rio Blanco, San Miguel, and Weld counties in Colorado. Additional records of *An. hermsi/freeborni* are available from Adams, Baca, Bent, Boulder, Broomfield, Douglas, Garfield, Jefferson, La Plata, Montrose, and Prowers counties. Preliminary genetic studies from specimens collected in 2014-15 imply that Colorado records west of the Continental Divide and south of the Palmer Divide are *An hermsi*, while those collected in the northeast quadrant of the state were determined to be *An. freeborni* (Robert Hancock, pers. com.) (Fig. 329d).



**a.** **b.** **c.**


**d.**

**Figure 329a-d.** *Anopheles hermsi/freeborni*. a) Veins with narrow dark scales and four distinct densely scaled spots; b) Head; c) 3 small accessory tergal plates; d) County records for *An. hermsi/freeborni*. Dark-grey = Harmston and Lawson (1967); Light-grey = post 1967 surveys.

## *Anopheles punctipennis* (Say)

**Original Description:** Say, 1823: 9 [as *Culex*].

**Adult Female:** *Head*: Proboscis black-scaled; palpi approximately the length of proboscis, dark-scaled, basal segment with raised scales (Fig. 330a). *Thorax*: Scutal integument with broad medial frosted stripe, laterally dark-brown; frosted area with fine pale-yellow setae, dark-brown area with larger dark setae. *Wing*: Veins with black and pale-yellow scales in contrasting lines and spots; costa with pale-yellow spot at outer ⅓ opposite of subcostal tip, anal vein with basal ¼ and apical ½ dark-scaled, veins $R_{4+5}$ and Cu completely dark-scaled. *Legs*: Dark-scaled; femora and tibiae apices with pale scales. *Abdomen*: Integument dark-brown to black, with pale and dark setae. **Similar species:** The palpi on *An. franciscanus* are marked with conspicuous narrow rings of pale-white scales, whereas the palpi on *An. punctipennis* are entirely dark-scaled.

**Fourth Instar Larvae:** *Head*: Head seta 2-C simple, basal tubercles separated by less than the diameter of one tubercle; 3-C densely dichotomously branched; 4-C short, dichotomously branched; 5-C through 7-C large, plumose (Fig. 330b). *Thorax*: Prothoracic seta 1-P short, several weak branches beyond base; 2-P long, stout, multibranched; 3-P short, simple; 9-P, 10-P, and 12-P long, simple; 11-P short, simple. *Abdomen*: Segments IV and V accessory dorsal seta 0 obsolete; segments I and II palmate seta 1 rudimentary, well developed, approximately equal in size on segments III-VII (sometimes smaller on segment VII); apical ½ of leaflets with irregular serrations; segments IV and V antepalmate seta 2, 1-3 branched; segment I seta 5, 3-4 branched, slightly longer than seta 4; segments I-III lateral seta 6 long, plumose. Pecten with seven long spines. **Similar Species:** Abdominal segments IV and V have 3 small accessory tergal plates, antennal seta tuft is located at or distal to the basal ⅓ of the antenna, and the dorsal integument of the head is marked by spots on *An. hermsi/freeborni*, while segments IV and V have only 1 small accessory tergal plate (Fig. 330c), antennal seta tuft is located within the basal ⅓ of the antenna, and the dorsal integument of the head is banded on *An. punctipennis*.

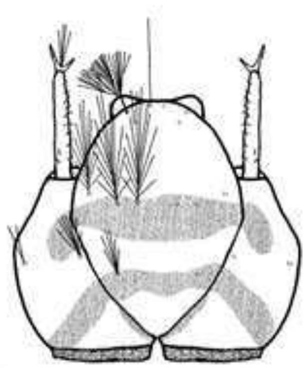
**Biology:** *Phenology*: Multivoltine. *Overwintering stage*: Mated females pass the winter in protected sites (Harmston and Lawson 1967, Wood et al. 1979). *Larval habitat*: The larvae occupy depressions along streams filled with run-off, permanent pools and ponds with emergent vegetation, temporary pools, ditches, and a variety of other cooler, freshwater habitats (Carpenter and LaCasse 1955, Harmston and Lawson 1967, Wood et al. 1979). *Host preference*: Mammals (Molaei et al. 2008). *Medical importance*: This species is considered to be a competent vector of human malaria (*P. vivax*) (King 1915, King 1916), a likely vector of JCV in Connecticut (Andreadis et al. 2008), and a potential vector of WNV (Darsie and Hutchinson 2009).

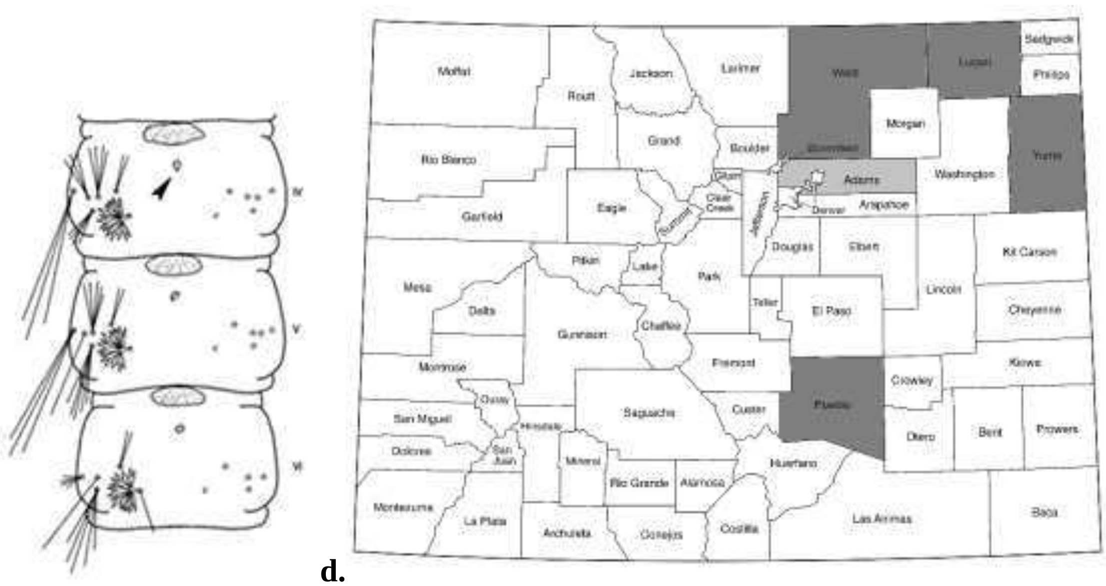
*Anopheles punctipennis* has also tested positive for POTV (Mitchell et al. 1996) and a probabe vector of dog heartworm in Alabama (Tolbert and Johnson 1982).

**Comments:** This species is not common in Colorado and is likely restricted to the eastern plains. The adults of this species, like other *Anopheles*, rest during the day in shaded, cool, moist environments and feed during dawn and dusk, also sometimes during cooler, cloudier days (Carpenter and LaCasse 1955, Harmston and Lawson 1967). *Anopheles punctipennis* is primarily regarded as an "outdoor" species and does not enter dwelling in large number to seek a host (Carpenter and LaCasse 1955, Harmston and Lawson 1967). Due to the apparent rarity of this species in Colorado, *An. punctipennis* is not considered medically or economically important in the state.

**Distribution:** *Anopheles punctipennis* is widespread throughout the United States and portions of southern Canada, however much less common in the Rocky Mountain region (Carpenter and LaCasse 1955, Harmston and Lawson 1967, Darsie and Ward 2005). Harmston and Lawson (1967) reported this species from Logan, Pueblo, Weld, and Yuma counties in Colorado. An additional record is available from Adams County (Fig. 330d).

a. 

b. 




c. d.

**Figure 330a-d.** *Anopheles punctipennis*. a) Palpi are entirely dark-scaled; b) Head; c) Segment IV, V, and VI with a single, small, accessory tergal plate; d) County records for *An. punctipennis*. Dark-grey = Harmston and Lawson (1967); Light-grey = post 1967 surveys.

## *Coquillettidia perturbans* (Walker)

**Original Description:** Walker, 1856: 428 [as *Culex*].

**Adult female:** *Head*: Proboscis dark-scaled with median ring of pale scales, pale scales scattered on basal ½. *Thorax*: Scutum with dark-brown and pale-golden lanceolate scales intermixed, pale-golden scales abundant anteriorly, laterally, and on prescutellar space. *Wings*: Veins with broad dark and white scales intermixed, dark scales more abundant (Figure 331a). *Legs*: Hind femur with thin, subapical ring of pale-scales; tarsal segment 1 with narrow basal ring of white scales and broader median ring of white scales; basal ½ of tarsal segments 2-5 with ring of white scales, apical ½ dark-scaled. *Abdomen*: Tergites dark-scaled with pale-yellow or white scale patch basolaterally, sometimes with thin basal band of pale scales; sternites dark and pale scales intermixed, pale scales more abundant basally; tergite VIII blunt, usually retracted into tergite VII. **Similar species:** No other species in Colorado has the distinctive broad wing scales found on *Cq. perturbans*.

**Fourth Instar Larvae:** *Head*: Antennae approximately 1 $^{3}/_{4}$-2x as long as head; setae 2-A and 3-A much shorter than flagellum. Head wider than long. Head seta 5-C multibranched, shorter than seta 6-C; 6-C large, multibranched; 7-C similar to 6-C. *Thorax*: Prothoracic hair 1-P and 2-P long, single; 3-P long, multibranched; 4-P short, multibranched; 5-P long, single; 6-P single, approximately ⅔ the length of 5-P; 7-P slightly shorter than 6-P, 2-3 branched. *Abdomen*: Single or irregular row of 8-15 thorn-like comb-scales. Siphon short, extremely attenuated; siphon sclerotized to middle, attenuated part saw-like dorsally, with hooks apically (Figure 331b); siphon with stout recurved spine dorsally; dorsolateral seta stout, single; siphonal tuft inserted before sclerotized portion, single. Anal saddle completely encircles anal segment, longer than wide; precratal seta usually absent (if present, 2 thin setae posteriorly). **Similar Species:** *Cq. perturbans* is a morphologically unique larva with its distinctive siphon.

**Biology:** *Phenology*: Univoltine. Larvae are present throughout the season with continued emergence, but only a single generation occurs each year (Wood et al. 1979). *Overwintering stage*: Larva (Carpenter and LaCasse 1955, Wood et al. 1979). *Larval habitat*: The larvae occupy a variety of freshwater habitats with an abundance of emergent vegetation, to which the larvae insert the hook-like siphon into submerged stems or roots using the plant as an oxygen source. Most important, the larval habitat must be a permanent source of water with a thin layer of muck and mud on the bottom, in-order for the larva to burry itself and insert its attenuated siphon into the plant roots or stems (Wood et al. 1979). In Colorado, this species will usually attach to *Typha* (cattails) and *Scirpus* (Bulrush). *Host preference*: Primarily mammals, but also bird species (Molaei et al. 2008, Molaei et al. 2015), Wood et al. (1979) reported this species as a serious pest of animals and humans in Canada. *Medical importance*: *Coquillettidia perturbans* is a vector of EEEV (Nasci et al. 1993, Vaidyanathan et al. 1997, Moncayo and Edman 1999, Turell et al. 2005, Molaei et al. 2015), JCV (Andreadis et al. 2008). This species may play a secondary role in the transmission of WNV in certain areas of North America (Godsey et al. 2005), although, Sardelis et al. (2001) demonstrated poor laboratory competence of *Cq. perturbans* to vector WNV. Cache Valley virus has been isolated from this species (Andreadis et al. 2014).

**Comments:** This species readily comes to $CO_2$-baited light traps. The adults are known to be most active at dusk and early in the night, feeding close to their place of emergence, and eagerly bite-humans in the vicinity of their larval habitat (Carpenter and LaCasse 1955). *Coquillettidia perturbans* has a highly adapted respiratory system compared to other culicids. The modified saw-like siphon is inserted into roots or stalks of submerged plants enabling both the larvae and pupae to remain submerged using plant oxygen during development reducing predation. This species primarily occurs at elevations less than 5,500 ft. (1,630 m.), and can be locally abundant, but is considered of little importance medically.

**Distribution:** *Coquillettidia perturbans* is widespread over North America, the range extending north into southern Canada, south into Mexico (largely absent from the southwestern United States), west into California, and all along the eastern Atlantic Coast (Carpenter and LaCasse 1955, Darsie and Ward 2005). Harmston and Lawson (1967) reported this species from Boulder, Garfield, and Yuma counties. Additional records are available from Adams, Broomfield, Denver, Douglas, Larimer, Pueblo, and Sedgwick counties (Fig. 331c).

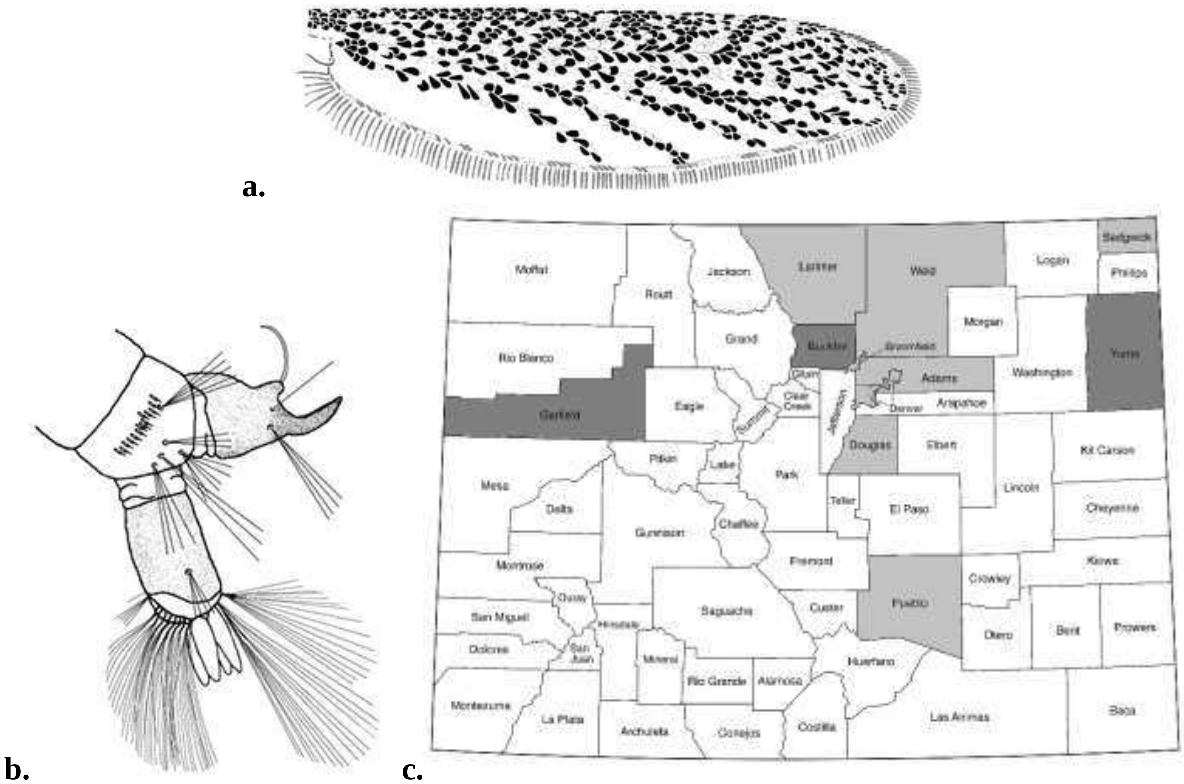



**Figure 331a-c.** *Coquillettidia perturbans*. a) The wing. Note the broad scales; b) Distal segments of the abdomen. Note the hook-like siphon; c) County records for *Cq. perturbans*. Dark-grey = Harmston and Lawson (1967); Light-grey = post 1967 surveys.

### *Culex erythrothorax* Dyar

**Original Description:** Dyar, 1907: 124.

**Adult Female:** *Head*: Proboscis dark-scaled, few pale scales ventrally. *Thorax*: Integument of scutum reddish-brown; scutum covered with fine hair-like golden scales (Fig. 332a and b), paler on prescutellar region; scutellum with pale-golden scales, golden setae on lobes; pleura sclarites reddish-brown, with small patches of few dingy-pale scales (Fig. 332c). *Wing*: Veins with narrow dark scales. *Legs*: Brown-scaled with bronze sheen; femora and tibiae posterior aspect yellowish, apices with yellowish scales. *Abdomen*: Tergites brownish-black scaled, with narrow inconspicuous basal bands of yellowish scales; tergite VIII (sometimes tergite VII) entirely pale-scaled; sternites yellowish to pale scaled. **Similar Species:** The integument of *Cx. salinarius* and *Cx. pipiens* is yellowish brown, while the integument of *Cx. erythrothorax* is reddish-brown, giving it an overall rusty color in appearance.

**Fourth Instar Larvae:** Head seta 5-C long, 4-7 branched; 6-C long, 3-4 branched; 7-C long, multibranched. *Thorax*: Prothoracic setae 1-P through 3-P long, single; 4-P long, double; 5-P and 6-P long, single; 7-P long, 2-3 branched. *Abdomen*: Patch of more than 65 comb-scales; comb-scale long, broad, rounded, fringed apically with subequal spinules. Siphonal index 6.0-7.0; 11-20 pecten-teeth on basal ¼ of siphon; 5 siphonal tufts inserted distal to pecten-teeth, 2-4 branched, short, with the third and fourth tuft inserted laterally out-of-line from the others (Fig. 332d). Anal segment completely ringed by anal-saddle. **Similar Species:** The comb is marked by 35-60 comb-scales and the third siphonal tuft is inserted out-of-line of 1, 2, and 4, on *Cx. salinarius*; while the comb of *Cx. erythrothorax* has more than 65 comb-scales and siphonal tufts 3 and 4 are inserted out-of-line of 1, 2, and 5.

**Biology:** *Phenology*: Multivoltine. *Overwintering stage*: Adults overwinter (Chapman 1962). *Larval habitat*: The larvae occupy variety of habitats but prefer large shallow ponds with ample emergent and floating vegetation (Carpenter and LaCasse 1955, Harmston and Lawson 1967). *Host preference*: This species is opportunistic feeding on mammals and birds (Jakob et al. 1989, Molaei et al. 2010). Molaei et al. (2010) reported that *Cx. erythrothorax* took a blood meal from

21 different bird and mammal hosts. *Medical importance*: This species is noted as a vector of WEEV and SLEV (Bohart and Washino 1978, Jakob et al. 1989), however Reisen et al. (1992) reported that *Cx. erythrothorax* did not demonstrate laboratory competence of SLEV. Jakob et al. (1989) also reported virus isolates of HPV from *Cx. erythrothorax*. Turell et al. (2005) reported that this species serves a role in the transmission of EEEV. *Culex erythrothorax* was also found to be a competent vector of WNV (Goddard et al. 2002, Turell et al. 2005).

**Comments:** The adult females of this species oviposit on the surface of water, where it lays its eggs in a raft of approximately 100-300 eggs. *Culex erythrothorax* adult females readily come to $CO_2$-baited light traps. This species typically does not fly far from its larval habitat, but can be a biting nuisance in the vicinity, especially at dusk. At certain locations, it has been reported medically and economically important species (Bohart and Washino 1978). In Colorado, this species may serve a secondary role of WNV transmission to humans based off its feeding habits.

**Distribution:** This species is distributed primarily in the southwestern United States, with populations in its range known as far north as southern Oregon (Darsie and Ward 2005). Harmston and Lawson (1967) report this species from Mesa County. Additional records are available from Adams, Bent, Denver, Garfield, Jefferson, Larimer, Pueblo, and Weld counties (Fig 332e).

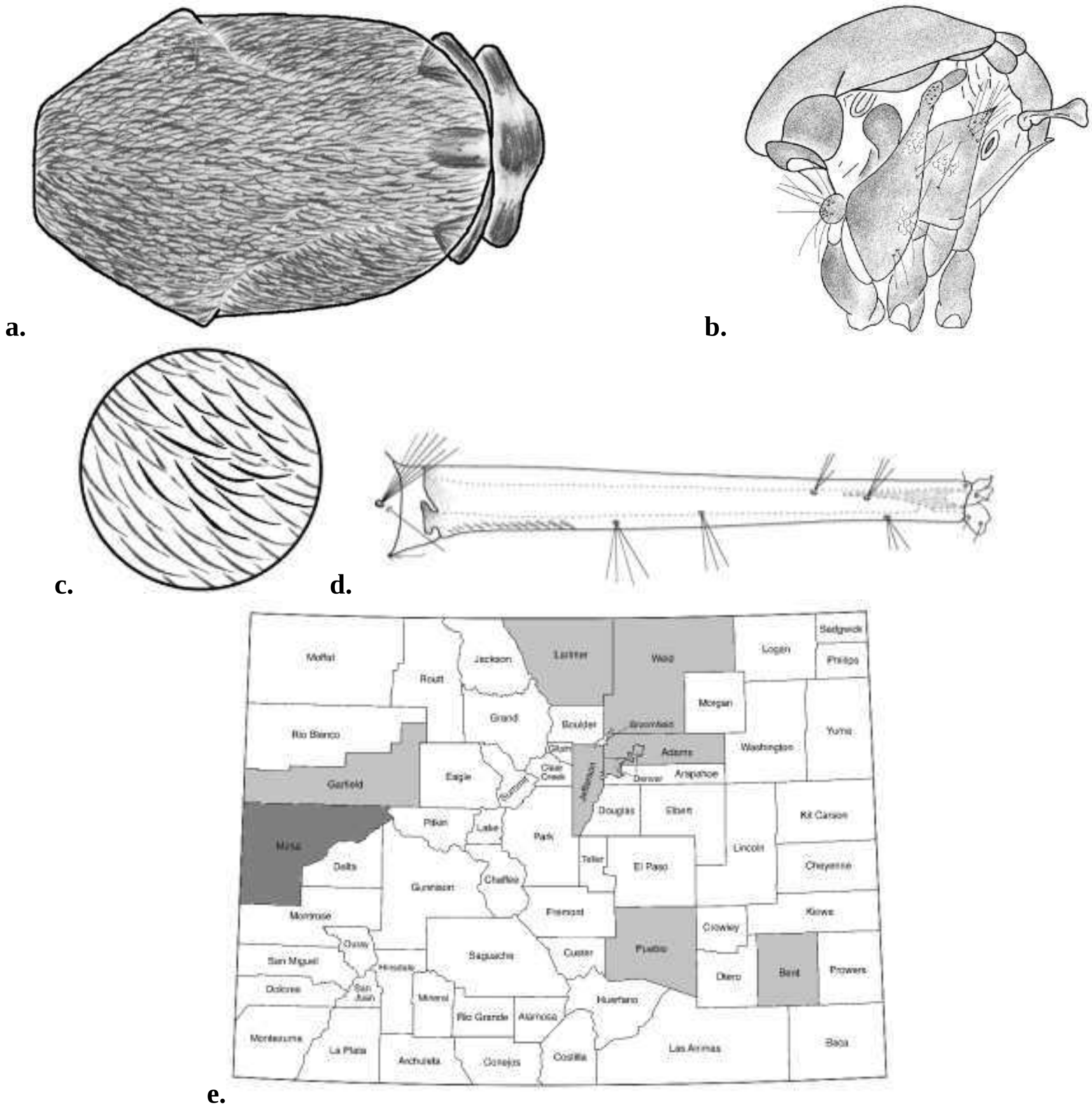



**Figure 332a-e.** *Culex erythrothorax*. a) Scutum; b) Detail of fine hair-like scales; c) Small patches of pale scales; d) Siphonal index 6.0-7.0. Siphonal tufts 3 and 4 inserted laterally out-of-line from the others; e) County records for *Cx. erythrothorax*. Dark-grey = Harmston and Lawson (1967); Light-grey = post 1967 surveys.

## *Culex pipiens* Linnaeus

**Original Description:** Linnaeus, 1758: 602.

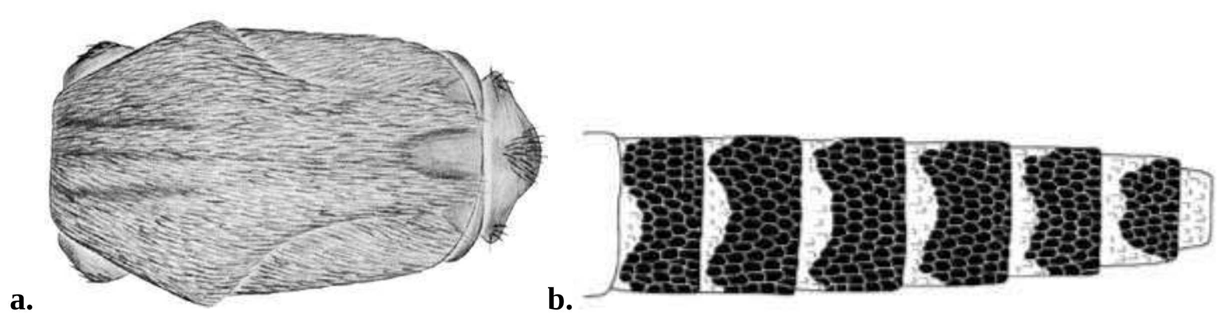
**Adult Female:** *Head*: Proboscis dark-scaled. *Thorax*: Scutum covered in narrow golden-brown scales, paler on prescutellar space (Fig. 333a); pleura with small patches of pale scales. *Wing*: Veins with narrow dark scales. *Legs*: Dark-scaled with bronze to blue-green metallic sheen. *Abdomen*: Tergites dark-scaled with bronze to blue-green sheen, with conspicuous basal bands and lateral patches of dingy-white to white scales; basal bands broadly rounded on posterior margin and constricted laterally where it meets the lateral patch of scales (Fig. 333b); sternites pale scaled, sometimes with few dark scales. **Similar Species:** The scutal and thoracic integument on *Cx. erythrothorax* is reddish-brown giving it a rusty appearance, whereas the scutal and thoracic integument on *Cx. pipiens* is yellowish-brown. The basal bands on the tergites of Cx. *salinarius* are narrow and uniform in width, whereas the basal bands on the tergites of *Cx. pipiens* are broadly rounded posteriorly and constricted laterally.

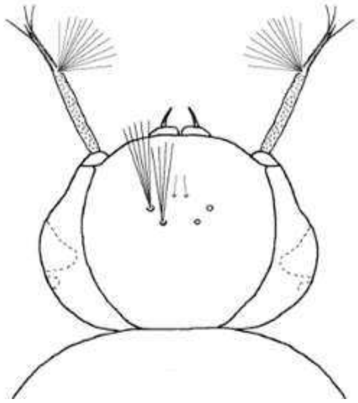
**Fourth Instar Larvae:** Body glabrous. *Head*: Head seta 5-C and 6-C long, 5 or more branches (Fig. 333c); 7-C long, multibranched. *Thorax*: Prothoracic setae 1-P through 3-P long, single. *Abdomen*: Patch of 25-40 comb-scales; comb-scale rounded apically, fringed with subequal spinules. Siphonal index 4.0; siphon gradually tapered toward apex; 6-13 pecten-teeth on basal ⅓ of siphon; 4 pairs of siphonal tufts inserted beyond pecten-teeth; subapical tuft laterally out-of-line of tufts 1, 2, and 4; apical and subapical tufts usually 2-3 branched; proximal tufts multibranched (Fig. 333d). Anal segment completely ringed by anal-saddle (Fig. 333d). **Similar Species:** The siphon is relatively long and thin, with a siphonal index of 5.5 to 7.0, and head seta 6-C has 3 or 4 branches on *Cx. salinarius* and *Cx. erythrothorax*, whereas the siphon is relatively short, with a siphonal index of approximately 4.0, and head seta 6-C has 5 or more branches on *Cx. pipiens*.

**Biology:** *Phenology*: Multivoltine. *Overwintering stage*: Adult females overwinter, often indoors, giving this species the common name of 'house mosquito.' *Larval habitat*: The larvae occupy organically enriched containers holding water including wheel barrels, flowerpots, clogged gutters, and birdbaths. As these mosquitoes are opportunistic, sometimes the larvae can be collected in small pools of water dominated with various types of vegetation for protection. *Host preference*: Primarily bird species, but also known to feed on humans (Harmston and Lawson 1967, Turell et al. 2005, Hamer et al. 2008, Savage and Kothera 2012). Kilpatrick et al. (2006) stated that a shift from primarily feeding on birds then to humans occurs in late summer. *Medical importance*: *Culex pipiens* has been collected infected with WEEV (Hammon and Reeves 1943b), but did not show laboratory transmission of the virus. This species has demonstrated the ability to vector SLEV (Monath and Tsai 1987, Tsai et al. 1988, Savage et al. 1993), and is an enzootic vector of WNV (Komar et al. 2003, Turell et al. 2005, Bolling et al. 2007), and a bridge vector of WNV (Turell et al. 2005, Kilpatrick et al. 2006). Hamer et al. (2008) considers this species a competent bridge vector of WNV due to its host seeking habits being primarily ornithophilic, however in urban and populated areas *Cx. pipiens* will seek both birds and humans, with a shift to humans occurring in late summer (Kilpatrick et al. 2006).

**Comments:** The adult females are attracted to $CO_2$-baited light traps, however greater numbers can be collected in a gravid trap. *Culex pipiens* is an abundant species throughout the state, especially in urban/suburban areas.  This species serves as an important intermediate host to amplify WNV primarily feeding on birds, an important WNV reservoir, making this species a medically important vector species in the state.

**Distribution:** *Culex pipiens* belongs to a recognized worldwide species complex, including *Cx. quinquefasciatus* Say in southern North America (Carpenter and LaCasse 1955).  Kothera et al. (2012) stated that populations of *Cx. pipiens* from Pueblo and along the I-25 corridor had ten percent or less *Cx. quinquefasciatus* alleles at the microsatellite position that the authors were using in their study.  Kothera et al. (2012) indicated there is gene flow between the biologically distinct populations of *Cx. quinquefasciatus* and *Cx. pipiens* and this is likely a result of their dispersal behavior along river basins in southern Colorado.   *Culex pipiens* is widespread from the East Coast to West Coast, extending into southern Canada, but absent from the most of the southern United States (Carpenter and LaCasse 1955; Harmston and Lawson 1967; Darsie and Ward 2005).  Harmston and Lawson (1967) report this species from Adams, Boulder, Denver, Garfield, La Plata, Larimer, Logan, Mesa, Moffat, Morgan, Pueblo, and Weld counties. Additional records are available from Arapahoe, Broomfield, Douglas, El Paso, Gunnison, Jefferson, and Montezuma counties (Fig. 333e).





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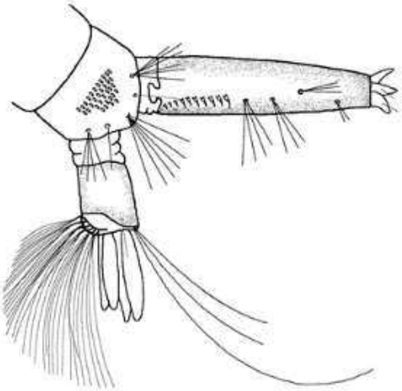


d.


e.

**Figure 333a-e.** *Culex pipiens*. a) Scutum; b) Tergites; c) Head setae 5-C and 6-C with more than 5 branches; d) Siphonal index 4.0. Subapical tuft laterally out-of-line of the rest; e) County records for *Cx. pipiens*. Dark-grey = Harmston and Lawson (1967); Light-grey = post 1967 surveys.

## *Culex restuans* Theobald

**Original Description:** Theobald, 1901: 142.

**Adult Female:** *Head*: Proboscis dark-scaled, ventrally with few pale scales. *Thorax*: Scutum covered with fine narrow, curved, golden-brown scales, paler anteriorly, laterally, and on prescutellar space; usually with pair of pale-scaled submedian spots near middle of scutum (Fig.

334a); pleural sclarites with small patches of broad pale scales. *Wings*: Veins with narrow dark scales. *Legs*: Tarsi dark-scaled, often with inconspicuous narrow basal bands of dingy yellowish pale scales (Fig. 334b). *Abdomen*: Tergites with dark bronze-brown scales, with distinct transverse basal bands of white to yellowish-white pale scales, continuous laterally with basolateral patches of pale scales (Fig. 334c); sternites with pale scales. **Similar Species:** The tarsi are dark-scaled, the basal abdominal bands are restricted laterally and rounded medially, and the scutum lacks pale spots on *Cx. pipiens*, while the legs often have very narrow basal bands of pale scales, the basal abdominal bands are broad with the posterior margin nearly straight, and the scutum usually has a distinct pair of pale spots on *Cx. restuans*.

**Fourth Instar Larvae:** *Head*: Head seta 5-C and 6-C, 4-8 branched; 7-C multibranched (Fig. 334d). *Thorax*: Prothoracic setae 1-P through 2-P long, single; 3-P long, single or 2-branched; 4-P long, 2-branched; 5-P and 6-P long, single; 7-P long, 2-3 branched. *Abdomen*: Patch of about 30 comb-scales; comb-scale fringed apically with subequal spinules. Siphonal index 4.0-4.5; 12-20 pecten-teeth on basal ⅓; pecten-tooth with 1-5 coarse teeth on one side; 3 pairs of irregularly placed siphonal setae inserted beyond pecten, followed by a $4^{th}$ tuft, 2-3 branched (Fig. 334e). Anal segment ringed by anal-saddle, dorsoapical surface spiculate (Fig. 334e). **Similar Species:** The siphonal tufts on all other known species of *Culex* from Colorado are branched, while the first three siphonal tufts on *Cx. restuans* are long, single and not aligned.

**Biology:** *Phenology*: Multivoltine. *Overwintering stage*: Adult. *Larval habitat*: The larvae are adapted to many aquatic habitats including but not limited to pools in slow to non-flowing streams, ditches, seeps, woodland pools, and containers like flower-pots, bird-baths, and clogged gutters (Carpenter and LaCasse 1955; Harmston and Lawson 1967, Wood et al. 1979). *Host preference*: Bird species (Turell et al. 2005). *Medical importance*: This species is a known enzootic vector of WNV and a potential bridge vector demonstrated in the laboratory (Ebel et al. 2005, Turell et al. 2005). *Culex restuans* has also been implicated as a species that plays a secondary role in the transmission of SLEV (Wood et al. 1979, Crabtree et al. 1995). Norris (1946) reported that this species was collected in Canada infected with a strain of WEEV.

**Comments:** *Culex restuans* is uncommon in Colorado. Harmston and Lawson (1967) recorded this species occurring later in season, collected primarily during late summer and early fall in seepage pools in or near irrigated pastures. It has also been recorded that adult female of this species are reluctant to feed on humans (Carpenter and LaCasse 1955) and have not been observed feeding on humans in Colorado (Harmston and Lawson 1967).

**Disturbance:** *Culex restuans* is a widespread throughout North America. The range of this species extends into Canada from British Columbia in the west to New Brunswick in the east, from the Atlantic Coast to the Pacific Coast in the lower 48 states of the United States, and both the northern and southern borders with Canada and Mexico, respectively (Carpenter and LaCasse 1955; Darsie and Ward 2005). Harmston and Lawson (1967) reported this species from Adams, Denver, Larimer, Sedgwick, Weld, and Yuma counties. Additional records are available from Arapahoe, Boulder, and Pueblo counties (Fig. 334f).

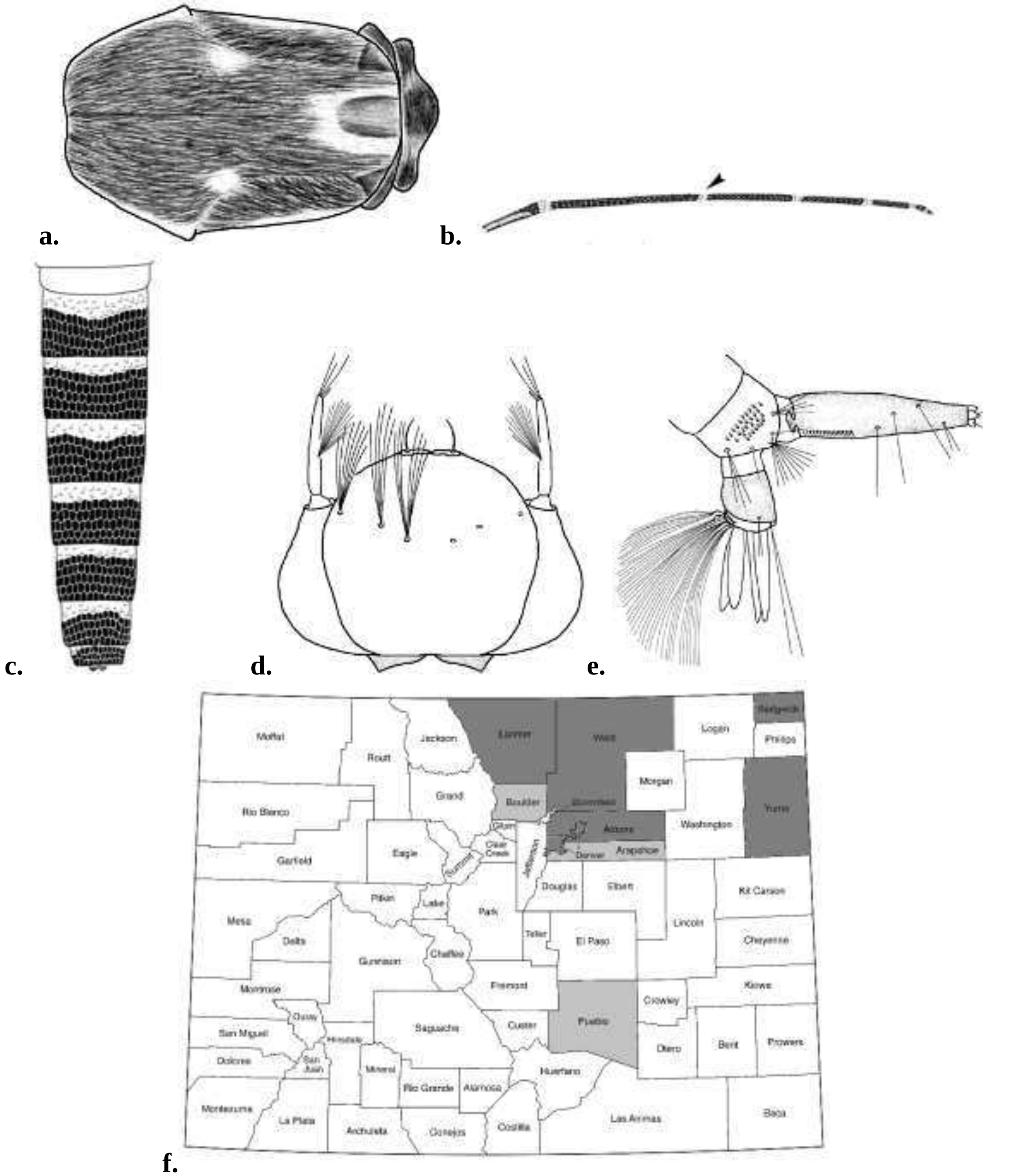



**Figure 334a-f.** *Culex restuans*. a) Scutum; b) Tarsi; c) Tergites; d) Head seta 5-C, 6-C, and 7-C; e) Distal segments of the abdomen; f) County records for *Cx. restuans*. Dark-grey = Harmston and Lawson (1967); Light-grey = post 1967 surveys.

## *Culex salinarius* Coquillett

**Original Description:** Coquillett, 1904: 73.

**Adult Female:** *Head*: Proboscis dark-scaled, ventral surface usually paler. *Thorax*: Scutum covered with fine narrow curved golden-brown scales, paler on anterior and lateral margins, and prescutellar space; pleura sclarites with small patches of dingy-white scales. *Wing*: Veins with narrow dark scales. *Legs*: Dark-scaled with bronze sheen. *Abdomen*: Tergites dark-brown scaled with dark metallic sheen, sometimes with narrow bands of dingy-yellowish to bronze-brown scales continuous with the basolateral patches of pale scales; tergites VII-VIII covered with golden to dingy-yellowish scales; sternites yellowish-white scaled (Fig. 335a). **Similar Species:** The scutal and thoracic integument on *Cx. erythrothorax* is reddish-brown with a rusty appearance, whereas the integument on *Cx. salinarius* is yellowish-brown. Tergites VII and VIII on *Cx. pipiens* are primarily dark scaled marked by dark scales with a basal band of pale scales, while tergites VII and VIII on *Cx. salinarius* are primarily or entirely golden to dingy-yellow scaled.

**Fourth Instar Larvae:** *Head*: Head seta 5-C long, 3-6 branched; 6-C long, 3-4 branched; 7-C long, multibranched. *Thorax*: Thorax glabrous. Prothoracic seta 1-P and 2-P long, single; 3-P long, 1-2 branched; 4-P medium, 2-branched; 5-P and 6-P long, single; 7-P long, 2-3 branched. *Abdomen*: Patch of 35-48 comb-scales; comb-scale rounded apically, fringed with subequal spinules. Siphonal index 6.0-7.0; 10-15 pecten-teeth on basal ¼ of siphon, each tooth with 2-5 course teeth on one side; siphon with 4 paired tufts, 2-4 branched and inserted distal to pecten-teeth, proximal tuft as long as basal diameter of siphon, subapical tuft out-of-line (laterally) with rest of siphonal tufts (Fig. 335b). Anal segment completely ringed by anal-saddle. **Similar species:** *Culex erythrothorax* has more than 65 comb-scales, and five pairs of siphonal tufts with the third and fourth inserted laterally out-of-line from the first, second, and fifth, whereas the comb on *Cx. salinarius* has less than 60 scales, and the siphon has 4 pairs of tufts, the third tuft laterally out-of-line from the first, second, and fourth tuft. The siphonal index of *Cx. pipiens* is approximately 4.0, while the siphonal index of *Cx. salinarius* is 6.0-7.0.

**Biology:** *Phenology*: Multivoltine. *Overwintering stage*: Adults overwinter in protected sites. *Larval stage*: In Colorado, the larvae occupy a variety of permanent and semi-permanent aquatic habitats including but not limited to inundated grassy areas or marshy habitats with cool, clear water (Harmston and Lawson 1967). In the eastern states of the U.S., the larvae often occupy brackish waters (Carpenter and LaCasse 1955). *Host preference*: Opportunistic, birds and mammals (Turell et al. 2005). *Medical importance*: This species had demonstrated laboratory competence WNV (Sardelis et al. 2001), and Turell et al. (2005) reported that *Cx. salinarius* is likely has sufficient capacity to serve as a bridge vector of WNV based on its laboratory competence, feeding habits and virus isolation from the species during field collections. Vertical transmission of SLEV was demonstrated in larvae reared from a parental stock infected with the virus (Nayer et al. 1986), and EEEV (Vaidyanathan et al. 1997, Turell et al. 2005).

**Comments:** *Culex salinarius* is a common species along the northern Front Range of Colorado. The adult females readily come to $CO_2$-baited light traps, and can be persistent biters causing a nuisance to humans. The adult females are present throughout the mosquito season and can be medically important, making *Cx. salinarius* an important species in Colorado.

**Distribution:** *Culex salinarius* is primarily an eastern species of the lower contiguous 48 United States, extending along the Atlantic Coast from Florida to Maine, parts of Canada to the north, as far west as Utah, and south into Texas (Carpenter and LaCasse 1955; Darsie and Ward 2005). Harmston and Lawson (1967) report this species from Adams, Arapahoe, Boulder, El Paso, Logan, Sedgwick, Weld, and Yuma counties. Additional records are available from Bent, Broomfield, Denver, Douglas, Garfield, Gunnison, Jefferson, La Plata, Larimer, Montezuma, Morgan, Prowers, and Pueblo counties (Fig. 335c).

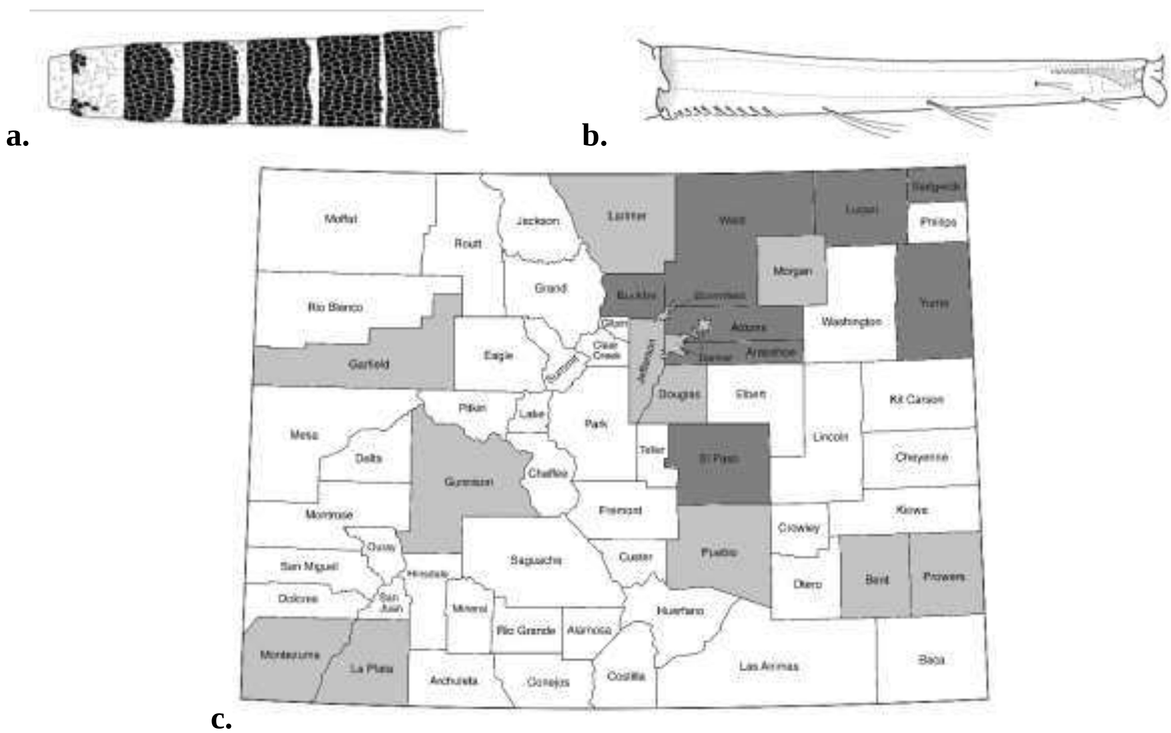



**Figure 335a-c.** *Culex salinarius*. a) Tergites VII-VIII covered with golden to dingy-yellowish scales; b) Siphonal index 6.0-7.0. Four siphonal tufts with subapical tuft laterally out-of-line with the others; c) County records for *Cx. salinarius*. Dark-grey = Harmston and Lawson (1967); Light-grey = post 1967 surveys.

## *Culex tarsalis* Coquillett

**Original Description:** Coquillett, 1896: 43.

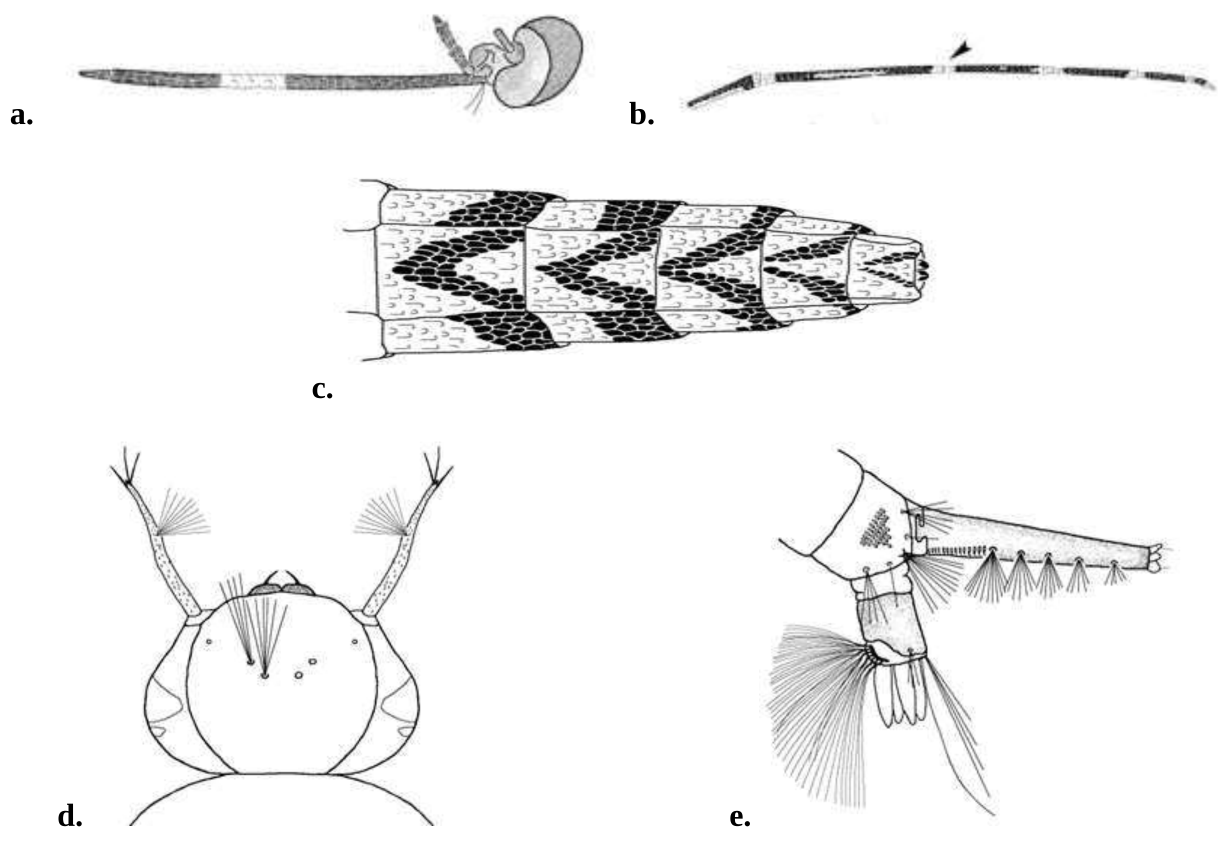
**Adult Female:** *Head*: Proboscis dark-scaled, with median ring of white or pale scales (Fig. 336a). *Thorax*: Scutum covered with fine narrow golden-brown scales dorsally. *Wing*: Veins with narrow dark scales; few white scales on costa and subcosta. *Legs*: Anterior surface of femora and tibiae with narrow line of white scales; hind tarsi dark-scaled with broad basal and apical white bands of scales (Fig. 336b). *Abdomen*: Tergite II dark-scaled, with median basal triangular patch of pale scales; tergites III-VII dark-scaled, with conspicuous basal bands of white to yellowish white scales; terminal segments usually with basal and apical pale scales; segment VIII sometimes completely pale-scaled; sternites pale-scaled, with dark-scaled V-shaped marking on each sternite (Fig. 336c). **Similar Species:** *Culex tarsalis* is unique and can easily be separated from all other species of *Culex* known from Colorado due to the basal and apical pale-scaled bands on the tarsi, and the median ring of white scales that adorn the proboscis.

**Fourth Instar Larvae:** *Head*: Head seta 5-C, 6-C, and 7-C multibranched (Fig. 336d). *Thorax*: Prothoracic seta 1-P and 2-P long, single; 3-P long, 1-2 branched. *Abdomen*: Patch of about 45 comb-scales; comb-scales rounded apically, fringed with subequal spinules. Siphonal index 4.5-5.5; 10-15 pecten-teeth on basal ⅓, pecten-teeth with 1-5 course teeth on side; 5 pairs of siphonal tufts inserted in a straight line, with proximal tuft inserted near or just before end of pecten-teeth, multibranched (Fig. 336e). Anal segment completely ringed by anal-saddle. **Similar Species:** *Culex territans* larvae have head setae 5-C and 6-C usually single and a long thin siphon (index greater than 6.0), whereas *Cx. tarsalis* has head setae 5-C and 6-C multibranched and the siphonal index less than 5.5.

**Biology:** *Phenology*: Multivoltine. *Overwintering stage*: Adult males and females pass the winter in diapause. *Larval habitat*: The larvae occupy a variety of natural permanent and semi-permanent shallow marshy habitat, and artificial wetlands. *Culex tarsalis* larvae can also be collected from containers filled with water including but not limited to flowerpots, wheel barrels, and tires. *Host preference*: Opportunistic. The adult females primarily feed on birds hosts in spring and early summer and shift to a mixed host preference of birds and mammals mid-summer into fall (Turell et al. 2005). *Medical importance*: This species is the primary vector of WNV in Colorado (Kent et al. 2009). *Culex tarsalis* is a known vector of SLEV (Tsai et al. 1987, Tsai et al. 1988), WEEV (Smith et al. 1993), and CEV (Kramer et al. 1992). This species also demonstrated laboratory competence and the potential to transmit RVFV if the virus were to be discovered in North America (Turell et al. 2015).

**Comments:** *Culex tarsalis* is very abundant throughout Colorado and it occurs in most counties. The adult females will oviposit in nearly any habitat, natural or artificial, that holds water long enough to support their development into an adult. This species is a major biting-nuisance to humans and a major vector. Before WNV was introduced to the USA, *Cx. tarsalis* was known as a competent vector species for other encephalitis (Harmston and Lawson 1967, Tsai et al. 1988, Smith et al. 1993). Due to its opportunistic behavior of seeking out both mammals and birds for a blood meal, *Cx. tarsalis* is Colorado's most competent vector of WNV. Currently, *Cx. tarsalis* is the most important medically and economically mosquito species in Colorado.

**Distribution:** *Culex tarsalis* is common throughout the western, central, and southern United States. Its range also extends into southern Canada (Carpenter and LaCasse 1955; Darsie and Ward 2005). Harmston and Lawson (1967) reported records from an unspecified 39 of the 53 counties in Colorado, and at an elevation ranging from 3,500 ft. to 10,000 ft. (1,065-3,045 m.) Confirmed records are available from Adams, Arapahoe, Baca, Bent, Boulder, Broomfield, Delta, Denver, Douglas, Eagle, El Paso, Fremont, Garfield, Gunnison, Huerfano, Jackson, Jefferson, Kiowa, La Plata, Larimer, Logan, Mesa, Moffat, Montezuma, Montrose, Morgan, Pitkin, Prowers, Pueblo, Routt, Sedgwick, Weld, and Yuma counties, and it likely occurs in the others (Fig. 336f).




**f.**

**Figure 336a-f.** *Culex tarsalis*. a) Median ring of pale scales on the proboscis; b) Tarsi with basal and apical bands of pale scales; c) Sternite; d) Head seta branching; e) Distal segments of the abdomen; f) County records for *Cx. tarsalis*. Light-grey = post 1967 surveys.

## *Culex territans* Walker

**Original Description:** Walker, 1856: 428.

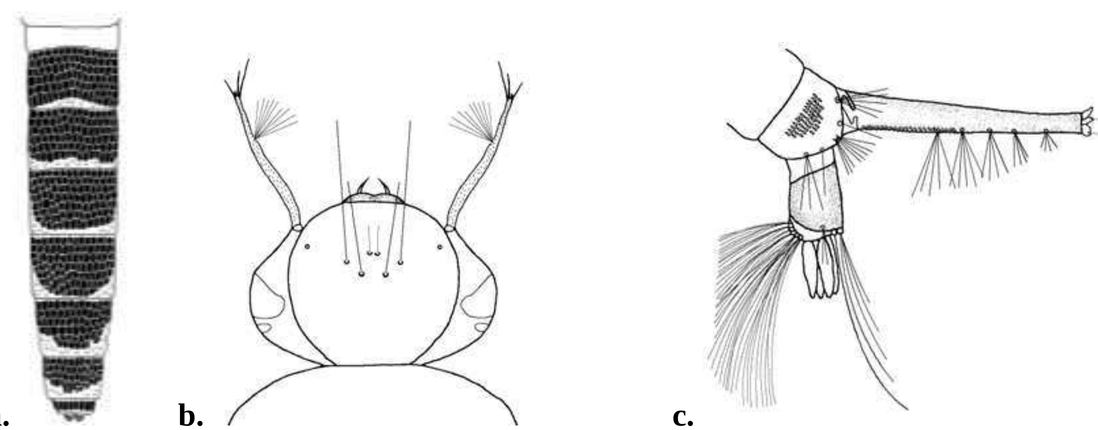
**Adult Female:** *Head*: Proboscis dark-scaled. *Thorax*: Scutum covered with narrow light-brown scales, sometimes light gray to dark brown, lighter on lateral and anterior margins, and prescutellar space; pleura with patches of pale scales. *Wing*: Veins with narrow dark scales. *Legs*: Tarsi dark-scaled. *Abdomen*: Tergites II-VII dark-scaled with bronze to bluish-green metallic sheen, apical bands of pale scales merging with lateral triangular patches of scales (Fig. 337a); sternites with grayish-white scales. **Similar Species:** The abdominal tergites on all other known *Culex* from Colorado have basal bands of pale scales, while the tergites on *Cx. territans* have bands of pale scales apically.

**Fourth Instar Larvae:** *Head*: Head seta 5-C, usually single and shorter than 6-C; 6-C long, single; 7-C long, multibranched (Fig. 337b). *Thorax*: Spiculate. Prothoracic setae 1-P through 2-P long, single; 3-C short, 2-branched or multibranched; 4-P medium, 2-branched; 5-P through 6-P long, single; 7-P medium, 2-3 branched. *Abdomen*: Patch of about 30 comb-scales; comb-scale rounded apically, fringed with subequal spinules. Siphonal index 6.0-7.0; 12-16 pecten-teeth on basal ⅓ of siphon; pecten-teeth fringed with 1-4 teeth; 5 (rarely 4) pairs of siphonal tufts inserted distal to pecten-teeth; distal tuft inserted slightly lateral to the others (Fig. 337c). Anal segment ringed by anal-saddle, spiculate dorsoapically. **Similar Species:** *Culex tarsalis* has head setae 5-C and 6-C multibranched and the siphonal index less than 5.5, whereas *Cx. territans* larvae have head setae 5-C and 6-C usually single and siphonal index 6.0-7.0.

**Biology:** *Phenology*: Multivoltine. *Overwintering stage*: Adult females pass the winter in hibernation (Carpenter and LaCasse 1955). *Larval habitat*: The larvae can be collected in clean and clear freshwater semi-permanent to permanent pools with abundant emergent and floating vegetation (Carpenter and LaCasse 1955; Harmston and Lawson 1967, Wood et al. 1979). This includes ponds, seeps, and streambed depression filled with water, and generally marshy areas. This species does not prefer highly organic “foul” water (Carpenter and LaCasse 1955, Wood et al. 1979). *Host preference*: Carpenter and LaCasse (1955) stated this species primarily feeds on cold-blooded vertebrate host, however, this species is opportunistic seeking a blood meal on mammals, birds, amphibians, and reptiles (Molaei et al. 2008). Molaei et al. (2008) reported that most of the blood meals identified during their study were from bird species. *Medical importance*: Bartlett et al. (2009) reported that this species is capable of transmitting trypanosome and a vector in nature of amphibian trypanosomes. This has greater importance, in that *Cx. territans* will take a blood meal from a mammal, and Van Dyken et al. (2006) reported that unengorged *Cx. tarsalis* and *Cx. pipiens* infected with trypanosomes might increase transmission of WNV to humans or the vector competence of WNV in general.

**Comments:** Adults of *Cx. territans* adults are usually active from late spring to early fall. This species has been collected in $CO_2$-baited light traps, but the trap would likely need to be very close to a larval habitat, as this species does not travel far (Carpenter and LaCasse 1955). The adult females are not known to feed on humans but can be encountered in the area of the larval habitat, feeding on amphibians or other cold-blooded vertebrates. This species is uncommon in Colorado and not important medically.

**Distribution:** This species is widespread throughout North America. Its range extends to Alaska to the north, Gulf Coast of Texas to the south, northern Pacific coast of California to the west, and the Atlantic Coast from Florida north to Atlantic Canada (Carpenter and LaCasse 1955; Darsie and Ward 2005). Harmston and Lawson (1967) reported this species from Adams, Arapahoe, Boulder, Gunnison, Jefferson, Larimer, Mesa, San Miguel, and Weld counties. Additional records are available from Adams, Boulder, and Weld counties (Fig. 337d).



a. b. c.

**d.**

**Figure 337a-d.** *Culex territans*. a) Tergites. Note the apical pale scale bands; b) Head seta 5-C and 6-C single; c) Distal segments of the abdomen; d) County records for *Cx. territans*. Dark-grey = Harmston and Lawson (1967); Light-grey = post 1967 surveys.

## *Culiseta alaskaensis* (Ludlow)

**Original Description:** Ludlow, 1906a: 326 [as *Theobaldia*].

**Adult Female:** *Head*: Proboscis long, dark scaled, with dingy pale yellowish scales scattered on basal ½. *Thorax*: Scutum covered in narrow dark-brown scales, with pale scales intermixed sometimes forming paired spots; anterior and lateral margins, and prescutellar space with abundant white scales; prespiracular setae present, yellowish in color; postspiracular setae absent. *Wing*: Veins with narrow, dark scales, peppered with pale scales on anterior veins; marked with dense spots of dark scales; cross veins scaled. Ventral base of subcostal vein with dense tuft of yellowish setae. *Legs*: Hind tarsal segments 1-4 with broad basal band of pale scales (Fig. 338a). *Abdomen*: Tergite II with median line of pale scales; tergites III-VII dark-scaled with broad basal bands of pale scales; sternites pale-scaled with few dark scales scattered throughout. **Similar Species:** The hind tarsi on *Cs. incidens* and *Cs. morsitans* have narrow basal bands of pale scales, whereas the hind tarsi on *Cs. alaskaensis* have broad basal bands of pale scales.

**Fourth Instar Larvae:** *Head*: Antennae ½ the length of the head, spiculate; antennal tuft multibranched, reaches to near tip of antenna. Head seta 4-C small, multibranched; 5-C, multibranched, shorter than 6-C; 6-C, 3-4 branched, middle branch usually longer and stouter than other branches; 7-C multibranched, reaches just beyond insertion of antennal tuft. *Thorax*: Mesothoracic seta 1-M and 2-M short, multibranched (Figure 338b). *Abdomen*: Siphon index 2.5-3.5; siphon with numerous pecten-teeth ending near basal $^{1}/_{5}$; row of setae ending near apical ¼ of siphon; siphonal tuft inserted at base within pecten-teeth, large, multibranched. Anal segment completely ringed by anal-saddle; seta 1-X, 2-5 branched, shorter than anal-saddle. **Similar Species:** Mesothoracic seta 1-M is single and much longer than multibranched seta 2-M on *Cs. incidens*, whereas 1-M and 2-M are both short and multibranched on *Cs. alaskaensis*.

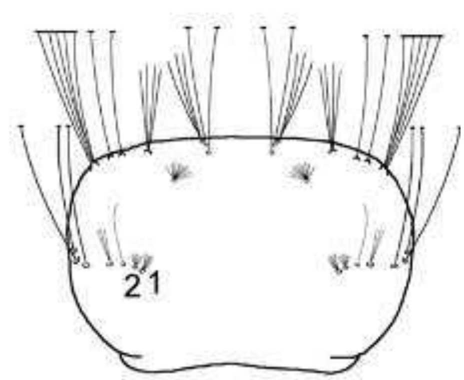
**Biology:** *Phenology*: Univoltine (Wood et al. 1979). *Overwintering stage*: Adult females. *Larval habitat*: The larvae occupy various freshwater habitats including, but not limited to permanent open pools, riverbeds of temporal streams with inundated depressions, overflow pools of streams, pools of slow or minimally flowing streams choked with aquatic vegetation, snowmelt pools, and woodland pools with floating and emergent vegetation (Carpenter and LaCasse 1955; Harmston and Lawson 1967). Wood et al. (1979) described various habitats in Canada this species occupies as being small deeper pools with *Carex* spp., and the larvae keep close to the edges. *Host preference*: Mammals, this species is known to feed on humans (Carpenter and LaCasse 1955, Sommerman 1969). *Medical importance*: Unknown.

**Comments:** The larvae are present during late spring and the adults emerge early to mid-summer in Colorado. Adult females are readily attracted to $CO_2$-baited light traps. *Culiseta alaskaensis* is restricted to elevations greater than 7,000 ft. (2,135 m.). In Colorado, adults of this species are not rare, but not commonly collected. This species can be a biting nuisance locally at high altitudes, but is not medically important in Colorado.

**Distribution:** *Culiseta alaskaensis* is primarily a western North American species reaching as far south as Colorado, and as far north as Alaska, British Columbia in the Canadian west as well as the western Northern Territories, and Atlantic Canada to the east (Carpenter and LaCasse 1955; Darsie and Ward 2005). Harmston and Lawson (1967) reported this species from Grand, Gunnison, Larimer, and Summit counties. Additional records are available from Eagle, Garfield, Lake, Mesa, Pitkin, and Saguache counties (Fig. 338c).

**a.**

**b.**




**c.**

**Figure 338a-c.** *Culiseta alaskaensis*. a) A broad basal band of pale scales on tarsal segments 1-4; b) Mesothoracic seta 1-M and 2-M are short and multibranched; c) County records for *Cs. alaskaensis*. Dark-grey = Harmston and Lawson (1967); Light-grey = post 1967 surveys.

## *Culiseta impatiens* (Walker)

**Original Description:** Walker, 1848: 5 [as *Culex*].

**Adult Female:** *Head*: Proboscis dark-scaled, with few scattered pale scales; palpi dark-scaled with few pale scales. *Thorax*: Scutum covered in narrow reddish-brown and yellowish scales intermixed; two narrow lines extending posteriorly from margin of median patches of yellowish scales; prescutellar margins with yellowish scales; prespiracular bristles present, yellowish; postspiracular setae absent. *Wing*: Veins dark-scaled; cross vein scales absent (Fig. 339a); tuft of yellowish setae at base of costa ventrally. *Legs*: Tarsi dark-scaled (Fig. 339b). *Abdomen*: Tergites dark-scaled, with basal transverse bands of white scales; sternites with yellowish and dark scales intermixed. **Similar Species:** The anterior wing veins and hindtarsomere 1 and 2 of

*Cs. inornata* have dark and pale scales intermixed, whereas the wing veins and hindtarsomeres of *Cs. impatiens* are dark-scaled.

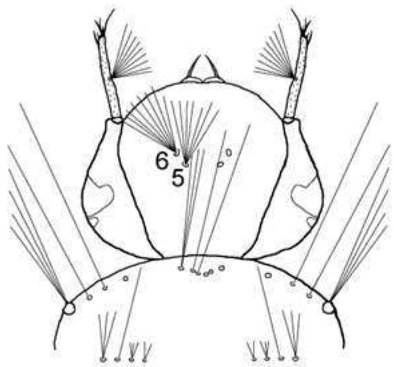
**Fourth Instar Larvae:** *Head*: Antennae ½ the length of the head; antennal tuft inserted near middle of shaft, extending to near tip, multibranched. Head seta 5-C and 6-C multibranched, similar in sizes (Fig. 339c), longer than 4-C; 7-C multibranched. *Thorax*: Prothoracic seta l-P and 2-P long, single; 3-P medium, 3-4 branched; 4-P medium, 3-6 branched; 5-P long, single; 6-P long, 1-2 branched; 7-P long, multibranched. Mesothoracic seta 1-M short, 1-2 branched. *Abdomen*: Triangular patch of 60 or more comb-scales; comb-scale rounded apically, fringed with spinules. Siphonal index 2.5-2.8; many pecten-teeth on basal $^1/_5$-$^1/_4$; row of setae ending near apical $^1/_4$; siphonal tuft inserted at base of siphon within pecten-teeth, multibranched, large. Anal segment completely ringed by anal-saddle; lateral tuft 1-X, 2-4 branched, shorter than the anal-saddle. **Similar Species:** The larvae of *Cs. impatiens* is unique, head seta 5-C and 6-C are similar in size, but both are multibranched. All other *Culiseta* known from Colorado, 6-C is longer and with fewer branches than 5-C.

**Biology:** *Phenology*: Univoltine (Wood et al. 1979). *Overwintering stage*: Adult females overwinter (Carpenter and LaCasse 1955; Harmston and Lawson 1967, Wood et al. 1979). *Larval habitat*: The larvae occupy a variety of pools, usually deep and well-shaded from the sun, and organically enriched (Carpenter and LaCasse 1955, Wood et al. 1979). The larvae have also been collected in snowmelt pools in Colorado (Harmston and Lawson 1967). The senior author (D.A.R) collected this species in hoof prints likely from cattle, filled with approximately two inches (5 cm.) of organically enriched dark mucky water. *Host preference*: Mammals. *Medical importance*: Newhouse et al. (1971) reported a single isolation of SSHV in Montana.

**Comments:** *Culiseta impatiens* is a montane species in Colorado and usually collected at elevations of 8,000 ft. (2,435 m.) or greater. This species is one of the first to emerge during the later months of spring and in areas where the pupae are emerging, adults females are often a biting nuisance (Carpenter and LaCasse 1955; Harmston and Lawson 1967). Due to its habitat being restricted to mountainous areas of the state at high elevation and usually in low abundance, *Cs. impatiens* is not considered an important nuisance species in Colorado.

**Distribution:** *Culiseta impatiens* is distributed primarily across the northern regions of North America including Canada and Alaska, with its range extending as far south as New Mexico, the Sierras of California to the west, and the northeastern states to the east (as far south as Maryland) (Carpenter and LaCasse 1955; Darsie and Ward 2005). Harmston and Lawson (1967) reported this species from Boulder, Chaffee, Clear Creek, Custer, Grand, Gunnison, Jackson, Larimer, Mesa, Pitkin, San Juan, San Miguel, and Summit counties. Additional records are available from Eagle, El Paso, Fremont, Jefferson, Lake, Routt, and Saguache counties (Fig. 339d).

**a.** **b.**




c.


d.

**Figure 339a-d.** *Culiseta impatiens*. a) Wing veins dark-scaled; b) Hindtarsomeres dark-scaled; c) Head seta 5-C and 6-C similar in size and both are multibranched; d) County records for *Cs. impatiens*. Dark-grey = Harmston and Lawson (1967); Light-grey = post 1967 surveys.

### *Culiseta incidens* (Thomson)

**Original Description:** Thomson, 1869: 433 [as *Culex*].

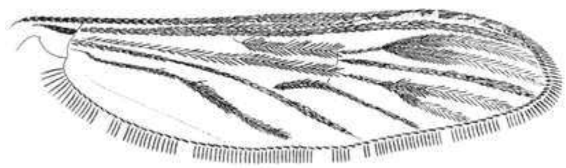
**Adult Female:** *Head*: Proboscis dark-scaled with few pale scales basally and ventrally; palpi dark-scaled, with scattered pale scales. *Thorax*: Scutum covered in narrow dark-brown scales intermixed with golden-brown scales in ill-defined lines and spots; anterior and lateral margins, and prescutellar space with broader yellowish or pale yellowish scales; prespiracular setae present and yellowish; postspiracular setae absent. *Wing*: Veins with narrow dark scales; veins $R_s$, M, $Cu_1$, and A with conspicuous patches of dark scales (Fig. 340a); tuft of yellowish setae ventrally at base of subcostal, and few pale scales at base of costal vein. *Legs*: Hind tarsal segments with narrow basal bands of pale scales (Fig. 340b). *Abdomen*: Tergites dark-scaled with basal transverse bands of pales scales; sternites pale-yellowish scaled intermixed with dark scales. **Similar Species:** The wing veins of *Cs. morsitans* lack conspicuous patches of dark scales, whereas the wing veins of *Cs. incidens* are marked by conspicuous patches of scales on veins $R_s$, M, $Cu_1$, and A.

**Fourth Instar Larvae:** *Head*: Antennae ½ the length of head, minimally spiculate; antennal tuft inserted near middle of shaft, almost reaching tip, multibranched. Head seta 5-C multibranched, with more setae and shorter than 6-C; 6-C multibranched, reaching beyond anterior margin of head; 7-C multibranched, reaching beyond insertion point of antennal tuft. *Thorax*: Mesothoracic seta 1-M small, usually single, much longer than multibranched mesothoracic seta 2-M (Fig. 340c). *Abdomen*: Patch of 40-50 comb-scales; comb-scale rounded apically, fringed with spinules. Siphon index 3.0; 11-15 pecten-teeth ending near basal $^1/_5$; row of setae following pecten-teeth ending near apical $^1/_4$, siphonal tuft inserted within pecten-teeth at base of siphon, multibranched, large. Anal segment ringed by anal-saddle. Lateral seta 1-X, 1-5 branched, usually 3-branched, shorter than anal-saddle (Fig. 340d). **Similar Species:** Lateral seta 1-X is equal to the length of the saddle or longer, and usually 2-branched on *Cs. inornata*, whereas 1-X is usually 3-branched and shorter than the anal-saddle on *Cs. incidens*. Mesothoracic seta 1-M and 2-M are short and multibranched on *Cs. alaskaensis*, while 1-M is single and much longer than multibranched 2-M on *Cs. incidens*.

**Biology:** *Phenology*: Multivoltine (Wood et al. 1979). *Overwintering stage*: Adult females overwinter in protected sites (Carpenter and LaCasse 1955, Harmston and Lawson 1967), and Wood et al. (1979) reported that this species overwinters in rockslides or the typical sites used by *Culex* and *Culiseta* such as caves and mammal burrows. *Larval habitat*: The larvae occupy a variety of aquatic habitats including but not limited to shaded and semi-shaded permanent and temporal pools, also clear to semi-clear snowmelt and streambed pools (preferred habitat), large mammal hoof prints, natural and artificial containers, and highly enriched organic habitats (Carpenter and LaCasse 1955, Harmston and Lawson 1967, Wood et al. 1979). *Host preference*: Mammals. Females are reluctant to feed on humans unless near larval habitats (Harmston and Lawson 1967). *Medical importance*: This species has demonstrated laboratory transmission of SLEV (Hammon and Reeves 1943a), WEEV (Hammon and Reeves 1943b), and WNV (Reisen et al. 2006). *Culiseta incidens* is a competent vector of NORV in California (Kramer et al. 1993b), and a potential vector of dog heartworm in California (Theis et al. 2000). *Culiseta incidens* is likely not a medically important species in Colorado.

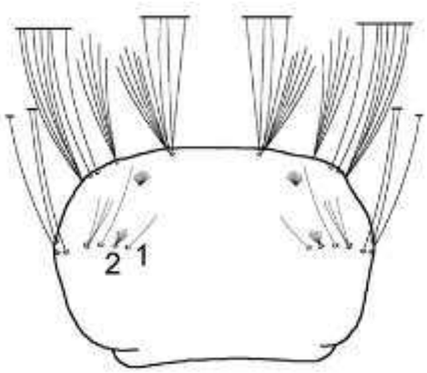
**Comments:** *Culiseta incidens* is well-adapted to Colorado as it occurs in a variety of habitats at elevations greater than 4,500 ft. (> 1,370 m.) (Harmston and Lawson 1967). Carpenter and LaCasse (1955) reported that this species can be an annoyance to humans in some areas as it is a peridomestic species, but in other areas rarely bite. *Culiseta incidens* is widespread throughout Colorado, but Harmston and Lawson (1967) reported that it is somewhat reluctant to feed on humans and therefore it poses little medical importance in the state.

**Distribution:** *Culiseta incidens* is primarily a western species in North America. The range of *Cs. incidens* extends as far north as the western Northwest Territories and the Yukon, and as far south and west as southern California, east to northern Texas, Colorado, western Nebraska, South Dakota and North Dakota (Carpenter and LaCasse 1955; Darsie and Ward 2005). In Colorado Harmston and Lawson reported this species from Adams, Arapahoe, Boulder, Chaffee, Clear Creek, Conejos, Custer, Delta, Dolores, Eagle, El Paso, Fremont, Garfield, Grand, Gunnison, Jackson, Jefferson, La Plata, Larimer, Mesa, Moffat, Montrose, Park, Pitkin, Pueblo, Rio Blanco, Routt, Saguache, San Miguel, and Weld counties. Additional records are available from Broomfield, Douglas, and Montezuma counties (Fig. 340e).

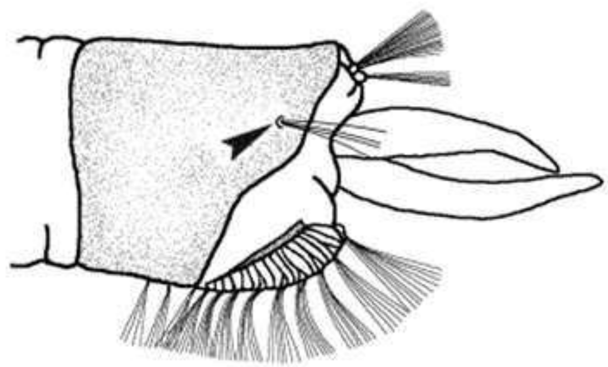


**a.**

**b.**




**c.**



**d.**

**e.**

**Figure 340a-e.** *Culiseta incidens*. a) Wing with patches of scales; b) Hind tarsi with narrow bands of pales scales; c) Mesothoracic 1-M and 2-M; d) Lateral seta 1-X short, multibranched; d) County records for *Cs. incidens*. Dark-grey = Harmston and Lawson (1967); Light-grey = post 1967 surveys.

## *Culiseta inornata* (Williston)

**Original Description:** Williston, 1893: 253 [as *Culex*].

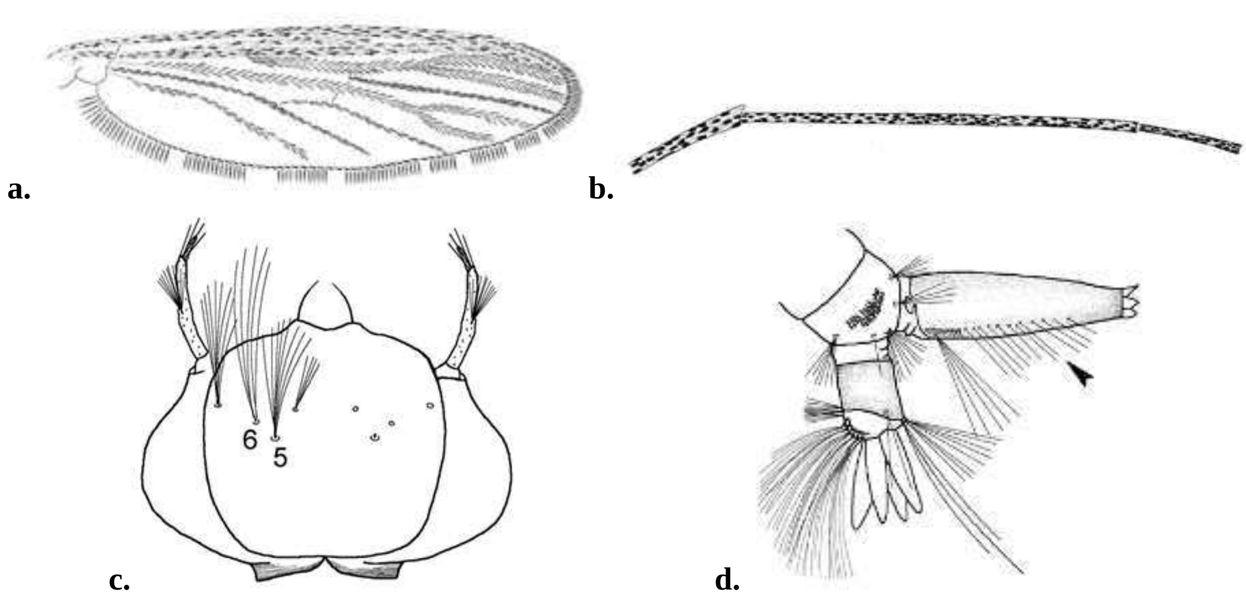
**Adult Female:** *Head*: Proboscis dark-scaled, intermixed with dingy pale scales; palpi short, dark-scaled, with scattered pale scales. *Thorax*: Scutum covered with narrow golden-brown and pale-yellowish scales intermixed; anterior and lateral margins, and prescutellar space with pale-yellowish scales; prespiracular setae present, yellowish; postspiracular setae absent. *Wing*: Veins dark-scaled, intermixed with pale scales on anterior veins, dark scales usually more abundant (Fig. 341a); dense tuft of yellowish setae ventrally at base of subcostal vein. *Legs*: Tarsi dark-scaled, intermixed with dingy pale scales (Fig. 341b). *Abdomen*: Tergites dark-scaled, with basal band of dingy yellowish pale scales widening laterally covering much of segment; segment VIII dingy yellowish-scaled; sternites with dingy yellowish-pale scales.
**Similar Species:** The wing veins and hindtarsomeres on *Cs. impatiens* are dark-scaled, whereas the anterior wing veins and hindtarsomeres on *Cs. inornata* have a "salt and pepper" or spotted appearance, dark-scaled with dingy-pale scales intermixed.

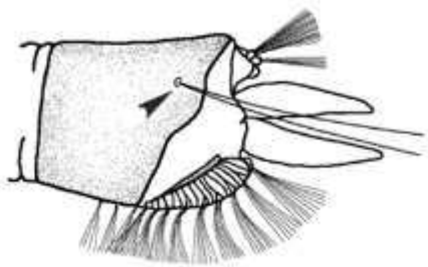
**Fourth Instar Larvae:** *Head*: Antennae ½ the length of the head, minimally spiculate; antennal tuft inserted near middle of shaft, multibranched, almost reaching tip. Head seta 5-C multibranched, slightly shorter and with more branches than 6-C; 6-C multibranched, slightly longer than 5-C; 7-C long, multibranched (Fig. 341c). *Thorax*: Mesothoracic seta 1-M short, single. *Abdomen*: Patch of 30-45 comb-scales; comb-scale rounded apically, fringed with spinules. Siphonal index 3.5; 12-20 pecten-teeth ending near basal $^1/_5$-$^1/_4$; row of even setae distal to pecten-teeth ending near apical $^1/_4$; siphonal tuft inserted at base of siphon within pecten-teeth, large, multibranched (Fig. 341d). Anal segment ringed by anal-saddle; lateral setae 1-X, 1-5 branched (usually 2-branched), length of anal-saddle or longer (Fig. 341e).

**Biology:** *Phenology*: Multivoltine. *Overwintering stage*: Adult females overwinter in protected sites and late instar larvae may survive winter conditions (Carpenter and LaCasse 1955, Harmston and Lawson 1967; Nielsen et al. 2002). *Larval habitat*: The larvae occupy a wide variety of aquatic habitats exposed to full sunlight and partially shaded areas. These include permanent and semi-permanent pools that are clean and clear or highly enriched with organic matter, as well as more alkaline or brackish pools created and maintained by snowmelt, precipitation, and irrigation (Carpenter and LaCasse 1955, Harmston and Lawson 1967, Wood et al. 1979). *Host preference*: Mammals (Turell et al. 2005) and bird species. *Culiseta inornata* prefers large mammals such as cattle and horses, followed by birds, rabbits and humans (Harmston and Lawson 1967). *Medical importance*: This species has shown laboratory competence as a potential vector of WEEV, SLEV, and Japanese B encephalitis (Reeves and Hammon 1946, Carpenter and LaCasse 1955), CVV (Iversen et al. 1979, Hayles and Lversen 1980), CEV and CE-like viruses (McLean et al. 1977, Kramer et al. 1992), an alpine strain of JCV (Kramer et al. 1993a), and a potential bridge vector of WNV (Goddard et al. 2002, Turell et al. 2005).

**Comments:** This is the most common species of *Culiseta* known from Colorado. The adult females readily come to $CO_2$-baited light traps and can be annoying biting pests at dusk and in early evening (Harmston and Lawson 1967). The adults typically emerge during early spring and throughout the duration of the summer months, however, the abundance drops during the warmer months of summer (July and early August) along the Front Range, and eastern Plains of Colorado. It is believed that *Cs. inornata* goes into aestivation during these warmer months, escaping the dry heat in small mammal burrows (Harmston and Lawson 1967). Since *Cs. inornata* is abundant and demonstrated laboratory competence of SLEV, WEEV and WNV and other viruses listed above it is both medically and economically important.

**Distribution:** *Culiseta inornata* is widespread throughout North America. It has been reported from nearly every state in the contiguous United States, most of the provinces of Canada, and its range extending just southeast of Alaska (Carpenter and LaCasse 1955; Darsie and Ward 2005). Harmston and Lawson (1967) reported this to be the most common species of *Culiseta* in throughout the state (county records not listed) ranging in elevation from 3,500 ft. (1,066 m.) in Julesburg, to greater than 10,000 ft. (3,050 m.) in Leadville, Colorado. Similar to Harmston and Lawson (1967), post-1967 surveys follow the above observations (Fig. 341f).




e.

f.

**Figure 341a-f.** *Culiseta inornata*. a) Anterior wing veins with dark and pale scales intermixed; b) Hind tarsi with dark and pale scales intermixed; c) Head seta 5-C and 6-C different in size; d) Distal segments of abdomen; e) Lateral seta 1-X usually 2-branched and the length of the anal-saddle or longer; f) County records for *Cs. inornata*. Light-grey = post 1967 surveys.

## *Culiseta morsitans* (Theobald)

**Original Description:** Theobald, 1901: 8 [as *Culex*].

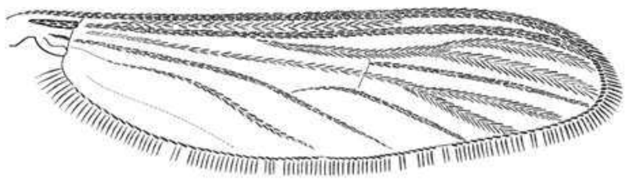
**Adult Female:** *Head*: Proboscis dark-scaled, long; palpi dark-scaled, short. *Thorax*: Scutum cover in fine golden-brown scales, with broader white scales medially, anteriorly and laterally; two broad submedian reddish-brown bare stripes and two shorter bare stripes flank the sides of the prescutellar space; prespiracular setae present, numerous, yellowish; postspiracular setae absent. *Wing*: Veins with narrow dark-brown scales; dense tuft of dark setae at base of subcostal vein ventrally (Fig. 342a). *Legs*: Tarsi with inconspicuous bands of pale scales basally and apically, basally more distinct, less visible or absent apically. *Abdomen*: Tergites with broad appressed bronze to dark-brown scales, with narrow basal transverse bands of pale yellowish-white scales; sternites pale-scaled, with many pale setae. **Similar Species:** The wing veins on *Cs. incidens* have dense patches of dark scales, whereas the wing veins on *Cs. morsitans* lack dense patches of dark-scales. *Culiseta impatiens* legs lack pale basal bands on the hind tarsi, whereas *Cs. morsitans* has hind tarsi with narrow pale bands basally.

**Fourth Instar Larvae:** *Head*: Antennae as long as the head, more or less curved, spiculate; antennal tuft inserted near apical $^1/_3$-$^1/_4$ of shaft on outer aspect, large, barbed, greatly exceeds tip of the antenna. Head seta 5-C, 4-6 branched, shorter than 6-C; 6-C long, 2-branched; 7-C long, multibranched. *Thorax*: Prothoracic setae 1-P and 2-P long, single; 3-P long, 2-branched. *Abdomen*: Patch of numerous comb-scales; comb-scale expanded apically, fringed with subequal spinules. Siphonal index 6.0-7.0; few pecten-teeth on basal $^1/_5$- $^1/_4$ of siphon, distal pecten-teeth detached; siphonal tuft inserted within pecten-teeth at base of siphon, large, 4-5 branched. Anal segment much longer than wide, ringed by anal-saddle; lateral seta 1-X single, slightly shorter than the anal-saddle (Fig. 342b). **Similar Species:** *Culiseta morsitans* is unique from other *Culiseta* known from Colorado, in that the siphon is long and slender, about 6× as long as the basal diameter and without a row of setae distal to the pectin. Also the antennae are longer than the head, with the antennal tuft inserted at the distal ⅓.

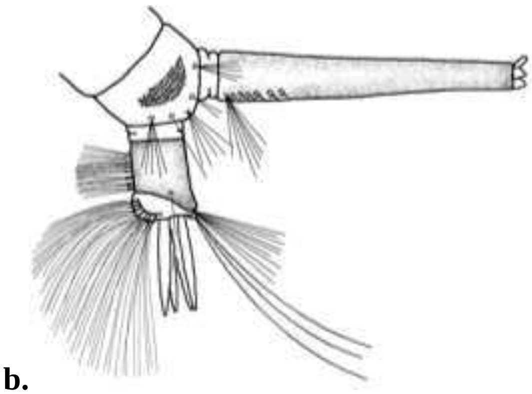
**Biology:** *Phenology*: Probably univoltine (Carpenter and LaCasse 1955, Wood et al. 1979, Darsie and Hutchinson 2009). *Overwintering stage*: Egg (Wood et al. 1979, Darsie and Hutchinson 2009) or late instar larvae (Carpenter and LaCasse 1955). *Larval habitat*: The larvae can be found in cool permanent and temporal pools shaded by vegetation, or open swamps (West et al. 1994). Carpenter and LaCasse (1955) indicate that the larvae occupy larger, cooler, rain-filled pools in shaded and open marshes, along lake margins, and bogs. *Host preference*: Usually bird species (Carpenter and LaCasse 1955, Wood et al. 1979, Molaei et al. 2013), primarily passerines, and mammals in a rare occurrence (Morris and Zimmerman 1981). *Medical importance*: Morris and Zimmerman (1981) and Molaei et al. (2013) indicated that this species serves a role in the amplification of EEEV, but due to its feeding preference on bird species it is likely not a primary vector of the virus unlike species that are more opportunistic in nature when seeking a host and feed on both birds and mammals. Jamestown Canyon virus has been isolated from this species in North America (Andreadis et al. 2008). Outside of North America, Sindbis virus has been isolated from *Cs. morsitans*, where this species plays a role in the enzootic amplification and transmission of the virus between birds and the mosquito (Jaenson 1990, Bergqvist et al. 2015).

**Comments:** This species is rare in Colorado and very little is known about its behavior in the state. Darsie and Hutchinson (2009) report that, unlike other *Culiseta* species, *Cs. morsitans* lays egg rafts on moist soil or leaf litter above the water line, requiring flooding to hatch. Since it is uncommon and does not feed on humans, it is not considered medically important in Colorado.

**Distribution:** *Culiseta morsitans* is primarily distributed throughout the northern latitudes of the United States, and Canada. Its range extends as far north as Alaska and the Canadian Pacific Coast to the west, Atlantic Coast to the east, and Colorado to the south (Carpenter and LaCasse 1955; Darsie and Ward 2005; West et al. 1994). The first records of this species were collected in Larimer County. The larvae were collected in Rocky Mountain National Park near Fern Lake Trail and the Alluvial Fan, and the Pingree Park Campus of Colorado State University at an elevation ranging from 2,490-2,740 m (West et al. 1994). Additional records are available from Routt County (Fig. 342c).



**a.**



**b.**


**c.**

**Figure 342a-c.** *Culiseta morsitans*. a) The wing, lacking dense patches of dark-scales; b) Note the long and slender siphon as well as the siphon lacking a row of setae distal to the pecten-teeth; c) County records for *Cs. morsitans*. Light-grey = post 1967 surveys.

## *Psorophora columbiae* (Dyar & Knab)

**Original Description:** Dyar & Knab, 1906: 135 [as *Janthinosoma*].

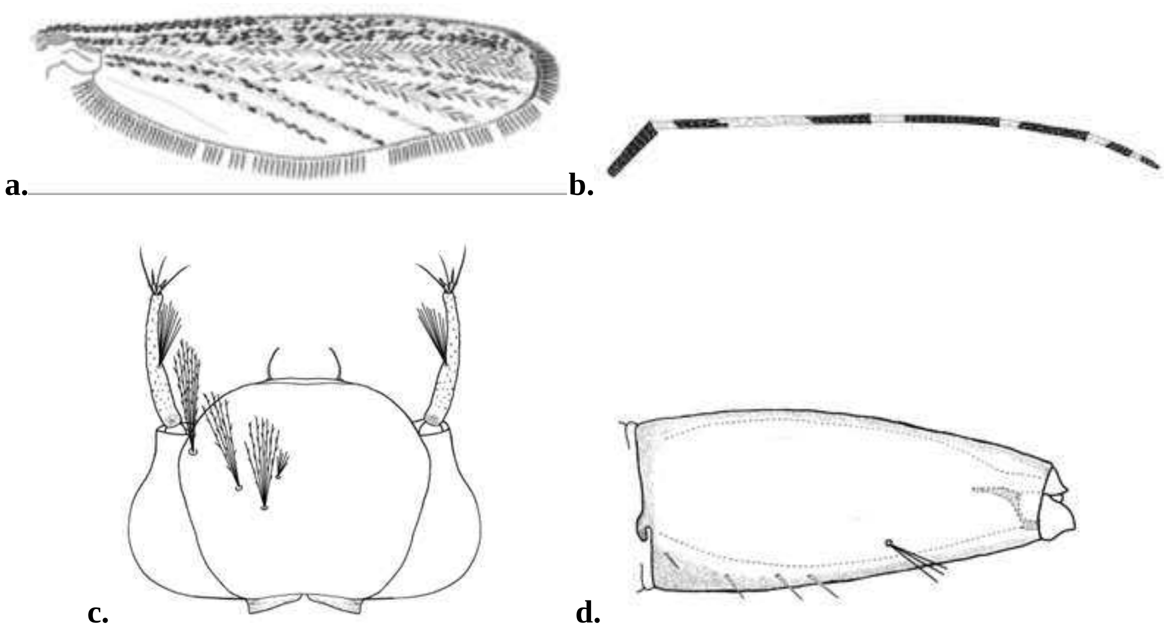
**Adult Female:** *Head*: Proboscis dark-scaled basally and apically, with a broad median band of dingy pale scales; palpi short, dark-scaled, and apical ½ of fourth segment pale-scaled. *Thorax*: Scutum covered in very fine, narrow bronze-brownish to black scales; patches of fine narrow lavender-tinted to white scales on prescutellar space, anterolateral angle of scutum, streak adorning scutal angle, patch above wing base, and submedian spot near middle of scutum. *Wing*: Broad-scaled, with dark-brown and white scales intermixed; fringe dark-scaled (Fig. 343a). *Legs*: Hind tarsi with broad basal bands of white scales; first segment of hind tarsi marked with median ring of white scales (Fig. 343b). *Abdomen*: Tergites dark-scaled basally, with pale-yellowish white triangular patches of scales apically, triangular patches of scales divided medially with dark scales; sternites marked with pale and dark scales intermixed. **Similar Species:** The first hindtarsomere on *Ps. discolor* and *Ps. signipennis* is almost completely pale-scaled and the wing has distinct areas of pale and dark scales, while the first hindtarsomere on *Ps. columbiae* has a distinct pale-scaled band at the base and at the middle, and dark and pale wing scales form no definite pattern.

**Fourth Instar Larvae:** *Head*: Antennae shorter than the head, spiculate; antennal tuft inserted near middle of shaft, long, multibranched. Head seta 5-C, 6-C, and 7-C longer than 4-C, multibranched, conspicuously barbed (Fig. 343c). *Abdomen*: Posterior margin of segment VIII with 6 comb-scales, rarely 5; comb-scale thorn-shaped, with large basal spine approximately ⅓ the length of medial spine. Siphon minimally inflated; siphon index 3.0; 3-6 widely spaced pecten-teeth ending before middle of siphon; siphonal tuft inserted near apical ⅓, short, multibranched (Fig. 343d). Anal segment completely ringed by anal-saddle. **Similar Species:** Head seta 5-C and 6- C on *Ps. signipennis* are equal to or longer than its antenna, usually single or with only 2 or 3 branches, whereas 5-C and 6-C on *Ps. columbiae* are shorter than its antenna and with 4 or more branches.

**Biology:** *Phenology*: Multivoltine. *Overwintering stage*: Egg. *Larval habitat*: The larvae occupy temporary aquatic habitats, usually pools that are organically enriched and subject to flooding by heavy precipitation and irrigation (Carpenter and LaCasse 1955, Wood et al. 1979). *Host preference*: Vertebrates. Primarily mammals including but not limited to cattle, horses, hogs, and humans (Carpenter and LaCasse 1955). *Medical importance*: This species has been collected (not in Colorado) and tested positive for a variety of medically important viruses that can be transmitted to animals and humans. Virus and bacterial isolation from *Ps. columbiae* include: POTV (Mitchell et al. 1996), CVV (Calisher et al. 1986), WNV (Bolling et al. 2005, Pitzer et al. 2009, Godsey et al. 2012), dog heartworm (Mckay et al. 2013, Paras et al. 2014), laboratory infection of VEEV (Moncayo et al. 2008), RVFV (Turell et al. 2015), and a diverse bacterial flora that could potential cause novel expression of pathogens transmitted by this species (Demaio et al. 1996). If this species becomes more abundant, it would be considered a medically important species in Colorado.

**Comments:** This is apparently a rare species in Colorado, and is of little importance as a nuisance or medical pest. This species was initially reported as *Ps. confinnis* (Lynch Arribálzaga, 1891) by Harmston and Lawson (1967), but North American populations were later confirmed to actually be *Ps. columbiae* (Darsie and Ward, 2005). No specimens of this species were available for examination from Colorado.

**Distribution:** In North America, the distribution is widespread. It has been reported as far west as California, Texas to the south, and is predominately an eastern species extending up the East Coast from Florida to Massachusetts (Carpenter and LaCasse 1955; Darsie and Ward 2005). Harmston and Lawson (1967) reported this species from Arapahoe, and Bent counties (Fig. 343e). The specimen from Arapahoe Co. was reported from the Lowry Air Force Base, 17 July, 1944, and the specimen from Bent Co. was reported from Las Animas, 9 September, 1944. No additional records are available for this species post-1967.




**e.**

**Figure 343a-e.** *Psorophora columbiae*. a) Wing; b) Median band of pale scales on the first tarsomere; c) Head; d) Siphon with widely spaced pecten-teeth; e) County records for *Ps. columbiae*. Dark-grey = Harmston and Lawson (1967).

## *Psorophora discolor* (Coquillett)

**Original Description:** Coquillett, 1903: 256 [as *Culex*].

**Adult Female:** *Head*: Proboscis dark-scaled, with broad median pale-yellow band of scales; palpi short, dark-scaled, apices pale-scaled. *Thorax*: Scutum covered in fine narrow pale-yellow to golden-brown scales. *Wing*: Broad scaled; dark and pale scale arranged in more or less of a definite pattern; pale scales at base of costal vein and union with subcostal vein; basal ⅔ of anal vein pale, apical ⅓ dark scaled; remaining veins with dark and pale scales intermixed; wing fringe dark-scaled (Fig. 344a). *Legs*: Hindtarsomere 1 mostly pale-scaled, speckled with dark scales; remaining tarsomeres basally pale-scaled, apically dark-scaled (Fig. 344b). *Abdomen*: Tergites almost entirely covered with grayish-white to pale-yellow scales, speckled with dark scales (dark scales usually more abundant basolaterally); sternites pale-scaled, peppered with dark scales. **Similar Species:** The wing fringe on *Ps. signipennis* has alternating spots of dark and pale scales and the anal vein is pale-scaled apically, whereas the wing fringe on *Ps. discolor* is uniformly dark-scaled and the anal vein is dark-scaled apically.

**Fourth Instar Larvae:** *Head*: Antennae longer than the head, inflated, sinuate, spiculate; antennal tuft large, multibranched. Head seta 5-C and 6-C long, single; 7-C long, 2-branched (Fig. 344c). *Abdomen*: Posterior margin of segment VIII with 6 large comb-scales; comb-scale thorn-shaped, with large lateral spines slightly more than ⅓ as long as the median spine. Siphon small, not inflated; siphonal index 3.0; 6-8 long pecten-teeth on basal ½ of siphon; siphonal tuft long, multibranched, inserted slightly beyond middle of siphon (Fig. 344d). Anal segment ringed by anal-saddle, with row of spicules on dorsoapical margin. **Similar Species:** The antennae are shorter than the head, slightly curved, and not inflated on *Ps. columbiae* and *Ps. signipennis*, while the antennae are longer than head, sinuate, somewhat inflated on the distal ½ on *Ps. discolor*.

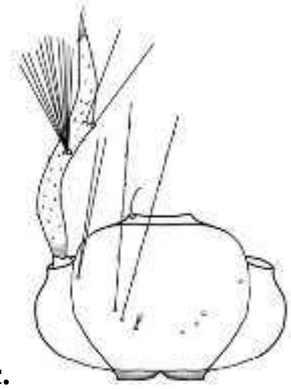
**Biology:** *Phenology*: Multivoltine. *Overwintering stage*: Egg. *Larval habitat*: The larvae occupy temporary aquatic habitats flooded by heavy precipitation events and irrigation, overflow pools along stream, ditches, and inundated depressions in agricultural fields (Carpenter and LaCasse 1955). *Host preference*: Mammals. This species prefers cattle followed by horses, mules, hogs, humans, and rarely fed on birds (Carpenter and LaCasse 1955). *Medical importance*: Sudia et al. (1975) reported this species as a “probable” primary vector during a VEEV epidemic in south Texas in 1971. The reason why these authors listed this species as a probable vector was due to the lack of laboratory evidence, however this species collected from the field was infected with VEEV as frequently as the species they listed as the primary vector (*Ps. confinnis*) (Sudia et al. 1975).

**Comments:** This species is uncommon in Colorado. *Psorophora discolor* reaches its greatest abundance in the Midwest (Carpenter and LaCasse 1955, Darsie and Ward 2005). Larvae are not often collected due to their avoidance of the surface film, remaining submerged for relatively long periods of time (Carpenter and LaCasse 1955). The adult females readily come to $CO_2$-baited light traps and can pose a biting nuisance when abundant. The females are most aggressive at night seeking a host to feed on. However, since *Ps. discolor* is uncommon in Colorado, it is considered of little importance medically.

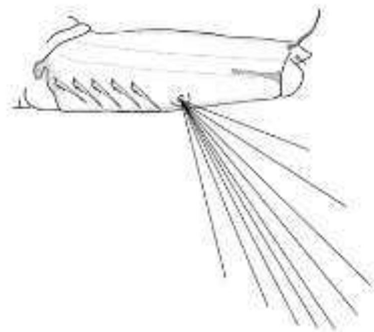
**Distribution:** *Psorophora discolor* is primarily distributed throughout the southeastern United States, with its range extending as far north as Nebraska and Iowa, Delaware and Florida to the east, Texas to the south, and Arizona to the west (Carpenter and LaCasse 1955, Darsie and Ward 2005). In Colorado, this species has been reported from Weld County at the Central Plains Exp erimental Range (Fig. 344e).

**a.**

**b.**



c.



d.


e.

**Figure 344a-e.** *Psorophora discolor*. a) Wing. Note the definite pattern of scales and dark wing fringe; b) Hind leg, with primarily pale-scaled hindtarsomere 1; c) Head; d) Siphon, with long siphonal tuft; e) County record for *Ps. discolor*. Light-grey = post 1967 surveys.

## *Psorophora signipennis* (Coquillett)

**Original Description:** Coquillett, 1904: 167 [as *Taeniorhynchus*].

**Adult female:** *Head*: Proboscis dark-scaled apically and basally, with broad median band of dingy whitish-yellow scales; palpi short, dark-scaled, with few scattered pale scales. *Thorax*: Scutum covered with fine golden-brown scales; yellowish laterally, and on prescutellar space.

*Wing*: Fairly broad scaled; pale scales and dark scales intermixed; costal vein with two dark-scaled spots separated by areas of white scales on apical ½; dark and white scales on basal ½ to ⅔ of anal vein; dark-scaled patch on distal ⅔; white-scaled area on distal aspect of wing; fringe with alternating dark-scaled and pale-scaled patches (Fig. 345a). *Legs*: Hindtarsomere 1 mostly pale-scaled, peppered with dark scales, dark-ringed sub-basally and apically; remaining tarsomeres pale-scaled basally, dark-scaled apically. **Similar Species:** The wing fringe on *Ps. discolor* is uniformly dark-scaled and the anal vein is dark-scaled apically, whereas the wing fringe on *Ps. signipennis* has alternating spots of dark and pale scales and the anal vein is pale-scaled apically.

**Fourth instar larvae:** *Head*: Antennae slightly shorter than the head, spiculate; antennal tuft inserted at middle of shaft, 8-15 branched. Head seta 5-C, 1-3 branched, longer than 4-C; 6-C similar to 5-C (5-C or 6-C usually single); 7-C, 6-8 branched (Fig. 345b). *Abdomen*: Posterior margin of segment VIII with 4-8 comb-scales curving toward apex of weakly sclerotized are; comb-scale thorn-shaped, basal ⅓ fringed with teeth, apex with long central tooth. Siphon slightly swollen near basal ⅓; siphonal index 3.0; 4-6 pecten-teeth, each little longer than the last, ending near basal ⅓ of siphon; siphonal tuft inserted near apical ⅓, very short, multibranched. Anal segment ringed by anal-saddle. **Similar Species:** Head seta 5-C and 6-C on *Ps. columbiae* are shorter than its antenna, with 4 or more branches, while 5-C and 6-C on *Ps. signipennis* are equal to or longer than its antenna, single or with only 2 or 3 branches.

**Biology:** *Phenology*: Multivoltine. *Overwintering stage*: Egg. *Larval habitat*: The larvae occupy temporary pools created by irrigation and heavy precipitation events, ditches, streamside pools created by run-off, and small ponds or swampy areas. *Host preference*: Mammals. *Medical importance*: Virus isolation from this species includes WNV (Pitzer et al. 2009), and rhabdoviruses (Clark et al. 1986).

**Comments:** *Psorophora signipennis* is well adapted to the open plains of eastern Colorado. This species has a rather rapid development and in most cases under favorable mid-summer conditions, *Ps. signipennis* can complete development to an adult in 5 days (Harmston and Lawson 1967). The adult females can tolerate the winds and heat of the eastern plains and can be very abundant at times. The adult females readily come to $CO_2$-baited light traps, but is not considered one of the nuisance species in Colorado. However, Harmston and Lawson (1967) reported that when this species is abundant it can be a biting-nuisance. Since *Ps. signipennis* is not known to vector a disease, it is not considered a medically important species in Colorado.

**Distribution:** *Psorophora signipennis* is primarily distributed throughout the central United States, and southcentral Canada, its range extends into Saskatchewan to the north, California to the west, Tennessee and Kentucky to the east and Mexico to the south (Carpenter and LaCasse 1955, Darsie and Ward 2005). In Colorado, Harmston and Lawson reported this species from Adams, El Paso, Larimer, Prowers, Pueblo, Weld, and Yuma counties. Additional records are available from Arapahoe, Baca, Douglas, Logan, Mesa, and Morgan counties (Fig. 345c).

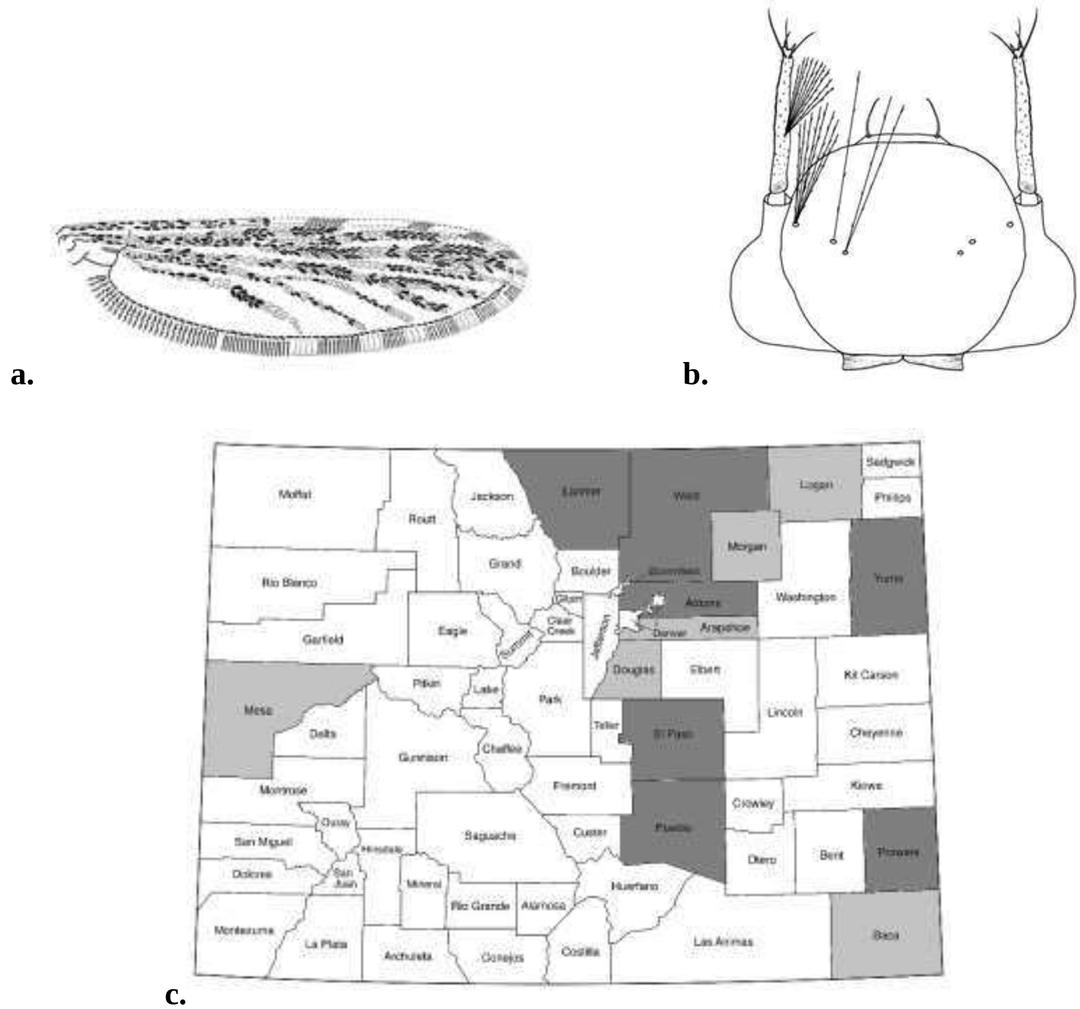



**Figure 345a-c.** *Psorophora signipennis*. a) Alternating spots of pale and dark scales on the wing fringe; b) Head with setae branching; c) County records for *Ps. signipennis*. Dark-grey = Harmston and Lawson (1967); Light-grey = post 1967 surveys.

### *Uranotaenia anhydor syntheta* Dyar & Shannon

**Original Description:** Dyar & Shannon, 1924: 189 [as distinct species, *Ur. syntheta*].

**Adult Female:** *Head*: Proboscis dark-brown scaled, swollen apically; palpi very small, approximately $^{1}/_{10}$ the length of the proboscis, dark-brown scaled. *Thorax*: Scutum covered in narrow reddish-brown to dark-brown scales; a conspicuous narrow lateral line of bluish iridescent scales extends from the anterior margin to the wing base (Fig. 346a); line divided into two sections at the scutal angle with anterior segment dividing a dark patch of integument; patches of bluish iridescent scales mark anterior pronotal lobes; patches of bluish iridescent scales present on mesokatepisternum. *Wing*: Veins dark-scaled; base of wing vein $R_1$ marked by row of pale scales; second marginal cell much shorter than petiole. *Legs*: Tarsi dark-scaled. *Abdomen*: Tergites brown-scaled with metallic sheen; sternites with dingy pale-brown scales. **Similar Species:** The scutum on *Ur. sapphirina* has a distinct narrow median stripe of iridescent blue scales extending from the head to the middle lobe of the scutellum, while the scutum on *Ur. a. syntheta* lack a distinct mid-dorsal stripe of scales, but still has a stripe of lateral iridescent blue scales as describe above.

**Fourth Instar Larvae:** *Head*: Slightly longer than wide; antennae short, $^1/_4$ the length of the head, dark, spiculate; antennal seta short, single, inserted at basal $^1/_4$ of shaft. Head seta 5-C 2-3 branched, minimally barbed, about ⅔ the length of 6-C; 6-C long, single, minimally barbed; 7-C large, multibranched, barbed (Fig. 346b). *Abdomen*: A sclerotized plate marks segment VIII with 7-10 comb-scales on distal margin of plate; comb-scale thorn-shaped with small lateral spinules on basal ½-⅔. Siphonal index 4.5-5.0; 16-20 evenly spaced pecten-teeth ending near middle of siphon; siphonal tuft 7-10 branched, conspicuously barbed, inserted at middle of siphon near end of pecten-teeth, slightly longer than diameter of base of siphon. Anal segment completely ringed by anal-saddle; anal-saddle marked by row of spines on apical margin. **Similar Species:** Head seta 5-C and 6-C on *Ur. sapphirina* are single, thick, and spine-like, whereon *Ur. a. syntheta* 5-C is 2-3 branched and 6-C is single, and both are coarse, but not spiniform.

**Biology:** *Phenology*: Multivoltine. *Overwintering stage*: Unknown. *Larval habitat*: The larvae occur in shallow marshy areas with emergent and floating vegetation dominated by bulrush (*Scripus*), cattails (*Typha*), and duckweed (*Lemna* sp.) (Rose et al. 2015). The larva of this species can be confused with *Anopheles*, due to the larva resting parallel to the water surface, but easily separated from *Anopheles* spp. due to its conspicuous siphon, lacking in *Anopheles* (Burkett-Cadena 2013). *Host*: Unknown, but this species probably feeds on amphibians and/or reptiles, as the subspecies *Ur. a. anhydor* (Bohart and Washino 1978). *Medical importance*: Unknown, however *Ur. a. syntheta* belongs to a genus that other species have tested positive for mosquito-borne pathogens that can be transmitted to animals and humans (Andreadis et al. 2004, Cupp et al. 2004).

**Comments:** This species is only known from one locality in Colorado. *Uranotaenia a. syntheta* likely colonized the habitats at the site it was collected at in Pueblo, CO produced by irrigated agriculture. This is not considered an important species in Colorado, but the iridescent blue scales make it one of the more attractive species in the state. The adult females have been collected in $CO_2$-baited light traps (Carpenter and LaCasse 1955).

**Distribution:** *Uranotaenia a. syntheta* is primarily distributed in southcentral United States. Its range includes New Mexico, Oklahoma, Texas, and disjunct populations occurring in Arkansas (Darsie and Ward, 2005), and known only from Pueblo County, Colorado (Rose et al. 2015) (Fig. 346c).

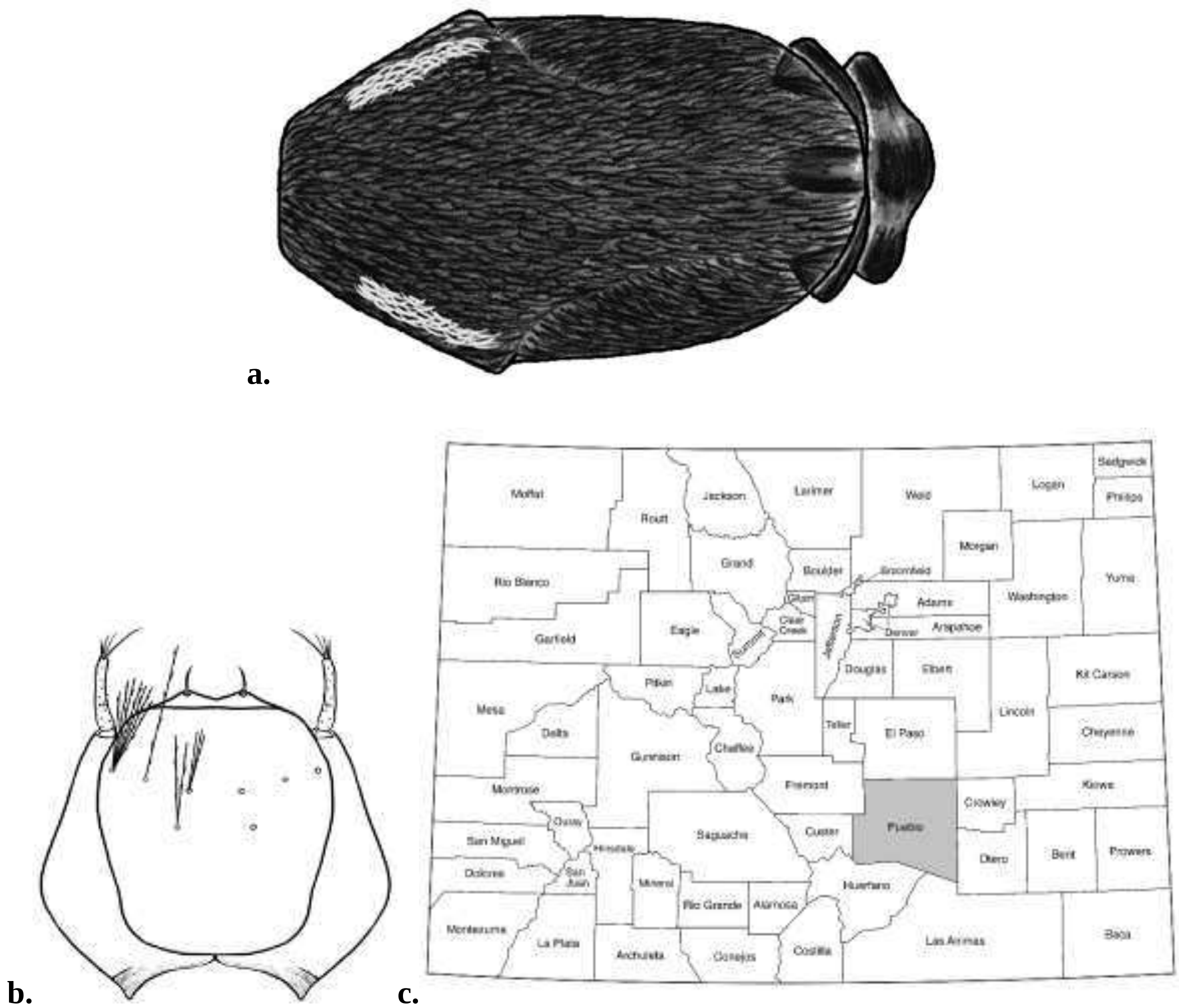



**Figure 346a-c.** *Uranotaenia anhydor syntheta*. a) Scutum; b) The head. Note 5-C is double or triple; c) County record for *Ur. a. syntheta*. Light-grey = post 1967 surveys.

## ***Uranotaenia sapphirina*** **(Osten Sacken)**

**Original Description:** Osten Sacken. 1868: 47 [as *Aedes*].

**Adult Female:** *Head*: Proboscis dark-brown scaled, swollen apically, sometimes with scattered iridescent blue scales basally; palpi very short, approximately $^{1}/_{10}$ the length of the proboscis, dark-brown scaled. *Thorax*: Scutum covered in narrow light-brown or golden scales; a conspicuous narrow median line of iridescent blue scales extends the length of the scutum, and continues on to median lobe of scutellum (Fig. 347a); lateral margins of scutum clothed with similar narrow line of iridescent blue scales extending from scutal angle to base of wing; anterior pronotal lobe and middle of mesokatepisternum marked with patch of iridescent blue scales. *Wing*: Veins with broad brown scales; a row of iridescent blue scales at posterior of cubital vein, and short row of similar bluish scales at base of $R_1$. *Legs*: Tarsi dark-scaled. *Abdomen*: Tergites brown-scaled with metallic sheen; tergites sometimes with circular white patches of scales at apices of segments III, V, VI; sternites dingy pale-brown scaled. **Similar Species:** The scutum on *Ur. a. syntheta* lacks a distinct mid-dorsal stripe of scales, whereas the scutum on *Ur. sapphirina* is as above.

**Fourth Instar Larvae:** *Head*: Longer than wide; antennae short, about $^1/_4$ the length of the head; dark, minimally spiculate; antennal seta short, single, inserted at basal ⅓ of shaft. Head seta 5-C stout, spinelike, dark, the length of the antennae; 6-C similar in to 5-C; 7-C multibranched, minimally barbed (Fig. 347b). *Abdomen*: A large sclerotized plate marks segment VIII with 7-10 comb-scales on distal margin of plate; comb scale thorn-shaped with small lateral spinules on basal ½. Siphonal index 3.5-4.5; slightly upturned with 12-15 evenly spaced pecten-teeth ending near middle of siphon; siphonal tuft inserted distal to pecten-teeth. Anal segment completely ringed by anal-saddle; row of spines on apical margin of anal-saddle. **Similar Species:** Head seta 5-C on *Ur. a. syntheta* is 2-3 branched, and seta 6-C is single, both are coarse but not spiniform, whereon *Ur. sapphirina* 5-C and 6-C are single, thick, and spine-like.

**Biology:** *Phenology*: Multivoltine (Carpenter and LaCasse 1955). *Overwintering stage*: Adult females overwinter (Carpenter and LaCasse 1955). *Larval habitat*: The larvae occur in permanent ponds, lakes, and marshes with emergent and/or floating vegetation (Carpenter and LaCasse 1955, Wood et al. 1979, Darsie and Hutchinson 2009, Burkett-Cadena 2013). Similar to *Anopheles* spp. due to the larva resting parallel to the water surface *Ur. sapphirina* is easily separated from *Anopheles* spp. due to its conspicuous siphon lacking in larvae of that *Anopheles* lack (Burkett-Cadena 2013). *Host preference*: This species feeds on amphibians and/or reptiles (Cupp et al. 2004, Molaei et al. 2008, Burkett-Cadena 2013). Molaei et al. (2008), also reported that this species primarily feeds on mammals including, but not limited to humans and deer. *Medical importance*: This species has tested positive for EEEV (Cupp et al. 2004), and WNV (Andreadis et al. 2004), however it plays a negligible role in transmission to humans.

**Comments:** *Uranotaenia sapphirina* can be collected with light traps. It is apparently rare in Colorado, known from only a single record to date. The adult females of this species are not known to feed on humans and therefore of little importance economically or medically.

**Distribution**: *Uranotaenia sapphirina* is primarily distributed in the eastern United States, with its range extending as far north as southeastern Canada, along the Atlantic Coast to the east, Colorado and New Mexico to the West, and southcentral Texas the south (Carpenter and LaCasse 1955, Darsie and Ward 2005). A single specimen was reported from Colorado, collected in September 1979 at the Pueblo Army Depot Activity, Pueblo, Colorado (Maloney 1980) (Fig. 347c).

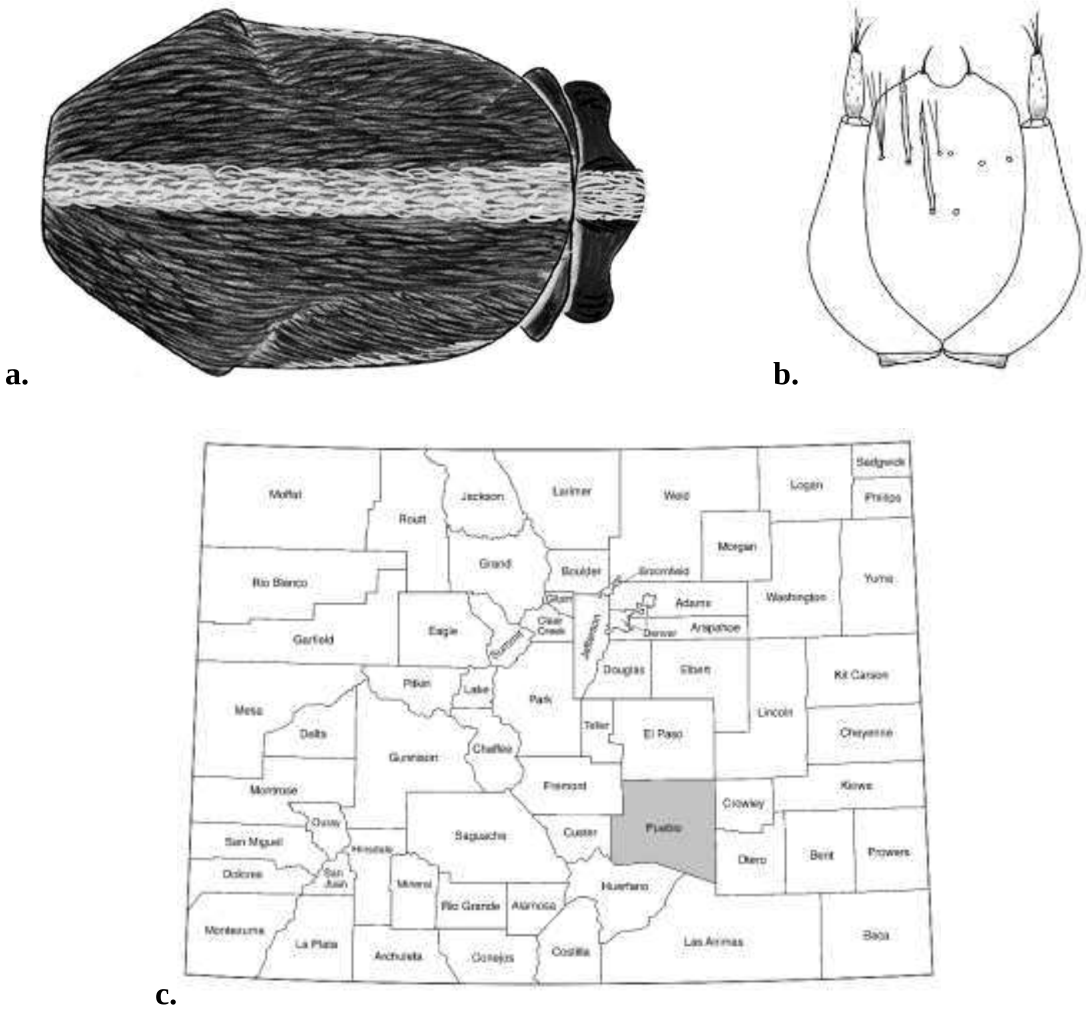



**Figure 347a-c.** *Uranotaenia sapphirina*. a) Note the median line of iridescent blue scales; b) The head. Note 5-C and 6-C are single, thick, and spinelike; c) County record for *Ur. sapphirina*. Light-grey = post 1967 surveys.

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## APPENDIX 1 SPECIES RECORDS

### *Aedes aegyptyi*

| Species | County | City/Town | DecDeg N | DecDeg W | Location Notes | Altitude | Date | Collector | Determination | Series | Museum |
|---|---|---|---|---|---|---|---|---|---|---|---|
| *Aedes aegypti* (L.) | Pueblo | Pueblo | 38.28105 | -104.6395 | Wildhorse Creek Park (PB-06) | 4690 ft. | 1-Sep-2016 | CRodosevich | MJWeissmann | 1 | CSU |
| *Aedes aegypti* (L.) | Pueblo | Pueblo | 38.28105 | -104.6395 | Wildhorse Creek Park (PB-06) | 4690 ft. | 28-Aug-2010 | CRodosevich | MJWeissmann | 1 | CSU |

### *Aedes albopictus*

| Species | County | City/Town | DecDeg N | DecDeg W | Location Notes | Altitude | Date | Collector | Determination | Series | Museum |
|---|---|---|---|---|---|---|---|---|---|---|---|
| *Aedes albopictus* (Skuse) | Weld | Ft. Lupton | 40.09495 | -104.81945 | Original Fort Site | 4890 ft. | 1-Sep-2004 | CMC tech | JKBennett | 1 | CSU |
| *Aedes albopictus* (Skuse) | Weld | Ft. Lupton | 40.09495 | -104.81945 | Original Fort Site | 4890 ft. | 14-Jul-2004 | CMC tech | JKBennett | 1 | CSU |
| *Aedes albopictus* (Skuse) | Weld | Ft. Lupton | 40.09495 | -104.81945 | Original Fort Site | 4890 ft. | 16-Jun-2004 | CMC tech | JKBennett | 1 | CSU |
| *Aedes albopictus* (Skuse) | Weld | Ft. Lupton | 40.09495 | -104.81945 | Original Fort Site | 4890 ft. | 2-Aug-2011 | CMC tech | MJWeissmann | 1 | CSU |
| *Aedes albopictus* (Skuse) | Weld | Ft. Lupton | 40.09495 | -104.81945 | Original Fort Site | 4890 ft. | 21-Jul-2004 | CMC tech | JKBennett | 4 | CSU |
| *Aedes albopictus* (Skuse) | Weld | Ft. Lupton | 40.09495 | -104.81945 | Original Fort Site | 4890 ft. | 23-Aug-2010 | CMC tech | MJWeissmann | 2 | CSU |
| *Aedes albopictus* (Skuse) | Weld | Ft. Lupton | 40.09495 | -104.81945 | Original Fort Site | 4890 ft. | 28-Jun-2011 | CMC tech | MJWeissmann | 1 | CSU |
| *Aedes albopictus* (Skuse) | Weld | Ft. Lupton | 40.09495 | -104.81945 | Original Fort Site | 4890 ft. | 29-Aug-2010 | CMC tech | MJWeissmann | 1 | CSU |
| *Aedes albopictus* (Skuse) | Weld | Ft. Lupton | 40.09495 | -104.81945 | Original Fort Site | 4890 ft. | 31-Jul-2004 | CMC tech | JKBennett | 4 | CSU |
| *Aedes albopictus* (Skuse) | Weld | Ft. Lupton | 40.09495 | -104.81945 | Original Fort Site | 4890 ft. | 7-Aug-2004 | CMC tech | MJWeissmann | 1 | CSU |
| *Aedes albopictus* (Skuse) | Weld | Ft. Lupton | 40.09495 | -104.81945 | Original Fort Site | 4890 ft. | 7-Jul-2004 | CMC tech | JKBennett | 1 | CSU |
| *Aedes albopictus* (Skuse) | Weld | Ft. Lupton | 40.09495 | -104.81945 | Original Fort Site | 4890 ft. | 8-Sep-2004 | CMC tech | JKBennett | 1 | CSU |
| *Aedes albopictus* (Skuse) | Weld | Ft. Lupton | 40.09495 | -104.81945 | Original Fort Site | 4890 ft. | 9-Jul-2003 | Ahickman | MJWeissmann | 1 | CSU |

### *Aedes campestris*

| Species | County | City/Town | DecDeg N | DecDeg W | Location Notes | Altitude | Date | Collector | Determination | Series | Museum |
|---|---|---|---|---|---|---|---|---|---|---|---|
| *Aedes campestris* Dyar & Knab | Alamosa | Alamosa | | | Alamosa | | 13-Jun-1930 | JCBishop | unknown | 1 | WRBU |
| *Aedes campestris* Dyar & Knab | Alamosa | Alamosa | | | Alamosa | | 17-Jun-1930 | JCBishop | unknown | 4 | WRBU |
| *Aedes campestris* Dyar & Knab | Alamosa | Alamosa | | | Alamosa | | 18-Jun-1930 | JCBishop | unknown | 1 | WRBU |
| *Aedes campestris* Dyar & Knab | Gunnison | Gunnison | | | n/a | | 3-Jun-1970 | FCHarmston | n/a | 1 | CDC |

## *Aedes campestris* cont.

| Species | County | City/Town | DecDeg N | DecDeg W | Location Notes | Altitude | Date | Collector | Determination | Series | Museum |
|---|---|---|---|---|---|---|---|---|---|---|---|
| *Aedes campestris* Dyar & Knab | Jackson | n/a | | | Arapahoe National Wildlife Refuge | | 14-Jun-2014 | DARose | DARose | 7 | CSU |
| *Aedes campestris* Dyar & Knab | Jackson | n/a | | | County Road 7 at Independence Mountain | | 14-Jun-2014 | DARose | DARose | 1 | CSU |
| *Aedes campestris* Dyar & Knab | Larimer | Fort Collins | | | Cherokee Park outside Ft. Collins, Colorado | | 28-May-1972 | unknown | FCHarmston | 3 | CSU |
| *Aedes campestris* Dyar & Knab | Larimer | Virginia Dale | | | n/a | | 26-May-1974 | FCHarmston | FCHarmston | 20 | CSU |
| *Aedes campestris* Dyar & Knab | Logan | Sterling | | | Veg. Walmart Prk-Lot | | 10-Aug-2014 | DARose & CLPeters | DARose | 1 | CSU |
| *Aedes campestris* Dyar & Knab | Moffat | n/a | | | Big Bottom Up to Maybell Bridge Boat Launch Yampa River DA-124 | | 21-Jun-2014 | DARose & CLPeters | DARose | 4 | CSU |
| *Aedes campestris* Dyar & Knab | Moffat | n/a | | | Yampa River Boat Luanch | | 21-Jun-2014 | DARose & CLPeters | DARose | 3 | CSU |
| *Aedes campestris* Dyar & Knab | Moffat | n/a | | | Jct. Hwy 13 & CR 18 | | 21-Jun-2014 | DARose & CLPeters | DARose | 1 | CSU |
| *Aedes campestris* Dyar & Knab | Routt | n/a | | | Yampa SWA # 1 DA-118 | | 21-Jun-2014 | DARose & CLPeters | DARose | 1 | CSU |
| *Aedes campestris* Dyar & Knab | Routt | n/a | | | Yampa SWA near Craig | | 21-Jun-2014 | DARose & CLPeters | DARose | 1 | CSU |
| *Aedes campestris* Dyar & Knab | Saguache | Gunnison | 38.140733 | -106.4584 | Hwy. 114 outside of Gunnison | | 22-Jun-2013 | DARose | DARose | 1 | CSU |
| *Aedes campestris* Dyar & Knab | Saguache | n/a | | | Hwy. 114 mm 40 | | 22-Jun-2013 | DARose | DARose | 1 | CSU |
| *Aedes campestris* Dyar & Knab | Weld | n/a | | | East of Greeley on Platte River | | 27-Apr-1959 | n/a | n/a | 1 | CDC |
| *Aedes campestris* Dyar & Knab | Weld | Greeley | | | n/a | | 7-Apr-1962 | FCHarmston | n/a | 1 | CDC |

## *Aedes canadensis canadensis*

| Species | County | City/Town | DecDeg N | DecDeg W | Location Notes | Altitude | Date | Collector | Determination | Series | Museum |
|---|---|---|---|---|---|---|---|---|---|---|---|
| *Aedes canadensis canadensis* (Theobald) | Garfield | Carbondale | 39.40165 | -107.15550 | n/a | 6265 ft. | 13-Jul-11 | CMC tech | MJWeissmann | 1 | CSU |
| *Aedes canadensis canadensis* (Theobald) | Garfield | Carbondale | 39.40165 | -107.15550 | n/a | 6265 ft. | 27-Jul-11 | CMC tech | MJWeissmann | 1 | CSU |
| *Aedes canadensis canadensis* (Theobald) | Garfield | Carbondale | 39.40165 | -107.15550 | n/a | 6265 ft. | 29-Jun-11 | CMC tech | MJWeissmann | 1 | CSU |
| *Aedes canadensis canadensis* (Theobald) | Garfield | Carbondale | 39.40165 | -107.15550 | n/a | 6265 ft. | 22-Jul-05 | CMC tech | MJWeissmann | 1 | CSU |
| *Aedes canadensis canadensis* (Theobald) | Garfield | Carbondale | 39.40165 | -107.15550 | n/a | 6265 ft. | 7-Aug-13 | CMC tech | DARose | 1 | CSU |
| *Aedes canadensis canadensis* (Theobald) | Garfield | Carbondale | 39.40165 | -107.15550 | n/a | 6265 ft. | 10-Jul-13 | CMC tech | DARose | 1 | CSU |
| *Aedes canadensis canadensis* (Theobald) | Garfield | Carbondale | 39.40165 | -107.15550 | St. Finbar (CD-02) | 6265 ft. | 22-Jul-15 | CMC tech | MJWeissmann | 1 | CSU |
| *Aedes canadensis canadensis* (Theobald) | Garfield | Carbondale | 39.40165 | -107.15550 | St. Finbar (CD-02) | 6265 ft. | 16-Jul-14 | MSwenson | MJWeissmann | 1 | CSU |
| *Aedes canadensis canadensis* (Theobald) | Pitkin | nr. Carbondale | 39.32075 | -107.20840 | 4.5 mi. So. Carbondale (PK-14) | 6405 ft. | 1-Jul-15 | CMC tech | MJWeissmann | 3 | CSU |

## *Aedes cataphylla*

| Species | County | City/Town | DecDeg | DecDeg W | Location Notes | Altitude | Date | Collector | Determination | Series | Museum |
|---|---|---|---|---|---|---|---|---|---|---|---|
| *Aedes cataphylla* Dyar | Boulder | Nerderland | | | n/a | | 9-Jul-1962 | FCHarmston | DARose | 3 | CSU |
| *Aedes cataphylla* Dyar | Boulder | Ward | 40.05970 | -105.49895 | | | 9-Jun-2004 | JKBennett | JKBennett | 2 | CSU |
| *Aedes cataphylla* Dyar | Clear | n/a | | | Guanella Pass mm 17 | | 16-Jun-2013 | DARose | DARose | 1 | CSU |
| *Aedes cataphylla* Dyar | Clear | n/a | | | Guanella Pass mm 8 | | 16-Jun-2013 | DARose | DARose | 1 | CSU |
| *Aedes cataphylla* Dyar | Clear | n/a | | | Guanella Pass Summit | | 16-Jun-2013 | DARose | DARose | 1 | CSU |
| *Aedes cataphylla* Dyar | Grand | Grand Lake | | | Grand Lake | | 30May-24June 1923 | HG Dyar | unknown | 1 | WRBU |

## *Aedes cataphylla* cont.

| Species | County | City/Town | DecDeg | DecDeg W | Location Notes | Altitude | Date | Collector | Determination | Series | Museum |
|---|---|---|---|---|---|---|---|---|---|---|---|
| *Aedes cataphylla* Dyar | Gunnison | Gunnison | 38.52315 | -106.9636 | Dos Rios (GU-05) | 7630 ft. | 13-Aug-2014 | CMC Tech | ADvanGulik | 1 | CSU |
| *Aedes cataphylla* Dyar | Gunnison | Gunnison | 38.54255 | -106.91775 | Gunnison Ball Park/Pioneer Museum | 7695 ft. | 3-Jul-2012 | MJWeissmann | MJWeissmann | 1 | CSU |
| *Aedes cataphylla* Dyar | Gunnison | Gunnison | | | n/a | | 3-Jul-2012 | MJWeissmann | MJWeissmann | 1 | CSU |
| *Aedes cataphylla* Dyar | Gunnison | Gunnison | | | n/a | | 9-May-1968 | FCHarmston | n/a | 4 | CDC |
| *Aedes cataphylla* Dyar | Gunnison | n/a | | | Taylor Park Reservoir | | 8-Jun-2013 | DARose | DARose | 1 | CSU |
| *Aedes cataphylla* Dyar | Gunnison | Gunnison | | | n/a | | 23-May-1961 | FCHarmston | n/a | 43 | CDC |
| *Aedes cataphylla* Dyar | Jackson | Walden | | | Chedsey Motel | | 14-Jun-2014 | DARose | DARose | 1 | CSU |
| *Aedes cataphylla* Dyar | Jackson | n/a | | | Grizzly Creek Camp Ground | | 17-Jul-1946 | MTJames | DRose | 1 | CSU |
| *Aedes cataphylla* Dyar | Jackson | n/a | | | Hwy. 14 mm 41 | | 22-Jun-2013 | DARose | DARose | 1 | CSU |
| *Aedes cataphylla* Dyar | Jackson | n/a | | | Hwy. 14 mm 49 | | 22-Jun-2013 | DARose | DARose | 1 | CSU |
| *Aedes cataphylla* Dyar | Jackson | Steamboat | | | Rabbit Ears Pass | | 19-Jul-1946 | MTJames | DRose | 2 | CSU |
| *Aedes cataphylla* Dyar | Jefferson | Evergreen | | | n/a | | 28-Jun-1941 | MTJames | DRose | 3 | CSU |
| *Aedes cataphylla* Dyar | Jefferson | Evergreen | | | n/a | | 28-Jun-1941 | MTJames | DRose | 3 | CSU |
| *Aedes cataphylla* Dyar | Jefferson | Buffalo Creek | | | n/a | | 22-Jun-1959 | LJOgden | n/a | 4 | CDC |
| *Aedes cataphylla* Dyar | Larimer | n/a | | | Cameron Pass | | 28-Jun-1938 | CRJones | DARose | 1 | CSU |
| *Aedes cataphylla* Dyar | Larimer | Glendevey | | | Deadman Pass | | 7-Jul-1946 | Dgates | DRose | 1 | CSU |
| *Aedes cataphylla* Dyar | Larimer | Estes Park | | | RNMP Fern Lake Trail | | 16-Jun-1905 | Dwest | Dwest | 6 | CSU |
| *Aedes cataphylla* Dyar | Larimer | n/a | | | Rocky Mountain National Park | | 24-Aug-1967 | FCHarmston | DARose | 9 | CSU |
| *Aedes cataphylla* Dyar | Larimer | n/a | | | Rocky Mountain National Park | | 21-May-1968 | FCHarmston & EJHeidig | DARose | 6 | CSU |
| *Aedes cataphylla* Dyar | Larimer | n/a | | | Rocky Mountain National Park | | 21-May-1971 | LJOgden | DARose | 4 | CSU |
| *Aedes cataphylla* Dyar | Larimer | n/a | | | Rocky Mountain National Park | | 24-Aug-1967 | FCHarmston | DARose | 2 | CDC |
| *Aedes cataphylla* Dyar | Larimer | n/a | | | Rocky Mountain National Park | | 21-May-1968 | FCHarmston & EJHeidig | DARose | 1 | CDC |
| *Aedes cataphylla* Dyar | Park | Como | | | Como | | 20-May-1964 | FCHarmston | DARose | 9 | CSU |
| *Aedes cataphylla* Dyar | Park | Fairplay | | | Fairplay Colorado | | 22-Jun-1959 | LJOgden | DARose | 1 | CDC |
| *Aedes cataphylla* Dyar | Park | n/a | | | Kenosha Pass | | 20-May-1964 | FCHarmston | DARose | 19 | CSU |
| *Aedes cataphylla* Dyar | Park | n/a | | | Kenosha Pass Summit | | 25-May-2014 | DARose | DARose | 3 | CSU |
| *Aedes cataphylla* Dyar | Park | Kenosha | | | n/a | | 20-May-1964 | FCHarmston | DARose | 23 | CSU |
| *Aedes cataphylla* Dyar | Park | Fairplay | | | n/a | | 22-Jun-1959 | LJOgden | n/a | 1 | CDC |
| *Aedes cataphylla* Dyar | Park | Ute Creek | | | Ute Creek, 9000 ft. | | 3-Jul-???? | L. Bruner | A. Stone | 3 | WRBU |
| *Aedes cataphylla* Dyar | Saguache | n/a | | | Cochetopa Pass | | 9-Jun-2013 | DARose | DARose | 1 | CSU |

## *Aedes cinereus*

| Species | County | City/Town | DecDeg N | DecDeg W | Location Notes | Altitude | Date | Collector | Determination | Series | Museum |
|---|---|---|---|---|---|---|---|---|---|---|---|
| *Aedes cinereus* Meigen | Arapahoe | Columbine Valley | 38.59505 | -105.03035 | 6700 So. Fairway Lane (CV-01) | 5340 ft. | 17-Jul-2013 | CMC tech | MJWeissmann | 1 | CSU |
| *Aedes cinereus* Meigen | Boulder | Superior | 39.95200 | -105.16935 | Coal Creek at 3rd Ave. and Charles St. (SU-02) | 5490 ft. | 1-Jul-2013 | CMC tech | MJWeissmann | 1 | CSU |
| *Aedes cinereus* Meigen | Boulder | Longmont | 40.16280 | -105.12030 | Izaak Walton Park, Sunset St. at St. Vrain River (LM-42) | 4975 ft. | 16-Aug-2015 | CMC tech | MJWeissmann | 1 | CSU |
| *Aedes cinereus* Meigen | Boulder | Longmont | | | n/a | | 10-Jun-2013 | DARose | DARose | 1 | CSU |
| *Aedes cinereus* Meigen | Eagle | Eagle | | | Hwy 6 mm 154.50 | | 29-Jun-2014 | DARose & CLPeters | DARose | 3 | CSU |
| *Aedes cinereus* Meigen | Grand | Grand Lake | | | Grand Lake | | 24-Jun-1923 | HG Dyar | HG Dyar? | 1 | WRBU |

## *Aedes cinereus* cont.

| Species | County | City/Town | DecDeg N | DecDeg W | Location Notes | Altitude | Date | Collector | Determination | Series | Museum |
|---|---|---|---|---|---|---|---|---|---|---|---|
| *Aedes cinereus* Meigen | Grand | Grand Lake | | | Grand Lake | | 27-Jun-2023 | HG Dyar | HG Dyar? | 3 | WRBU |
| *Aedes cinereus* Meigen | Grand | Grand Lake | | | Grand Lake | | 3-Jul-1923 | HG Dyar | HG Dyar? | 2 | WRBU |
| *Aedes cinereus* Meigen | Grand | n/a | | | Rabbit Ears Pass | | 18-Jul-1946 | MTJames | DARose | 2 | CDC |
| *Aedes cinereus* Meigen | Gunnison | Gunnison | | | Gunnison Colorado | | 27-Jun-1968 | FCHarmston | DARose | 6 | CDC |
| *Aedes cinereus* Meigen | Gunnison | n/a | | | Hwy 50 and CR 45 | | 27-Jul-2014 | DARose | DARose | 1 | CSU |
| *Aedes cinereus* Meigen | Gunnison | Gunnison | | | n/a | | 7-Sep-1967 | FCHarmston | n/a | 6 | CDC |
| *Aedes cinereus* Meigen | Gunnison | Gunnison | | | n/a | | 23-May-1968 | FCHarmston | n/a | 1 | CDC |
| *Aedes cinereus* Meigen | Gunnison | Gunnison | 38.51525 | -106.99275 | Water treatment plant | 7585 ft. | 1-Aug-2012 | CMC tech | MJWeissmann | 2 | CSU |
| *Aedes cinereus* Meigen | Jackson | n/a | | | CR 24 before Coalmont Colorado | | 14-Jun-2014 | DARose & BCKondratieff | DARose | 9 | CSU |
| *Aedes cinereus* Meigen | Jackson | Walden | | | Diamond J SWA | | 23-Jun-2013 | DARose | DARose | 3 | CSU |
| *Aedes cinereus* Meigen | Jackson | Walden | | | n/a | | 28-Jul-1938 | Astone | Astone | 10 | CSU |
| *Aedes cinereus* Meigen | Jackson | Gould | | | n/a | | 22-Jun-2013 | DARose | DARose | 2 | CSU |
| *Aedes cinereus* Meigen | Jackson | Steamboat Springs | | | Rabbit Ears Pass | | 18-Jul-1946 | MTJames | DARose | 1 | CSU |
| *Aedes cinereus* Meigen | La Plata | Ignacio | 37.13210 | -107.62815 | at Ball Park on Ute Road (IG-29) | 6495 ft. | 1-Jul-2015 | CMC tech | MJWeissmann | 12 | CSU |
| *Aedes cinereus* Meigen | Lake | Leadville | | | N. Poplar St. & CR 91 | | 28-Jun-2014 | DARose & CLPeters | DARose | 1 | CSU |
| *Aedes cinereus* Meigen | Larimer | Loveland | | | Glen Isle Ditch & Pond | | 12-Jun-2014 | DARose | DARose | 1 | CSU |
| *Aedes cinereus* Meigen | Larimer | n/a | | | Hwy 14 Ouzell Day Use Recreation Area mm 110 | | 13-Jun-2014 | DARose & CLPeters | DARose | 11 | CSU |
| *Aedes cinereus* Meigen | Larimer | Loveland | | | Jill Drive Road | | 4-Jun-2014 | DARose | DARose | 1 | CSU |
| *Aedes cinereus* Meigen | Larimer | n/a | | | Ouzel Day Use Recreational Area Hwy 14 mm 110 | | 13-Jun-2014 | DARose | DARose | 9 | CSU |
| *Aedes cinereus* Meigen | Larimer | Estes Park | | | RMNP | | 19-Jul-1946 | MTJames | DARose | 1 | CSU |
| *Aedes cinereus* Meigen | Larimer | Estes Park | | | RMNP | | 8-Jul-1993 | DWest | Dwest | 1 | CSU |
| *Aedes cinereus* Meigen | Larimer | n/a | | | Rocky Mountain National Park | | 26-May-1972 | FCHarmston & LJOgden | DARose | 7 | CDC |
| *Aedes cinereus* Meigen | Larimer | n/a | | | Rocky Mountain National Park | | 28-May-1968 | FCHarmston & LJOgden | DARose | 1 | CDC |
| *Aedes cinereus* Meigen | Moffat | n/a | | | Jct. Hwy 13 & CR 18 | | 21-Jun-2014 | DARose & CLPeters | DARose | 1 | CSU |
| *Aedes cinereus* Meigen | Pitkin | Woody Creek | 39.29710 | -106.9195 | Woody Creek | 7140 ft. | 31-Aug-2011 | CMC tech | MJWeissmann | 5 | CSU |
| *Aedes cinereus* Meigen | Routt | n/a | | | Yampa SWA #1 DA-118 | | 21-Jun-2014 | DARose & CLPeters | DARose | 1 | CSU |
| *Aedes cinereus* Meigen | Routt | n/a | | | Yampa SWA near Craig | | 21-Jun-2014 | DARose & CLPeters | DARose | 2 | CSU |
| *Aedes cinereus* Meigen | Weld | n/a | | | Hwy 14 and CR 57 | | 10-Aug-2014 | DARose | DARose | 1 | CSU |

## *Aedes communis*

| Species | County | City/Town | DecDeg N | DecDeg W | Location Notes | Altitude | Date | Collector | Determination | Series | Museum |
|---|---|---|---|---|---|---|---|---|---|---|---|
| *Aedes communis* (DeGeer) | Boulder | Ward | | | n/a | | 25-Jun-62 | FCHarmston | DARose | 53 | CSU |
| *Aedes communis* (DeGeer) | Clear | n/a | | | Guanella Pass Summit | | 16-Jun-13 | DARose | DARose | 1 | CSU |
| *Aedes communis* (DeGeer) | Eagle | Redcliff | | | 1 mi S of Redcliff on Hwy 9 | | 28-Jun-2014 | DARose & CLPeters | DARose | 1 | CSU |
| *Aedes communis* (DeGeer) | Eagle | Minturn | | | Homestake Road at the Campground | | 28-Jun-14 | DARose & CLPeters | DARose | 2 | CSU |
| *Aedes communis* (DeGeer) | Eagle | n/a | | | Hwy 6 mm 165 | | 28-Jun-2014 | DARose & CLPeters | DARose | 1 | CSU |
| *Aedes communis* (DeGeer) | Eagle | n/a | | | Tigwon Rd. | | 28-Jun-2014 | DARose & CLPeters | DARose | 2 | CSU |
| *Aedes communis* (DeGeer) | Eagle | Redcliff | | | Turkey Creek Road mm 0.70 | | 28-Jun-14 | DARose & CLPeters | DARose | 4 | CSU |
| *Aedes communis* (DeGeer) | Grand | Grand Lake | | | Grand Lake | | 30May-24June | HG Dyar | unknown | 1 | WRBU |
| *Aedes communis* (DeGeer) | Gunnison | Gunnison | | | Gunnison Colorado | | 27-Jun-68 | FCHarmston | DARose | 2 | CDC |

## *Aedes communis* cont.

| Species | County | City/Town | DecDeg N | DecDeg W | Location Notes | Altitude | Date | Collector | Determination | Series | Museum |
|---|---|---|---|---|---|---|---|---|---|---|---|
| *Aedes communis* (DeGeer) | Gunnison | Gunnison | | | n/a | | 13-Jun-61 | FCHarmston | n/a | 17 | CDC |
| *Aedes communis* (DeGeer) | Jackson | n/a | | | Big Creek Lakes | | 5-Jul-65 | FCHarmston | DARose | 1 | CSU |
| *Aedes communis* (DeGeer) | Jackson | n/a | | | Lake Agnes Trail | | 15-Jul-95 | SFitzgerald & AFoley | DARose | 1 | CSU |
| *Aedes communis* (DeGeer) | Lake | n/a | | | Hwy 24 & CR 19, 0.60 mi in on CR 19 | | 28-Jun-2014 | DARose & CLPeters | DARose | 18 | CSU |
| *Aedes communis* (DeGeer) | Larimer | Estes Park | | | Bierstadt Glacier Trail | | 15-May-94 | DWest | DWest | 2 | CSU |
| *Aedes communis* (DeGeer) | Larimer | Fort Collins | | | Pingree Park Faculty Cabin | | 7-May-94 | DWest | DWest | 1 | CSU |
| *Aedes communis* (DeGeer) | Park | n/a | | | Hwy 9 & CR 6 | | 12-Jul-2014 | DARose | DARose | 1 | CSU |
| *Aedes communis* (DeGeer) | Park | n/a | | | Hwy 9 mm 73.50 | | 12-Jul-2014 | DARose | DARose | 1 | CSU |
| *Aedes communis* (DeGeer) | Park | Jefferson | | | Jefferson | | 31-May-1989 | RA Brust | RA Brust | 36 | WRBU |
| *Aedes communis* (DeGeer) | Park | n/a | | | Kenosha Pass | | 20-May-64 | FCHarmston | DARose | 3 | CSU |
| *Aedes communis* (DeGeer) | Routt | n/a | | | Yampa SWA near Craig | | 21-Jun-2014 | DARose & CLPeters | DARose | 1 | CSU |
| *Aedes communis* (DeGeer) | San Juan | n/a | | | Molas Divide Colorado | | 14-Jun-61 | FCHarmston | DARose | 1 | CDC |
| *Aedes communis* (DeGeer) | San Miguel | Ophir | | | Ophir Colorado | | 13-Jun-61 | FCHarmston | DARose | 16 | CDC |
| *Aedes communis* (DeGeer) | Summit | n/a | | | Hwy 9 Hoosier Pass Summit | | 12-Jul-2014 | DARose | DARose | 1 | CSU |
| *Aedes communis* (DeGeer) | Summit | n/a | | | Hwy 9 mm 77.90 | | 12-Jul-2014 | DARose | DARose | 12 | CSU |
| *Aedes communis* (DeGeer) | Summit | n/a | | | Hwy 9 mm 81 on Blue River | | 12-Jul-14 | DARose | DARose | 1 | CSU |
| *Aedes communis* (DeGeer) | | Camp Wheeler | | | Camp Wheeler | | 20-27 June 1923 | HG Dyar | unknown | 1 | WRBU |

## *Aedes dorsalis*

| Species | County | City/Town | DecDeg N | DecDeg | Location Notes | Altitude | Date | Collector | Determination | Series | Museum |
|---|---|---|---|---|---|---|---|---|---|---|---|
| *Aedes dorsalis* (Meigen) | Adams | Brighton | 39.93715 | -104.75310 | Barr Lake State Park | 5100 ft. | 20-Jun-1985 | MJWeissmann | MJWeissmann | 2 | UCM |
| *Aedes dorsalis* (Meigen) | Adams | Brighton | | | Barr Lake State Park | | 23-May-1985 | CSeidman & | MJWeissmann | 4 | UCM |
| *Aedes dorsalis* (Meigen) | Adams | Commerce | | | n/a | | 15-Aug-2012 | CMC tech | MJWeissmann | 1 | CSU |
| *Aedes dorsalis* (Meigen) | Adams | Thornton | | | n/a | | 23-Aug-2010 | CMC tech | MJWeissmann | 1 | CSU |
| *Aedes dorsalis* (Meigen) | Adams | Thornton | 39.92050 | -104.95915 | Thornton Eastlake Trap (TH-08) | 5270 ft. | 15-Aug-2012 | DRose | MJWeissmann | 3 | CSU |
| *Aedes dorsalis* (Meigen) | Adams | Thornton | 39.99880 | -104.96680 | Thornton North Creek Farms (TH-09) | 5155 ft. | 15-Aug-2012 | CMC tech | MJWeissmann | 4 | CSU |
| *Aedes dorsalis* (Meigen) | Alamosa | Alamosa | | | n/a | | 4-Aug-1938 | MTJames & ULanham | DRose | 14 | CSU |
| *Aedes dorsalis* (Meigen) | Boulder | Longmont | | | biting a cow | | 31-Aug-1914 | Cockerell | MJWeissmann | 1 | UCM |
| *Aedes dorsalis* (Meigen) | Boulder | Boulder | | | CU Campus | | | Cockerell | MJWeissmann | 1 | UCM |
| *Aedes dorsalis* (Meigen) | Boulder | Erie | 40.06525 | -105.05710 | Erie Village (ER-04) | 4990 ft. | 6-Aug-2012 | CMC tech | MJWeissmann | 1 | CSU |
| *Aedes dorsalis* (Meigen) | Boulder | Boulder | | | Gunbarrel Area | | 22-Jun-1987 | MJWeissmann | MJWeissmann | 3 | UCM |
| *Aedes dorsalis* (Meigen) | Boulder | Boulder | | | Gunbarrel, Stonegate Apts. | | 25-Jul-1985 | MJWeissmann | MJWeissmann | 2 | UCM |
| *Aedes dorsalis* (Meigen) | Boulder | Boulder | | | Gunbarrel, Stonegate Apts. | | 24-Jul-1985 | MJWeissmann | MJWeissmann | 4 | UCM |
| *Aedes dorsalis* (Meigen) | Boulder | Longmont | -104.9592 | -105.12290 | Left Hand Creek (LM-31) | 4990 ft. | 20-Aug-2012 | CMC tech | MJWeissmann | 2 | CSU |
| *Aedes dorsalis* (Meigen) | Boulder | n/a | | | LT-1 Hovings | | 9-Jun-1983 | Boulder Co. Health Dept. | MJWeissmann | 4 | UCM |
| *Aedes dorsalis* (Meigen) | Boulder | n/a | | | LT-20 Linden | | 10-Jun-1983 | Boulder Co. Health Dept. | MJWeissmann | 2 | UCM |
| *Aedes dorsalis* (Meigen) | Boulder | n/a | | | LT-5 Gainer Lake | | 26-Jun-1984 | Boulder Co. Health Dept. | MJWeissmann | 1 | UCM |
| *Aedes dorsalis* (Meigen) | Boulder | Boulder | | | n/a | | 25-Jul-1941 | MTJames | MTJames | 1 | CSU |
| *Aedes dorsalis* (Meigen) | Boulder | Boulder | | | n/a | | 26-Jul-1941 | MTJames | MTJames | 1 | CSU |
| *Aedes dorsalis* (Meigen) | Boulder | Longmont | | | n/a | | 5-Jun-1946 | MTJames | DRose | 4 | CSU |
| *Aedes dorsalis* (Meigen) | Boulder | Boulder | | | S. Boulder Creek off S. Boulder Rd. | | 28-May-2010 | BKondratieff & DRees | MJWeissmann | 1 | CSU |
| *Aedes dorsalis* (Meigen) | Boulder | n/a | | | White Rocks | | 19-Jul-???? | TDA Cockerell | DARose | 1 | WRBU |

## *Aedes dorsalis* cont.

| Species | County | City/Town | DecDeg N | DecDeg | Location Notes | Altitude | Date | Collector | Determination | Series | Museum |
|---|---|---|---|---|---|---|---|---|---|---|---|
| *Aedes dorsalis* (Meigen) | Boulder | Longmont | | | | | 9-Sep-1938 | UNLanham | MJWeissmann | 1 | UCM |
| *Aedes dorsalis* (Meigen) | Chaffee | Buena Vista | | | n/a | | 2-Aug-1938 | MTJames & Ulanham | DRose | 6 | CSU |
| *Aedes dorsalis* (Meigen) | Eagle | Wolcott | | | | | 2-Aug-1917 | Phil Andrews | MJWeissmann | 1 | UCM |
| *Aedes dorsalis* (Meigen) | El Paso | Fountain | | | n/a | | 14-Jun-1966 | FCHarmston | DARose | 29 | CSU |
| *Aedes dorsalis* (Meigen) | Garfield | Rifle | | | | | 25-Jul-1917 | Phil Andrews | MJWeissmann | 2 | UCM |
| *Aedes dorsalis* (Meigen) | Gunnison | n/a | | | CR 45 and Hwy 50 | | 27-Jul-2014 | DARose | DARose | 3 | CSU |
| *Aedes dorsalis* (Meigen) | Gunnison | Gunnison | | | Gunnison Colorado | | 27-Jun-1968 | FCHarmston | DARose | 2 | CDC |
| *Aedes dorsalis* (Meigen) | Gunnison | Gunnison | | | Gunnison Colorado | | 25-Jul-1968 | FCHarmston | DARose | 16 | CDC |
| *Aedes dorsalis* (Meigen) | Gunnison | Gunnison | | | Gunnison Colorado | | 7-Aug-1968 | FCHarmston | DARose | 20 | CDC |
| *Aedes dorsalis* (Meigen) | Gunnison | Gunnison | | | n/a | | 3-Jun-1970 | FCHarmston | n/a | 13 | CDC |
| *Aedes dorsalis* (Meigen) | Gunnison | Gunnison | | | n/a | | 13-Jun-1961 | FCHarmston | n/a | 6 | CDC |
| *Aedes dorsalis* (Meigen) | Gunnison | Gunnison | | | n/a | | 7-Sep-1967 | FCHarmston | n/a | 2 | CDC |
| *Aedes dorsalis* (Meigen) | Jackson | n/a | | | Arapahoe National Wildlife Refuge | | 14-Jun-2014 | DARose | DARose | 2 | CSU |
| *Aedes dorsalis* (Meigen) | Jackson | Walden | | | Chedsey Motel | | 14-Jun-2014 | DARose | DARose | 3 | CSU |
| *Aedes dorsalis* (Meigen) | Jackson | n/a | | | County Road 11 A | | 14-Jun-2014 | DARose | DARose | 13 | CSU |
| *Aedes dorsalis* (Meigen) | Jackson | n/a | | | County Road 7 at Independence Mountain | | 14-Jun-2014 | DARose | DARose | 3 | CSU |
| *Aedes dorsalis* (Meigen) | Jackson | n/a | | | CR 18 crossing N. Platte River | | 14-Jun-2014 | DARose & BCKondratieff | DARose | 3 | CSU |
| *Aedes dorsalis* (Meigen) | Jackson | n/a | | | CR 24 before Coalmont | | 14-Jun-2014 | DARose & BCKondratieff | DARose | 7 | CSU |
| *Aedes dorsalis* (Meigen) | Jackson | Walden | | | Diamond J SWA | | 23-Jun-2013 | DARose | DARose | 2 | CSU |
| *Aedes dorsalis* (Meigen) | Jackson | Walden | | | Diamond J SWA | | 14-Jun-2014 | DARose & BCKondratieff | DARose | 5 | CSU |
| *Aedes dorsalis* (Meigen) | Jackson | n/a | | | Hwy. 14 mm 41 | | 22-Jun-2013 | DARose | DARose | 3 | CSU |
| *Aedes dorsalis* (Meigen) | Jackson | n/a | | | Hwy. 14 mm 49 | | 22-Jun-2013 | DARose | DARose | 3 | CSU |
| *Aedes dorsalis* (Meigen) | Jackson | Walden | | | n/a | | 28-Jul-1938 | n/a | DRose | 2 | CSU |
| *Aedes dorsalis* (Meigen) | Jackson | n/a | | | Rabbit Ears Pass | | 18-Jul-1946 | MTJames | DRose | 1 | CSU |
| *Aedes dorsalis* (Meigen) | Kiowa | n/a | | | n/a | | 21-May-2009 | BKondratieff & JMercada | MJWeissmann | 1 | CSU |
| *Aedes dorsalis* (Meigen) | Lake | n/a | | | Upper Twin Lake | | 5-Jul-1917 | Henderson & Andrews | MJWeissmann | 1 | UCM |
| *Aedes dorsalis* (Meigen) | Larimer | Fort Collins | | | Ag Research & Development & Education Center | | 19-Aug-2011 | PJForrence | MJWeissmann | 1 | CSU |
| *Aedes dorsalis* (Meigen) | Larimer | Berthoud | | | Berthoud Park | | 11-Jun-2014 | DARose | DARose | 4 | CSU |
| *Aedes dorsalis* (Meigen) | Larimer | Fort Collins | | | Egert & Rookery Fossil Creek Resivour | | 9-Jun-2014 | DARose | DARose | 3 | CSU |
| *Aedes dorsalis* (Meigen) | Larimer | Loveland | | | End of City Limits North | | 8-Jun-2014 | CMC tech | DARose | 2 | CSU |
| *Aedes dorsalis* (Meigen) | Larimer | Fort Collins | | | Fossil Creek South Natural Area | | 3-Jun-2014 | BGVBoze | BGVBoze | 5 | CSU |
| *Aedes dorsalis* (Meigen) | Larimer | Fort Collins | | | n/a | | 18-Sep-1941 | MAPalmer | MTJames | 1 | CSU |
| *Aedes dorsalis* (Meigen) | Larimer | Fort Collins | | | n/a | | 21-Jun-1941 | MAPalmer | MTJames | 2 | CSU |
| *Aedes dorsalis* (Meigen) | Larimer | Fort Collins | | | n/a | | 10-May-1941 | MTJames | MTJames | 3 | CSU |
| *Aedes dorsalis* (Meigen) | Larimer | Fort Collins | | | n/a | | 29-Jul-1941 | MTJames | MTJames | 1 | CSU |
| *Aedes dorsalis* (Meigen) | Larimer | Fort Collins | | | n/a | | 11-Jun-1941 | MTJames | MTJames | 15 | CSU |

# *Aedes dorsalis* cont.

| Species | County | City/Town | DecDeg N | DecDeg W | Location Notes | Altitude | Date | Collector | Determination | Series | Museum |
|---|---|---|---|---|---|---|---|---|---|---|---|
| *Aedes dorsalis* (Meigen) | Larimer | Fort Collins | | | n/a | | 2-Jun-1941 | MTJames | MTJames | 1 | CSU |
| *Aedes dorsalis* (Meigen) | Larimer | Fort Collins | | | n/a | | 17-Jun-1941 | MAPalmer | MTJames | 1 | CSU |
| *Aedes dorsalis* (Meigen) | Larimer | Fort Collins | | | n/a | | 24-Jun-1941 | MTJames | DRose | 1 | CSU |
| *Aedes dorsalis* (Meigen) | Larimer | Fort Collins | | | n/a | | 19-Jun-1941 | MAPalmer | MTJames | 4 | CSU |
| *Aedes dorsalis* (Meigen) | Larimer | Fort Collins | | | n/a | | 16-Jun-1941 | MAPalmer | MTJames | 1 | CSU |
| *Aedes dorsalis* (Meigen) | Larimer | Fort Collins | | | n/a | | 24-Jun-1941 | MAPalmer | MTJames | 1 | CSU |
| *Aedes dorsalis* (Meigen) | Larimer | Fort Collins | | | n/a | | 23-Jul-1941 | MYRagan | MTJames | 4 | CSU |
| *Aedes dorsalis* (Meigen) | Larimer | Fort Collins | | | n/a | | 26-Jul-1941 | MYRagan | MTJames | 2 | CSU |
| *Aedes dorsalis* (Meigen) | Larimer | Fort Collins | | | n/a | | 10-Jul-1935 | MTJames | DRose | 1 | CSU |
| *Aedes dorsalis* (Meigen) | Larimer | Fort Collins | | | n/a | | 28-Jun-1941 | MAPalmer | MTJames | 1 | CSU |
| *Aedes dorsalis* (Meigen) | Larimer | Fort Collins | | | n/a | | 11-Sep-1941 | MAPalmer | MTJames | 1 | CSU |
| *Aedes dorsalis* (Meigen) | Larimer | Fort Collins | | | n/a | | 2-Sep-1941 | MTJAmes | MTJames | 1 | CSU |
| *Aedes dorsalis* (Meigen) | Larimer | Fort Collins | | | n/a | | 5-Jul-1935 | RSwain | DRose | 2 | CSU |
| *Aedes dorsalis* (Meigen) | Larimer | Virginia Dale | | | n/a | | 26-May-1974 | FCHarmston | DRose | 16 | CSU |
| *Aedes dorsalis* (Meigen) | Larimer | Fort Collins | | | n/a | | 27-May-1942 | MTJames | DRose | 7 | CSU |
| *Aedes dorsalis* (Meigen) | Larimer | Fort Collins | | | n/a | | 17-Jun-1942 | MTJames | DRose | 1 | CSU |
| *Aedes dorsalis* (Meigen) | Larimer | Fort Collins | | | n/a | | 3-Jun-1942 | MAPalmer | DRose | 1 | CSU |
| *Aedes dorsalis* (Meigen) | Larimer | Fort Collins | | | n/a | | 2-Aug-1941 | MYRagan | MTJames | 1 | CSU |
| *Aedes dorsalis* (Meigen) | Larimer | Loveland | | | n/a | | 22-May-2014 | CMC tech | DARose | 5 | CSU |
| *Aedes dorsalis* (Meigen) | Larimer | n/a | | | Ouzel Day Use Recreational Area | | 13-Jun-2014 | DARose | DARose | 2 | CSU |
| *Aedes dorsalis* (Meigen) | Larimer | n/a | | | Rocky Mountain National Park | | 21-May-1971 | LJOgden | DARose | 15 | CSU |
| *Aedes dorsalis* (Meigen) | Larimer | Timnath | | | Wildwing Residental | | 10-Jun-2014 | DARose | DARose | 2 | CSU |
| *Aedes dorsalis* (Meigen) | Larimer | Windsor | | | Windsor | | 1-Jun-1962 | FCHarmston | DARose | 2 | CDC |
| *Aedes dorsalis* (Meigen) | Logan | n/a | | | CR 17 and Hwy 14 | | 10-Aug-2014 | DARose | DARose | 6 | CSU |
| *Aedes dorsalis* (Meigen) | Logan | n/a | | | CR 25 and Hwy 14 | | 10-Aug-2014 | DARose | DARose | 16 | CSU |
| *Aedes dorsalis* (Meigen) | Logan | Crook | | | Crook Colorado | | 22-May-1973 | FCHarmston & LJOgden | DARose | 1 | CDC |
| *Aedes dorsalis* (Meigen) | Logan | n/a | | | Hwy 14 & CR 25 | | 10-Aug-2014 | DARose & CLPeters | DARose | 1 | CSU |
| *Aedes dorsalis* (Meigen) | Logan | Sterling | | | n/a | | 19-Jun-1973 | FCHarmston & LJOgden | DARose | 26 | CSU |
| *Aedes dorsalis* (Meigen) | Logan | Sterling | | | Walmart in Vegation at the SE part of the parling lot in Wetland | | 10-Aug-2014 | DARose | DARose | 2 | CSU |
| *Aedes dorsalis* (Meigen) | Mesa | Grand Jct. | | | Grand Jct. | | 6-Aug-1906 | unknown | unknown | 19 | WRBU |
| *Aedes dorsalis* (Meigen) | Mesa | Grand Jct. | | | Grand Jct. | | 21-Jul-1906 | unknown | unknown | 6 | WRBU |
| *Aedes dorsalis* (Meigen) | Mesa | Grand Jct. | | | Grand Jct. | | 23-Jul-1906 | unknown | unknown | 6 | WRBU |
| *Aedes dorsalis* (Meigen) | Mesa | Grand Junction | | | Grand Junction | | unknown | RH Jones | unknown | 5 | WRBU |
| *Aedes dorsalis* (Meigen) | Mesa | Clifton | | | | | 9-May-1988 | MJWeissmann | MJWeissmann | 1 | UCM |
| *Aedes dorsalis* (Meigen) | Moffat | n/a | | | Browns Park NWR | | 14-Jun-1999 | MNelson | DRose | 1 | CSU |
| *Aedes dorsalis* (Meigen) | Moffat | n/a | | | CR 20, E of Wymore Gulch | | 21-Jun-2014 | DARose & CLPeters | DARose | 1 | CSU |
| *Aedes dorsalis* (Meigen) | Moffat | Dinosaur | | | Dinosaur National Monument | | 14-Jun-1999 | MNelson | DRose | 1 | CSU |

# *Aedes dorsalis* cont.

| Species | County | City/Town | DecDeg N | DecDeg W | Location Notes | Altitude | Date | Collector | Determination | Series | Museum |
|---|---|---|---|---|---|---|---|---|---|---|---|
| *Aedes dorsalis* (Meigen) | Moffat | n/a | | | Jct. Hwy 13 & CR 18 | | 21-Jun-2014 | DARose & CLPeters | DARose | 1 | CSU |
| *Aedes dorsalis* (Meigen) | Moffat | Maybell | | | n/a | | 25-Jun-1946 | MTJames | DRose | 3 | CSU |
| *Aedes dorsalis* (Meigen) | Montrose | Nucla | | | CR. CC & 2900 | | 21-Jul-2013 | DARose | DARose | 1 | CSU |
| *Aedes dorsalis* (Meigen) | Morgan | Snyder | | | Snyder Colorado | | 19-Jul-1972 | FCHarmston & LJOgden | DARose | 11 | CDC |
| *Aedes dorsalis* (Meigen) | Prowers | n/a | | | Highlee State Wildlife Area | | 1-Jun-2014 | DARose | DARose | 3 | CSU |
| *Aedes dorsalis* (Meigen) | Prowers | n/a | | | Holly Rest Area | | 1-Jun-2014 | DARose | DARose | 10 | CSU |
| *Aedes dorsalis* (Meigen) | Pueblo | Boone | | | (PU-17) | | 29-Jun-2014 | C.Rodosevich | ADvanGulik | 1 | CSU |
| *Aedes dorsalis* (Meigen) | Pueblo | Boon | | | maybe Boone, Pueblo Co.? | | 28-Jun-1914 | Phil Andrews | MJWeissmann | 2 | UCM |
| *Aedes dorsalis* (Meigen) | Pueblo | Pueblo | | | n/a | | 3-Aug-1938 | MTJames & Ulanham | DRose | 2 | CSU |
| *Aedes dorsalis* (Meigen) | Routt | n/a | | | Yampa SWA #1 DA-118 | | 21-Jun-2014 | DARose & CLPeters | DARose | 2 | CSU |
| *Aedes dorsalis* (Meigen) | Routt | n/a | | | Yampa SWA near Craig | | 21-Jun-2014 | DARose & CLPeters | DARose | 4 | CSU |
| *Aedes dorsalis* (Meigen) | Saguache | n/a | | | CR 243 and Hwy 50 | | 27-Jul-2014 | DARose | DARose | 2 | CSU |
| *Aedes dorsalis* (Meigen) | Saguache | n/a | | | Hwy 50 & CR 243 | | 27-Jul-2014 | DARose & CLPeters | DARose | 1 | CSU |
| *Aedes dorsalis* (Meigen) | Saguache | n/a | | | Hwy. 114 mm 17.9 | | 9-Jun-2013 | DARose | DARose | 1 | CSU |
| *Aedes dorsalis* (Meigen) | Saguache | n/a | | | n/a | | 4-Aug-1938 | MTJames & Ulanham | MTJames | 2 | CSU |
| *Aedes dorsalis* (Meigen) | Saguache | n/a | | | Russell Lakes SWA | | 7-Aug-1994 | RDurfee | DRose | 1 | CSU |
| *Aedes dorsalis* (Meigen) | San Miguel | Ophir | | | n/a | | 31-June-1961 | FCHarmston | n/a | 4 | CDC |
| *Aedes dorsalis* (Meigen) | Sedgwick | n/a | | | Julesburg Reservoir | | 22-May-1973 | FCHarmston & LJOgden | DARose | 19 | CSU |
| *Aedes dorsalis* (Meigen) | Sedgwick | Ovid | | | Ovid Colorado | | 22-May-1973 | FCHarmston & LJOgden | DARose | 7 | CDC |
| *Aedes dorsalis* (Meigen) | Washington | Messex | | | n/a | | 14-Jul-1972 | Jcross | n/a | 1 | CDC |
| *Aedes dorsalis* (Meigen) | Weld | Keenesburg | 40.10930 | -104.52165 | (KN-05) | 4970 ft. | 3-Jul-2013 | CMC tech | DARose | 4 | CSU |
| *Aedes dorsalis* (Meigen) | Weld | CPER | 40.8457 | -104.7640 | CPER 084 NEON | | 13-Aug-2014 | TBaldwin | MJWeissmann | 1 | CSU |
| *Aedes dorsalis* (Meigen) | Weld | CPER | 40.8119 | -104.7723 | CPER 088 NEON | | 13-Aug-2014 | TBaldwin | MJWeissmann | 3 | CSU |
| *Aedes dorsalis* (Meigen) | Weld | CPER | 40.8127 | -104.7631 | CPER 089 NEON | | 17-Aug-2014 | TBaldwin | MJWeissmann | 1 | CSU |
| *Aedes dorsalis* (Meigen) | Weld | CPER | 40.8127 | -104.7631 | CPER 089 NEON | | 12-Aug-2014 | TBaldwin | MJWeissmann | 4 | CSU |
| *Aedes dorsalis* (Meigen) | Weld | n/a | | | CR 155 and Hwy 14 | | 10-Aug-2014 | DARose | DARose | 17 | CSU |
| *Aedes dorsalis* (Meigen) | Weld | n/a | | | CR 63 and Hwy 14 | | 10-Aug-2014 | DARose | DARose | 5 | CSU |
| *Aedes dorsalis* (Meigen) | Weld | n/a | | | Howard's Dairy Farm | | 9-Jun-1993 | DWest | DWest | 1 | CSU |
| *Aedes dorsalis* (Meigen) | Weld | n/a | | | Hwy 14 and CR 149 at Prairie Café | | 10-Aug-2014 | DARose | DARose | 2 | CSU |
| *Aedes dorsalis* (Meigen) | Weld | n/a | | | Hwy 14 Crow Valley National Camp Ground | | 10-Aug-2014 | DARose | DARose | 1 | CSU |
| *Aedes dorsalis* (Meigen) | Weld | Dacono | | | n/a | | 14-Aug-2012 | CMC tech | MJWeissmann | 1 | CSU |
| *Aedes dorsalis* (Meigen) | Weld | Greeley | | | n/a | | 7-Aug-2012 | CMC tech | MJWeissmann | 1 | CSU |
| *Aedes dorsalis* (Meigen) | Weld | Roggen | | | n/a | | 24-Jul-1946 | MTJames | DRose | 1 | CSU |
| *Aedes dorsalis* (Meigen) | Weld | Roggen | | | n/a | | 10-May-1941 | MTJames | DRose | 3 | CSU |
| *Aedes dorsalis* (Meigen) | Weld | Greeley | | | n/a | | 1-Jul-1965 | Gpaul | n/a | 20 | CDC |
| *Aedes dorsalis* (Meigen) | Weld | Keenesburg | | | n/a | | 3-Jul-2013 | CMC tech | DARose | 4 | CSU |
| *Aedes dorsalis* (Meigen) | Weld | Nunn | | | Nunn Colorado | | 22-May-1973 | FCHarmston & LJOgden | DARose | 2 | CDC |
| *Aedes dorsalis* (Meigen) | Weld | n/a | | | T1NR68WB23 | | 16-Sep-1964 | LRErtle | unknown | 2 | WRBU |
| *Aedes dorsalis* (Meigen) | Weld | n/a | | | T1NR68WB23 | | 8-Sep-1964 | LR Ertle | unknown | 2 | WRBU |
| *Aedes dorsalis* (Meigen) | Weld | n/a | | | T1NR68WB23 | | 21-Sep-1964 | LR Ertle | unknown | 1 | WRBU |

## *Aedes dorsalis* cont.

| Species | County | City/Town | DecDeg N | DecDeg W | Location Notes | Altitude | Date | Collector | Determination | Series | Museum |
|---|---|---|---|---|---|---|---|---|---|---|---|
| *Aedes dorsalis* (Meigen) | Weld | n/a | | | T1NR68WB23 | | 31-Aug-1964 | LR Ertle | unknown | 1 | WRBU |
| *Aedes dorsalis* (Meigen) | Weld | n/a | | | T1NR68WB23 | | 1-Sep-1964 | LR Ertle | unknown | 1 | WRBU |
| *Aedes dorsalis* (Meigen) | Weld | n/a | | | T1NR68WB23 | | 1-Oct-1964 | LR Ertle | unknown | 1 | WRBU |
| *Aedes dorsalis* (Meigen) | Weld | n/a | | | T1NR68WB23 | | 30-Sep-1964 | LR Ertle | unknown | 1 | WRBU |
| *Aedes dorsalis* (Meigen) | Weld | n/a | | | T1NR68WB24 | | 24-Sep-1964 | LR Ertle | unknown | 1 | WRBU |
| *Aedes dorsalis* (Meigen) | Weld | n/a | | | T1NR69WB22 | | 8-Sep-1964 | LR Ertle | unknown | 1 | WRBU |
| *Aedes dorsalis* (Meigen) | Weld | n/a | | | T1NR69WB23 | | 12-Sep-1964 | LR Ertle | unknown | 1 | WRBU |
| *Aedes dorsalis* (Meigen) | Weld | Greeley | | | Greeley | | 4-Jul-1962 | FCHarmston | DARose | 8 | CDC |
| *Aedes dorsalis* (Meigen) | Yuma | n/a | | | Hale & Road 4 | | 31-May-2014 | DARose | DARose | 1 | CSU |
| *Aedes dorsalis* (Meigen) | Yuma | n/a | | | Hale Ponds West Enterance | | 31-May-2014 | DARose | DARose | 1 | CSU |
| *Aedes dorsalis* (Meigen) | Yuma | n/a | | | Hale Ponds West Enterance Ultra-violet trap | | 31-May-2014 | DARose | DARose | 2 | CSU |

## *Aedes epactius*

| Species | County | City/Town | DecDeg N | DecDeg W | Location Notes | Altitude | Date | Collector | Determination | Series | Museum |
|---|---|---|---|---|---|---|---|---|---|---|---|
| *Aedes epactius* Dyar & Knab | Douglas | Frederick | 39.339375 | -104.750375 | Castlewood Cyn., rockpool | 6440 ft. | 25-Oct-2015 | MJWeissman | MJWeissmann | 5 | CSU |
| *Aedes epactius* Dyar & Knab | Larimer | Fort | | | Rockpool Horsetooth | | 27-Aug-1993 | DWest | DWest | 2 | CSU |
| *Aedes epactius* Dyar & Knab | Weld | Evans | 40.36790 | -104.68975 | CMC trap (EV-02) | 4650 ft. | 12-Jun-2012 | CMC tech | MJWeissmann | 1 | CSU |

## *Aedes excrucians*

| Species | County | City/Town | DecDeg N | DecDeg W | Location Notes | Altitude | Date | Collector | Determination | Series | Museum |
|---|---|---|---|---|---|---|---|---|---|---|---|
| *Aedes excrucians* (Walker) | Grand | Grand Lake | | | Grand Lake | | 21-Jun-1923 | HG Dyar | AStone | 4 | WRBU |
| *Aedes excrucians* (Walker) | Larimer | Fort Collins | | | Emma's Pond | | 18-Jun-1994 | DWest | DWest | 10 | CSU |
| *Aedes excrucians* (Walker) | Larimer | Fort Collins | | | Faculty Cabin Pond Pingree Park | | 2-Jun-1994 | DWest | DWest | 7 | CSU |
| *Aedes excrucians* (Walker) | Larimer | n/a | | | Rocky Mountain National Park | | 26-May-1972 | FCHarmston & | DARose | 3 | CDC |

## *Aedes fitchii*

| Species | County | City/Town | DecDeg N | DecDeg W | Location Notes | Altitude | Date | Collector | Determination | Series | Museum |
|---|---|---|---|---|---|---|---|---|---|---|---|
| *Aedes fitchii* (Felt and Young) | Adams | Brighton | 39.93715 | -104.75310 | Barr Lake State Park | 5100 ft. | 23-May-1985 | C.Seidman & MJWeissmann | MJWeissmann | 1 | UCM |
| *Aedes fitchii* (Felt and Young) | Clear Creek | Dumont | | | (DU-0005 ex larvae) | | 3-Jun-2015 | N.Bates | MJWeissmann | 2 | CSU |
| *Aedes fitchii* (Felt and Young) | Douglas | Parker | 39.55650 | -104.78700 | Cottonwood Open Space | 5725 ft. | 22-Jun-2011 | CMC tech | MJWeissmann | 1 | CSU |
| *Aedes fitchii* (Felt and Young) | Douglas | Parker | | | n/a | | 22-Jun-2011 | CMC tech | MJWeissmann | 1 | CSU |
| *Aedes fitchii* (Felt and Young) | Eagle | Redcliff | | | 1 mi S of Redcliff on Hwy 9 | | 28-Jun-2014 | DARose & CLPeters | DARose | 1 | CSU |
| *Aedes fitchii* (Felt and Young) | Eagle | Minturn | | | Homestake Rd. at Campground | | 28-Jun-2014 | DARose & CLPeters | DARose | 2 | CSU |
| *Aedes fitchii* (Felt and Young) | Eagle | n/a | | | Hwy 6 mm 165 | | 28-Jun-2014 | DARose & CLPeters | DARose | 3 | CSU |
| *Aedes fitchii* (Felt and Young) | Eagle | Minturn | | | Maliot Park | | 28-Jun-2014 | DARose & CLPeters | DARose | 1 | CSU |

# *Aedes fitchii*

| Species | County | City/Town | DecDeg N | DecDeg W | Location Notes | Altitude | Date | Collector | Determination | Series | Museum |
|---|---|---|---|---|---|---|---|---|---|---|---|
| *Aedes fitchii* (Felt and Young) | Eagle | n/a | | | Point of Interest NW of Tennesee Pass Hwy 24 | | 28-Jun-2014 | DARose & CLPeters | DARose | 1 | CSU |
| *Aedes fitchii* (Felt and Young) | Eagle | n/a | | | Tigwon Rd. | | 28-Jun-2014 | DARose & CLPeters | DARose | 3 | CSU |
| *Aedes fitchii* (Felt and Young) | Grand | Grand Lake | | | Grand Lake | | 17-27 June 1923 | HG Dyar | unknown | 15+ | WRBU |
| *Aedes fitchii* (Felt and Young) | Gunnison | n/a | | | Hwy 50 mm 192.50 | | 27-Jul-2014 | DARose & CLPeters | DARose | 5 | CSU |
| *Aedes fitchii* (Felt and Young) | Gunnison | Gunnison | | | n/a | | 16-Jun-2005 | CMC tech | MJWeissmann | 1 | CSU |
| *Aedes fitchii* (Felt and Young) | Hinsdale | n/a | | | Rio Grande Reservation | | 3-Aug-1995 | CPSlater | n/a | 1 | CSU |
| *Aedes fitchii* (Felt and Young) | Jackson | n/a | | | CR 24 before Coalmont | | 14-Jun-2014 | DARose & BCKondratieff | DARose | 1 | CSU |
| *Aedes fitchii* (Felt and Young) | Jackson | Walden | | | Diamond J SWA | | 23-Jun-2013 | DARose | DARose | 2 | CSU |
| *Aedes fitchii* (Felt and Young) | Jackson | Walden | | | Diamond J SWA | | 14-Jun-2014 | DARose & BCKondratieff | DARose | 2 | CSU |
| *Aedes fitchii* (Felt and Young) | Jackson | n/a | | | Grizzly Creek Camp Ground | | 16-Jul-1946 | MTJames | DARose | 33 | CSU |
| *Aedes fitchii* (Felt and Young) | Jackson | n/a | | | Grizzly Creek Camp Ground | | 17-Jul-1946 | MTJames | n/a | 2 | CSU |
| *Aedes fitchii* (Felt and Young) | Jackson | Walden | | | n/a | | 28-Jul-1938 | n/a | DARose | 4 | CSU |
| *Aedes fitchii* (Felt and Young) | Jackson | Gould | | | n/a | | 22-Jun-2013 | DARose | DARose | 1 | CSU |
| *Aedes fitchii* (Felt and Young) | Jackson | n/a | | | Rabbit Ears Pass | | 18-Jul-1946 | MTJames | DARose | 1 | CSU |
| *Aedes fitchii* (Felt and Young) | Lake | n/a | | | E Tennessee Pass at CR 18 on Hwy 9 | | 28-Jun-2014 | DARose & CLPeters | DARose | 1 | CSU |
| *Aedes fitchii* (Felt and Young) | Lake | n/a | | | Hwy 24 & CR 19, 0.60 mi in on CR 19 | | 28-Jun-2014 | DARose & CLPeters | DARose | 1 | CSU |
| *Aedes fitchii* (Felt and Young) | Larimer | n/a | | | Faculty Cabin Pingree Park | | 2-Jun-1994 | Norris | DWest | 1 | CSU |
| *Aedes fitchii* (Felt and Young) | Larimer | Fort Collins | | | Mochlonyx Pond | | 30-May-1994 | DWest | DWest | 9 | CSU |
| *Aedes fitchii* (Felt and Young) | Larimer | Glendevey | | | n/a | | 14-Jul-1946 | DGates | DARose | 3 | CSU |
| *Aedes fitchii* (Felt and Young) | Larimer | Glendevey | | | n/a | | 7-Jul-1946 | DGates | DARose | 1 | CSU |
| *Aedes fitchii* (Felt and Young) | Larimer | Virginia Dale | | | n/a | | 26-May-1974 | FCHarmston | DARose | 11 | CSU |
| *Aedes fitchii* (Felt and Young) | Larimer | Windsor | 40.47445 | -104.94645 | River Ridge (WR-11) | 4795 ft. | 3-Jun-2014 | CMC tech | ADvanGulik | 1 | CSU |
| *Aedes fitchii* (Felt and Young) | Larimer | n/a | | | Rocky Mountain National Park | | 26-May-1972 | FCHarmston & LJOgden | DARose | 3 | CDC |
| *Aedes fitchii* (Felt and Young) | Larimer | n/a | | | West Lake SWA | | 14-Jul-1995 | SFitzgerald & AFoley | DARose | 3 | CSU |
| *Aedes fitchii* (Felt and Young) | Moffat | n/a | | | CR 20, E of Wymore Gulch | | 21-Jun-2014 | DARose & CLPeters | DARose | 2 | CSU |
| *Aedes fitchii* (Felt and Young) | Moffat | n/a | | | Jct. Hwy 13 & CR 18 | | 21-Jun-2014 | DARose & CLPeters | DARose | 1 | CSU |
| *Aedes fitchii* (Felt and Young) | Montezuma | Dolores | 37.55750 | -108.37110 | Dolores Stone Mountain | 7305 ft. | 13-Jun-2013 | CMC tech | MJWeissmann | 5 | CSU |
| *Aedes fitchii* (Felt and Young) | Park | Alma | | | Alma Hwy 9 & CR 19 | | 12-Jul-2014 | DARose | DARose | 4 | CSU |
| *Aedes fitchii* (Felt and Young) | Park | n/a | | | Hwy 9 & CR 6 | | 12-Jul-2014 | DARose | DARose | 2 | CSU |
| *Aedes fitchii* (Felt and Young) | Park | n/a | | | Hwy 9 mm 73.50 | | 12-Jul-2014 | DARose | DARose | 2 | CSU |
| *Aedes fitchii* (Felt and Young) | Park | Fairplay | | | Jct. Hwy 9 & Hwy 285 | | 12-Jul-2014 | DARose | DARose | 4 | CSU |
| *Aedes fitchii* (Felt and Young) | Park | Fairplay | | | n/a | | 17-Jul-1995 | RDurfee & APolonsky | MJWeissmann | 1 | CSU |
| *Aedes fitchii* (Felt and Young) | Saguache | n/a | | | Hwy 50 and CR 243 | | 27-Jul-2014 | DARose | DARose | 1 | CSU |
| *Aedes fitchii* (Felt and Young) | Saguache | n/a | | | Hwy 50 mm 187.25 | | 27-Jul-2014 | DARose & CLPeters | DARose | 2 | CSU |
| *Aedes fitchii* (Felt and Young) | Saguache | n/a | | | Hwy. 114 mm 17.9 | | 9-Jun-2013 | DARose | DARose | 1 | CSU |
| *Aedes fitchii* (Felt and Young) | Summit | n/a | | | Hwy 9 mm 81 on Blue River | | 12-Jul-2014 | DARose | DARose | 4 | CSU |
| *Aedes fitchii* (Felt and Young) | Weld | Milliken | 40.32880 | -104.85090 | n/a | 4760 ft. | 4-Jun-2013 | CMC tech | DARose | 1 | CSU |

## *Aedes flavescens*

| Species | County | City/Town | DecDeg N | DecDeg W | Location Notes | Altitude | Date | Collector | Determination | Series | Museum |
|---|---|---|---|---|---|---|---|---|---|---|---|
| *Aedes flavescens* (Müller) | Adams | Commerce City | 39.88770 | -104.78265 | Reunion | 5245 ft. | 15-Jun-2011 | CMC tech | MJWeissmann | 1 | CSU |
| *Aedes flavescens* (Müller) | Jackson | n/a | 40.60840 | -106.28185 | Arapahoe Refuge | 8225 ft. | 17-Jul-2008 | CMC tech | MJWeissmann | 10 | CSU |
| *Aedes flavescens* (Müller) | Jackson | Walden | | | n/a | | 28-Jul-1938 | n/a | DARose | 15 | CSU |
| *Aedes flavescens* (Müller) | Jackson | Walden | | | n/a | | 27-Jul-1938 | n/a | DARose | 2 | CSU |
| *Aedes flavescens* (Müller) | Weld | Roggen | | | n/a | | 18-May-1946 | MTJames | DARose | 12 | CSU |
| *Aedes flavescens* (Müller) | Weld | Lochbuie | 40.00065 | -104.70785 | n/a | 5010 ft. | 24-Jun-2009 | CMC tech | MJWeissmann | 1 | CSU |
| *Aedes flavescens* (Müller) | Weld | Lochbuie | 40.00065 | -104.70785 | n/a | 5010 ft. | 17-Jun-2008 | CMC tech | MJWeissmann | 1 | CSU |
| *Aedes flavescens* (Müller) | Weld | Lochbuie | 40.00065 | -104.70785 | n/a | 5010 ft. | 3-Jun-2011 | CMC tech | MJWeissmann | 1 | CSU |
| *Aedes flavescens* (Müller) | Weld | Lochbuie | | | n/a | | 24-Jun-2009 | CMC tech | MJWeissmann | 1 | CSU |
| *Aedes flavescens* (Müller) | Weld | Lochbuie | | | n/a | | 17-Jun-2008 | CMC tech | MJWeissmann | 1 | CSU |
| *Aedes flavescens* (Müller) | Weld | Lochbuie | | | n/a | | 3-Jun-2011 | CMC tech | MJWeissmann | 1 | CSU |

## *Aedes hendersoni*

| Species | County | City/Town | DecDeg N | DecDeg W | Location Notes | Altitude | Date | Collector | Determination | Series | Museum |
|---|---|---|---|---|---|---|---|---|---|---|---|
| *Aedes hendersoni* Cockerell | Adams | Thornton | 39.93045 | -104.95720 | Lake Village Park | 5255 ft. | 29-Aug-2012 | CMC tech | MJWeissmann | 1 | CSU |
| *Aedes hendersoni* Cockerell | Arapahoe | Aurora | | | n/a | | 31-Jul-2013 | DARose | DARose | 1 | CSU |
| *Aedes hendersoni* Cockerell | Boulder | n/a | | | Boulder 5 NE | | 8-Aug-1958 | JR Hilliard | Breland | 5 | WRBU |
| *Aedes hendersoni* Cockerell | Boulder | n/a | | | Boulder 5 NE | | 15-Aug-1958 | JR Hilliard | Breland | 2 | WRBU |
| *Aedes hendersoni* Cockerell | Boulder | n/a | | | Boulder 5 NE | | 2-Aug-1958 | JR Hilliard | Breland | 4 | WRBU |
| *Aedes hendersoni* Cockerell | Boulder | Erie | 40.06525 | -105.05710 | Erie Kenosha Estates | 4990 ft. | 12-Aug-2013 | DARose | DARose | 1 | CSU |
| *Aedes hendersoni* Cockerell | Boulder | n/a | | | LT-1 Hovings | | 16-Jul-1984 | Boulder Co. Health Dept. | MJWeissmann | 2 | UCM |
| *Aedes hendersoni* Cockerell | Boulder | n/a | | | LT-19 Bross | | 18-Jul-1983 | Boulder Co. Health Dept. | MJWeissmann | 1 | UCM |
| *Aedes hendersoni* Cockerell | Boulder | n/a | | | LT-6 Mazao | | 20-Jul-1983 | Boulder Co. Health Dept. | MJWeissmann | 2 | UCM |
| *Aedes hendersoni* Cockerell | Boulder | n/a | | | Lykins Gultch | | 30-Aug-1999 | DLeatherman | CMMoore | 1 | CSU |
| *Aedes hendersoni* Cockerell | Boulder | Superior | 39.95200 | -105.16935 | n/a | 5490 ft. | 21-Jun-2010 | CMC tech | MJWeissmann | 1 | CSU |
| *Aedes hendersoni* Cockerell | Boulder | Superior | 39.95200 | -105.16935 | n/a | 5490 ft. | 15-Jul-2013 | CMC tech | JHarwood | 2 | CSU |
| *Aedes hendersoni* Cockerell | Boulder | Longmont | 40.15475 | -105.09685 | n/a | 4935 ft. | 12-Aug-2013 | DARose | DARose | 2 | CSU |
| *Aedes hendersoni* Cockerell | Boulder | Longmont | 40.15485 | -105.06490 | n/a | 4940 ft. | 19-Aug-2013 | DARose | DARose | 1 | CSU |
| *Aedes hendersoni* Cockerell | Boulder | Superior | | | n/a | | 21-Jun-2010 | CMC tech | MJWeissmann | 1 | CSU |
| *Aedes hendersoni* Cockerell | Boulder | Superior | | | n/a | | 15-Jul-2013 | CMC tech | JHarwood | 2 | CSU |
| *Aedes hendersoni* Cockerell | Boulder | Longmont | | | n/a | | 12-Aug-2013 | DARose | DARose | 2 | CSU |
| *Aedes hendersoni* Cockerell | Boulder | Longmont | | | n/a | | 19-Aug-2013 | DARose | DARose | 1 | CSU |
| *Aedes hendersoni* Cockerell | Boulder | Boulder | | | | | 13-Sep-1935 | HGRodeck | MJWeissmann | 1 | UCM |
| *Aedes hendersoni* Cockerell | Jefferson | Lakewood | | | n/a | | 29-Jun-2004 | CSlater | MJWeissmann | 1 | CSU |
| *Aedes hendersoni* Cockerell | Larimer | Fort Collins | | | Applewood Estates | | 27-Aug-1930 | JHShaw | n/a | 1 | CSU |
| *Aedes hendersoni* Cockerell | Larimer | Timnath | | | n/a | | 30-Jun-1967 | n/a | n/a | 15 | CDC |

## *Aedes hendersoni*

| Species | County | City/Town | DecDeg N | DecDeg W | Location Notes | Altitude | Date | Collector | Determination | Series | Museum |
|---|---|---|---|---|---|---|---|---|---|---|---|
| *Aedes hendersoni* Cockerell | Larimer | Fort Collins | | | n/a | | 2-Aug-1967 | FCHarmston | n/a | 6 | CDC |
| *Aedes hendersoni* Cockerell | Larimer | Windsor | 40.47445 | -104.94645 | River Ridge HOA (WR-11) | 4795 ft. | 18-Jul-2013 | CMC tech | MJWeissmann | 1 | CSU |
| *Aedes hendersoni* Cockerell | Weld | Kuener | | | Kuener | | 5-Jun-1959 | FC Harmston | unknown | 29 | WRBU |
| *Aedes hendersoni* Cockerell | Weld | Milliken | 40.32880 | -104.85090 | n/a | 4760 ft. | 25-Jun-2013 | DARose | JHarwood | 1 | CSU |
| *Aedes hendersoni* Cockerell | Weld | Milliken | 40.32880 | -104.85090 | n/a | 4760 ft. | 18-Jun-2013 | DARose | DARose | 1 | CSU |
| *Aedes hendersoni* Cockerell | Weld | Milliken | | | n/a | | 25-Jun-2013 | DARose | JHarwood | 1 | CSU |
| *Aedes hendersoni* Cockerell | Weld | Milliken | | | n/a | | 18-Jun-2013 | DARose | DARose | 1 | CSU |
| *Aedes hendersoni* Cockerell | Weld | Greeley | | | | | 4-Jul-62 | FC Harmston | MJWeissmann | 1 | CSU |
| *Aedes hendersoni* Cockerell | Weld | Windsor | | | | | 1-Jun-62 | FC Harmston | MJWeissmann | 4 | CSU |
| *Aedes hendersoni* Cockerell | Weld | Hudson | | | | | 1-Jun-62 | FC Harmston | MJWeissmann | 2 | CSU |

## *Aedes hexodontus*

| Species | County | City/Town | DecDeg N | DecDeg W | Location Notes | Altitude | Date | Collector | Determination | Series | Museum |
|---|---|---|---|---|---|---|---|---|---|---|---|
| *Aedes hexodontus* Dyar | Boulder | Ward | | | n/a | | 25-Jun-1962 | FCHarmston | DARose | 2 | CSU |
| *Aedes hexodontus* Dyar | Boulder | Ward | | | Niwot Ridge Alpine | | 2-Aug-1961 | UNLanham | AStone | 1 | UCM |
| *Aedes hexodontus* Dyar | Boulder | n/a | | | Niwot Ridge Alpine Zone | | 11-Aug-1961 | UNLanham | AStone? | 4 | WBRU |
| *Aedes hexodontus* Dyar | Boulder | n/a | | | Niwot Ridge Alpine Zone | | 26-Jul-1961 | UNLanham | AStone? | 3 | WBRU |
| *Aedes hexodontus* Dyar | Clear | n/a | | | Guanella Pass Summit | | 15-Jun-2013 | DARose | DARose | 1 | CSU |
| *Aedes hexodontus* Dyar | Eagle | n/a | | | Hwy 131 mm 12.50 | | 29-Jun-2014 | DARose & CLPeters | DARose | 1 | CSU |
| *Aedes hexodontus* Dyar | Grand | Grand | | | Grand Lake | | 20-Jun-1923 | HGDyar | unknown | 1 | WBRU |
| *Aedes hexodontus* Dyar | Grand | Grand | | | Grand Lake | | 13-Jun-1923 | HGDyar | unknown | 1 | WBRU |
| *Aedes hexodontus* Dyar | Gunnison | Gothic | | | Gothic Picnic Area | | 27-Jun-1962 | Marion E Smith | unknown | 1 | WBRU |
| *Aedes hexodontus* Dyar | Gunnison | Gothic | | | Gothic Picnic Area | | 20-Jun-1962 | ME Smith | unknown | 3 | WBRU |
| *Aedes hexodontus* Dyar | Gunnison | Gunnison | | | Gunnison Colorado | | 27-Jun-1968 | FCHarmston | DARose | 11 | CDC |
| *Aedes hexodontus* Dyar | Jackson | Walden | | | Chedsey Motel | | 14-Jun-2014 | DARose | DARose | 2 | CSU |
| *Aedes hexodontus* Dyar | Jackson | n/a | | | County Road 11 A | | 14-Jun-2014 | DARose | DARose | 3 | CSU |
| *Aedes hexodontus* Dyar | Jackson | n/a | | | CR 18 crossing N. Platte River | | 14-Jun-2014 | DARose & | DARose | 4 | CSU |
| *Aedes hexodontus* Dyar | Jackson | n/a | | | CR 24 before Coalmont | | 14-Jun-2014 | DARose & | DARose | 7 | CSU |
| *Aedes hexodontus* Dyar | Jackson | Walden | | | Diamond J SWA Walden Colorado | | 14-Jun-2014 | DARose & | DARose | 2 | CSU |
| *Aedes hexodontus* Dyar | Jackson | n/a | | | Hwy. 14 mm 41 | | 22-Jun-2013 | DARose | DARose | 1 | CSU |
| *Aedes hexodontus* Dyar | Jackson | n/a | | | Odd Fellows State Wildlife Area County Road 20 | | 14-Jun-2014 | DARose | DARose | 2 | CSU |
| *Aedes hexodontus* Dyar | Jefferson | Evergreen | | | n/a | | 28-Jun-1941 | MTJames | DARose | 1 | CSU |
| *Aedes hexodontus* Dyar | Lake | n/a | | | E Tennessee Pass at CR 18 on Hwy | | 28-Jun-2014 | DARose & CLPeters | DARose | 2 | CSU |
| *Aedes hexodontus* Dyar | Lake | n/a | | | Hwy 24 & CR 19, 0.60 mi in on CR | | 28-Jun-2014 | DARose & CLPeters | DARose | 7 | CSU |
| *Aedes hexodontus* Dyar | Larimer | Estes Park | | | Fern Lake Trail RMNP | | 30-Apr-1994 | DWest | DWest | 1 | CSU |
| *Aedes hexodontus* Dyar | Larimer | Glendevey | | | Glendevey Colorado, Deadman Pass | | 7-Jul-1946 | DGates | DARose | 4 | CDC |
| *Aedes hexodontus* Dyar | Larimer | n/a | | | River site Pingree Park | | 17-Apr-1994 | DWest | DWest | 1 | CSU |

## *Aedes hexodontus* cont.

| Species | County | City/Town | DecDeg N | DecDeg W | Location Notes | Altitude | Date | Collector | Determination | Series | Museum |
|---|---|---|---|---|---|---|---|---|---|---|---|
| *Aedes hexodontus* Dyar | Larimer | Estes Park | | | RMNP | | 1-May-1972 | FCHarmston | DARose | 5 | CSU |
| *Aedes hexodontus* Dyar | Larimer | n/a | | | Rocky Mountain National Park | | 28-May-1968 | FCHarmston & Ljogden | DARose | 3 | CDC |
| *Aedes hexodontus* Dyar | Larimer | n/a | | | Rocky Mountain National Park | | 21-May-1968 | FCHarmston & EJHeidig | DARose | 5 | CDC |
| *Aedes hexodontus* Dyar | Larimer | n/a | | | Rocky Mountain National Park | | 24-Aug-1967 | FCHarmston | DARose | 1 | CDC |
| *Aedes hexodontus* Dyar | Larimer | n/a | | | Rocky Mountain National Park | | 26-May-1972 | FCHarmston & LjOgden | DARose | 1 | CDC |
| *Aedes hexodontus* Dyar | Larimer | n/a | | | Rocky Mountain National Park | | 24-Aug-1967 | FCHarmston | DARose | 1 | CSU |
| *Aedes hexodontus* Dyar | Larimer | n/a | | | Swamp Creek | | 7-Jul-1974 | FCHarmston | DARose | 10 | CSU |
| *Aedes hexodontus* Dyar | Montezuma | Dolores | 37.55750 | -108.37110 | Dolores Stone Mountain | 7305 ft. | 13-Jun-2013 | CMC tech | DARose | 1 | CSU |
| *Aedes hexodontus* Dyar | Park | n/a | | | Hwy 9 CR 6 | | 12-Jul-2014 | DARose | DARose | 1 | CSU |
| *Aedes hexodontus* Dyar | Park | n/a | | | Hwy 9 mm 73.50 | | 12-Jul-2014 | DARose | DARose | 2 | CSU |
| *Aedes hexodontus* Dyar | Pitkin | Aspen | | | Aspen site | | 27-Jun-1905 | CMC tech | MJWeissmann | 3 | CSU |
| *Aedes hexodontus* Dyar | Pitkin | Aspen | 39.15335 | -106.78565 | East Aspen Wildwood School | 8055 ft. | 7-Jul-2012 | CMC tech | MJWeissmann | 1 | CSU |
| *Aedes hexodontus* Dyar | Saguache | n/a | | | Hwy. 114 mm 33 | | 9-Jun-2013 | DARose | DARose | 1 | CSU |
| *Aedes hexodontus* Dyar | San Juan | n/a | | | Molas Divide Colorado | | 14-Jun-1961 | FCHarmston | DARose | 8 | CDC |
| *Aedes hexodontus* Dyar | Summit | n/a | | | Hwy 9 mm 77.90 | | 12-Jul-2014 | DARose | DARose | 2 | CSU |

## *Aedes spencerii idahoensis*

| Species | County | City/Town | DecDeg N | DecDeg W | Location Notes | Altitude | Date | Collector | Determination | Series | Museum |
|---|---|---|---|---|---|---|---|---|---|---|---|
| *Aedes spencerii idahoensis* (Theobald) | Alamosa | n/a | | | Sand Dunes Nat. Mon. | | 21-Jun-1955 | HGRodeck | DARose | 1 | UCM |
| *Aedes spencerii idahoensis* (Theobald) | Broomfield | Broomfield | 39.92350 | -105.01540 | n/a | 5195 ft. | 20-Jul-2010 | APartridge | DARose | 1 | CSU |
| *Aedes spencerii idahoensis* (Theobald) | Broomfield | Broomfield | | | n/a | | 20-Jul-2010 | APartridge | DARose | 1 | CSU |
| *Aedes spencerii idahoensis* (Theobald) | Chaffee | Buena Vista | | | n/a | | 2-Aug-1938 | MTJames & UNLanham | DARose | 2 | CSU |
| *Aedes spencerii idahoensis* (Theobald) | Eagle | n/a | | | 6 mi above Wolcott | | 16-Jul-1917 | PAndrews | unknown | 3 | WRBU |
| *Aedes spencerii idahoensis* (Theobald) | Eagle | n/a | | | Creek between Gypsum & Glenwood Springs via Cottonwood Pass Road | | 16-Jul-1917 | PAndrews | unknown | 2 | WRBU |
| *Aedes spencerii idahoensis* (Theobald) | Eagle | n/a | | | Hwy 131 mm 12.50 | | 29-Jun-2014 | DARose & CLPeters | DARose | 1 | CSU |
| *Aedes spencerii idahoensis* (Theobald) | Eagle | Eagle | | | Hwy 6 mm 151 | | 29-Jun-2014 | DARose & CLPeters | DARose | 1 | CSU |
| *Aedes spencerii idahoensis* (Theobald) | Eagle | n/a | | | Mouth of cross creek | | 14-Jul-1917 | PAndrews | unknown | 1 | WRBU |
| *Aedes spencerii idahoensis* (Theobald) | Garfield | n/a | | | 3 or 4 mi. above Carbondale, CO | | 19-Jul-1917 | PAndrews | unknown | 1 | WRBU |
| *Aedes spencerii idahoensis* (Theobald) | Garfield | n/a | 39.44375 | -108.04210 | Battlement Mesa | 5140 ft. | 14-Jun-2011 | CMC tech | DARose | 1 | CSU |
| *Aedes spencerii idahoensis* (Theobald) | Grand | Fraser | | | Fraser Colorado | | 23-Jun-1923 | HGDyar | unknown | 1 | WRBU |
| *Aedes spencerii idahoensis* (Theobald) | Grand | Granby | | | Granby Colorado | | 26-Jun-1923 | HGDyar | unknown | 1 | WRBU |
| *Aedes spencerii idahoensis* (Theobald) | Grand | Grand Lake | | | Grand Lake | | 10-Jun-1923 | HGDyar | unknown | 1 | WRBU |
| *Aedes spencerii idahoensis* (Theobald) | Grand | Grand Lake | | | Grand Lake | | 16-Jun-1923 | HGDyar | unknown | 1 | WRBU |
| *Aedes spencerii idahoensis* (Theobald) | Grand | Grand Lake | | | Grand Lake | | 17-Jun-1923 | HGDyar | unknown | 1 | WRBU |
| *Aedes spencerii idahoensis* (Theobald) | Grand | Grand Lake | | | Grand Lake | | 18-Jun-1923 | HGDyar | unknown | 1 | WRBU |
| *Aedes spencerii idahoensis* (Theobald) | Grand | Hot Sulphur Springs | | | n/a | | 26-Jun-1946 | MTJames | DARose | 14 | CSU |
| *Aedes spencerii idahoensis* (Theobald) | Gunnison | n/a | 38.54275 | -106.88415 | 2 mi. E of Gunnison on Tomichi Creek | 7710 ft. | 8-Jun-2008 | CMC tech | DARose | 2 | CSU |
| *Aedes spencerii idahoensis* (Theobald) | Gunnison | n/a | 38.54275 | -106.88415 | 5 mi. E of Gunnison on Tomichi Creek | 7710 ft. | 27-Jul-2005 | CMC tech | DARose | 2 | CSU |
| *Aedes spencerii idahoensis* (Theobald) | Gunnison | Gunnison | | | n/a | | 7-Sep-1967 | FCHarmston | n/a | 1 | CDC |

## *Aedes impiger*

| Species | County | City/Town | DecDeg N | DecDeg W | Location Notes | Altitud | Date | Collector | Determination | Series | Museum |
|---|---|---|---|---|---|---|---|---|---|---|---|
| *Aedes impiger* (Walker) | Boulder | Nederland | | | n/a | | 9-Jul-1962 | FCHarmston | DARose | 4 | CSU |
| *Aedes impiger* (Walker) | Lake | n/a | | | Hwy 24 & CR 19, 0.60 mi in on CR 19 | | 28-Jun-2014 | DARose & CLPeters | DARose | 1 | CSU |
| *Aedes impiger* (Walker) | Larimer | n/a | | | River Site Pingree Park | | 21-May-1994 | DWest | DWest | 1 | CSU |
| *Aedes impiger* (Walker) | Larimer | n/a | | | River Site Pingree Park | | 2-Jun-1994 | DWest | DWest | 1 | CSU |
| *Aedes impiger* (Walker) | Larimer | Estes Park | | | RMNP Fern Lake Trail | | 30-Apr-1994 | DWest | DWest | 3 | CSU |
| *Aedes impiger* (Walker) | Park | n/a | | | Kenosha | | 20-May-1964 | FCHarmston | DARose | 1 | CSU |

## *Aedes implicatus*

| Species | County | City/Town | DecDeg N | DecDeg W | Location Notes | Altitude | Date | Collector | Determination | Series | Museum |
|---|---|---|---|---|---|---|---|---|---|---|---|
| *Aedes implicatus* Vockeroth | Boulder | Nederland | | | n/a | | 9-Jul-1962 | FCHarmston | DARose | 5 | CSU |
| *Aedes implicatus* Vockeroth | Boulder | Ward | | | n/a | | 25-Jun-1962 | FCHarmston | DARose | 2 | CSU |
| *Aedes implicatus* Vockeroth | Chaffee | n/a | | | Monarch Park Gampground | | 27-Jul-2014 | DARose | DARose | 4 | CSU |
| *Aedes implicatus* Vockeroth | Eagle | Minturn | | | Homestake Rd. at Campground | | 28-Jun-2014 | DARose | DARose | 2 | CSU |
| *Aedes implicatus* Vockeroth | Eagle | Eagle | | | Hwy 6 mm 154.50 | | 29-Jun-2014 | DARose & CLPeters | DARose | 1 | CSU |
| *Aedes implicatus* Vockeroth | Eagle | n/a | | | Hwy mm 165 | | 28-Jun-2014 | DARose & CLPeters | DARose | 2 | CSU |
| *Aedes implicatus* Vockeroth | Eagle | n/a | | | P. O. I. NW of Tennessee Pass on Hwy 24 | | 28-Jun-2014 | DARose & CLPeters | DARose | 3 | CSU |
| *Aedes implicatus* Vockeroth | Gilpin | n/a | | | Rollins Pass Road | | 14-Jul-1994 | CPSlater | n/a | 1 | CSU |
| *Aedes implicatus* Vockeroth | Grand | Grand Lake | | | Grand Lake | | 30May-24June | HG Dyar | unknown | 1 | WRBU |
| *Aedes implicatus* Vockeroth | Gunnison | n/a | | | Fish Camp FR 317 | | 26-Jul-2014 | DARose & CLPeters | DARose | 2 | CSU |
| *Aedes implicatus* Vockeroth | Gunnison | Gunnison | | | Gunnison Colorado | | 27-Jun-1968 | FCHarmston | DARose | 9 | CDC |
| *Aedes implicatus* Vockeroth | Gunnison | Gunnison | | | Gunnison Colorado | | 23-May-1968 | FCHarmston | DARose | 22 | CDC |
| *Aedes implicatus* Vockeroth | Jackson | n/a | | | Big Creek Lakes | | 5-Jul-1965 | FCHarmston | DARose | 1 | CSU |
| *Aedes implicatus* Vockeroth | Jackson | n/a | | | County Road 11 A | | 14-Jun-2014 | DARose & BCKondratieff | DARose | 1 | CSU |
| *Aedes implicatus* Vockeroth | Jackson | n/a | | | CR 11 A Trap DA-110 | | 14-Jun-2014 | DARose | DARose | 1 | CSU |
| *Aedes implicatus* Vockeroth | Jackson | n/a | | | Lake Agnes Trail | | 15-Jul-1995 | SFitzgerald & AFoley | DARose | 5 | CSU |
| *Aedes implicatus* Vockeroth | Jefferson | Evergreen | | | n/a | | 7-Jul-1941 | MTJames & HBJames | n/a | 1 | CSU |
| *Aedes implicatus* Vockeroth | Lake | n/a | | | E Tennessee Pass at CR 18 on Hwy 9 | | 28-Jun-2014 | DARose & CLPeters | DARose | 3 | CSU |
| *Aedes implicatus* Vockeroth | Lake | n/a | | | Hwy 24 & CR 19, 0.60 mi in on CR 19 | | 28-Jun-2014 | DARose & CLPeters | DARose | 3 | CSU |
| *Aedes implicatus* Vockeroth | Larimer | n/a | | | Rocky Mountain National Park | | 24-Aug-1967 | FCHarmston | DARose | 7 | CSU |
| *Aedes implicatus* Vockeroth | Larimer | n/a | | | Rocky Mountain National Park | | 21-May-1971 | LJOgeden | DARose | 6 | CSU |
| *Aedes implicatus* Vockeroth | Larimer | n/a | | | Cherokee Park | | 8-May-1994 | DWest | DWest | 4 | CSU |
| *Aedes implicatus* Vockeroth | Larimer | Glendevey | | | Deadmans Pass | | 7-Jul-1946 | DGates | DARose | 3 | CSU |
| *Aedes implicatus* Vockeroth | Larimer | n/a | | | Hwy. 14 Cameron Pass | | 28-Jun-1932 | ORJones | DARose | 5 | CSU |
| *Aedes implicatus* Vockeroth | Larimer | n/a | | | Rocky Mountain National Park | | 26-May-1972 | FCHarmston & LJOgden | DARose | 36 | CDC |
| *Aedes implicatus* Vockeroth | Larimer | n/a | | | Rocky Mountain National Park | | 3-Aug-1968 | FCHarmston & NCRonald | DARose | 11 | CSU |
| *Aedes implicatus* Vockeroth | Moffat | n/a | | | CR 20, E of Wymore Gulch | | 21-Jun-2014 | DARose & CLPeters | DARose | 2 | CSU |
| *Aedes implicatus* Vockeroth | Park | Alma | | | Alma Hwy 9 & CR 19 | | 12-Jul-2014 | DARose | DARose | 2 | CSU |
| *Aedes implicatus* Vockeroth | Park | Como | | | Como Colorado | | 20-May-1964 | FCHarmston | DARose | 4 | CDC |
| *Aedes implicatus* Vockeroth | Park | n/a | | | Hwy 9 & CR 6 | | 12-Jul-2014 | DARose | DARose | 5 | CSU |
| *Aedes implicatus* Vockeroth | Park | n/a | | | Hwy 9 mm 73.50 | | 12-Jul-2014 | DARose | DARose | 1 | CSU |
| *Aedes implicatus* Vockeroth | Park | Fairplay | | | Jct Hwy 9 & Hwy 285 | | 12-Jul-2014 | DARose | DARose | 2 | CSU |
| *Aedes implicatus* Vockeroth | Park | n/a | | | Kenosha Pass | | 20-May-1964 | FCHarmston | DARose | 7 | CSU |
| *Aedes implicatus* Vockeroth | Park | n/a | | | Kenosha Pass Summit | | 25-May-2014 | DARose | DARose | 35 | CSU |

## *Aedes implicatus* cont.

| Species | County | City/Town | DecDeg N | DecDeg W | Location Notes | Altitude | Date | Collector | Determination | Series | Museum |
|---|---|---|---|---|---|---|---|---|---|---|---|
| *Aedes implicatus* Vockeroth | Park | n/a | | | Kenosha Pass Summit | | 20-May-1964 | FCHarmston | DARose | 17 | CDC |
| *Aedes implicatus* Vockeroth | Park | n/a | | | Kenosha Pass Summit | | 25-May-2014 | DARose | DARose | 16 | CSU |
| *Aedes implicatus* Vockeroth | Park | Fairplay | | | n/a | | 22-Jun-1959 | LJOgeden | DARose | 3 | CSU |
| *Aedes implicatus* Vockeroth | Park | Fairplay | | | n/a | | 13-Jun-1961 | FCHarmston | DARose | 13 | CSU |
| *Aedes implicatus* Vockeroth | San Juan | Ophir | | | Ophir Colorado | | 13-Jun-1961 | FCHArmston | DARose | 3 | CDC |
| *Aedes implicatus* Vockeroth | Summit | n/a | | | Hwy 9 mm 81 on Blue River | | 12-Jul-2014 | DARose | DARose | 2 | CSU |

## *Aedes increpitus*

| Species | County | City/Town | DecDeg N | DecDeg W | Location Notes | Altitude | Date | Collector | Determination | Series | Museum |
|---|---|---|---|---|---|---|---|---|---|---|---|
| *Aedes increpitus* Dyar | Adams | Brighton | 39.98330 | -104.74520 | (BT-08) | 5080 ft. | 6-Jun-2013 | CMC tech | MJWeissmann | 1 | CSU |
| *Aedes increpitus* Dyar | Adams | Brighton | 39.93715 | -104.75310 | Barr Lake StatePark | 5100 ft. | 23-May-1985 | CSeidman & MWeissmann | DARose | 1 | UCM |
| *Aedes increpitus* Dyar | Arapahoe | Centennial | 39.60315 | -104.96370 | DeKoevend Park (CN-04) | 5480 ft. | 7-Aug-2014 | CMC tech | ADvanGulik | 1 | CSU |
| *Aedes increpitus* Dyar | Boulder | Boulder | 40.05135 | -105.17900 | Boulder Creek at 75th St. | 5120 ft. | 21-Jun-1985 | MJWeissmann | MJWeissmann | 2 | UCM |
| *Aedes increpitus* Dyar | Boulder | n/a | | | LT-1 Hovings | | 21-Jun-1983 | Boulder Co. Health Dept. | MJWeissmann | 3 | UCM |
| *Aedes increpitus* Dyar | Boulder | n/a | | | LT-1 Hovings | | 20-Jul-1983 | Boulder Co. Health Dept. | MJWeissmann | 1 | UCM |
| *Aedes increpitus* Dyar | Boulder | n/a | | | LT-11 Lyons | | 16-Jul-1984 | Boulder Co. Health Dept. | MJWeissmann | 5 | UCM |
| *Aedes increpitus* Dyar | Boulder | n/a | | | LT-25 Brigadoon | | 18-Jul-1983 | Boulder Co. Health Dept. | MJWeissmann | 6 | UCM |
| *Aedes increpitus* Dyar | Boulder | n/a | | | LT-6 Mazal | | 15-Jun-1984 | Boulder Co. Health Dept. | MJWeissmann | 2 | UCM |
| *Aedes increpitus* Dyar | Boulder | n/a | | | LT-8 Munsons | | 21-Jun-1983 | Boulder Co. Health Dept. | MJWeissmann | 2 | UCM |
| *Aedes increpitus* Dyar | Boulder | n/a | | | LT-8 Munsons | | 11-Jul-1983 | Boulder Co. Health Dept. | MJWeissmann | 1 | UCM |
| *Aedes increpitus* Dyar | Boulder | Nederland | | | n/a | | 9-Jul-1962 | FCHarmston | DARose | 6 | CSU |
| *Aedes increpitus* Dyar | Boulder | Boulder | 40.04030 | -105.18815 | Sawhill Ponds | 5135 ft. | 14-Jun-1985 | MJWeissmann | MJWeissmann | 1 | UCM |
| *Aedes increpitus* Dyar | Boulder | Boulder | | | Sawhill Ponds | | 14-Jun-1985 | MJWeissmann | MJWeissmann | 1 | UCM |
| *Aedes increpitus* Dyar | Boulder | Boulder | | | | | | | DARose | 1 | UCM |
| *Aedes increpitus* Dyar | Chaffee | n/a | | | Hwy 50 mm 200.10 | | 27-Jul-2014 | DARose | DARose | 1 | CSU |
| *Aedes increpitus* Dyar | Chaffee | n/a | | | Monarch Park Campground | | 27-Jul-2014 | DARose | DARose | 1 | CSU |
| *Aedes increpitus* Dyar | Chaffee | Salida | | | River Bottom SW of Salida | | 1-Jul-1917 | Henderson, Andrews | DARose | 2 | UCM |
| *Aedes increpitus* Dyar | Denver | Denver | | | Denver (probably Fitzsimons Hospital) | | 1945 | W. Lesky | W. Lesky 1945 | 7 | WRBU |
| *Aedes increpitus* Dyar | Douglas | Castle Rock | | | n/a | | 11-Jun-2010 | MJWeissmann | MJWeissmann | 2 | CSU |
| *Aedes increpitus* Dyar | Eagle | Minturn | | | "mouth of Cross Creek Colo." | | 14-Jul-1917 | P. Andrews | DARose | 1 | UCM |
| *Aedes increpitus* Dyar | Eagle | Redcliff | | | 1 mi S of Redcliff on Hwy 9 | | 28-Jun-2014 | DARose & CLPeters | DARose | 2 | CSU |
| *Aedes increpitus* Dyar | Eagle | n/a | | | Hwy 131 mm 1.00 | | 29-Jun-2014 | DARose & CLPeters | DARose | 1 | CSU |
| *Aedes increpitus* Dyar | Eagle | n/a | | | Hwy 131 mm 5.50 | | 29-Jun-2014 | DARose & CLPeters | DARose | 2 | CSU |
| *Aedes increpitus* Dyar | Eagle | Minturn | | | Maliot Park | | 28-Jun-2014 | DARose & CLPeters | DARose | 3 | CSU |
| *Aedes increpitus* Dyar | Eagle | n/a | | | Tigwon Rd. | | 28-Jun-2014 | DARose & CLPeters | DARose | 6 | CSU |
| *Aedes increpitus* Dyar | Eagle | Redcliff | | | Turkey Creek Road mm 0.70 | | 28-Jun-2014 | DARose & CLPeters | DARose | 1 | CSU |
| *Aedes increpitus* Dyar | Eagle | Eagle | | | Hwy 6 mm 154.50 | | 29-Jun-2014 | DARose & CLPeters | DARose | 2 | CSU |
| *Aedes increpitus* Dyar | Eagle | n/a | | | Hwy 6 mm 165 | | 28-Jun-2014 | DARose & CLPeters | DARose | 1 | CSU |
| *Aedes increpitus* Dyar | Gunnison | Gunnison | | | Gunnison Colorado | | 25-Jul-1968 | FCHarmston | DARose | 1 | CDC |
| *Aedes increpitus* Dyar | Gunnison | n/a | | | Hwy 50 mm 194.50 | | 27-Jul-2014 | DARose | DARose | 2 | CSU |
| *Aedes increpitus* Dyar | Gunnison | n/a | | | Hwy 50 mm 197.50 | | 27-Jul-2014 | DARose | DARose | 2 | CSU |
| *Aedes increpitus* Dyar | Gunnison | Gunnison | | | n/a | | 9-May-1968 | FCHarmston | n/a | 4 | CDC |
| *Aedes increpitus* Dyar | Jackson | n/a | | | Arapahoe National Wildlife Refuge | | 14-Jun-2014 | DARose | DARose | 1 | CSU |
| *Aedes increpitus* Dyar | Jackson | Walden | | | Chedsey Motel | | 14-Jun-2104 | DARose | DARose | 3 | CSU |

# *Aedes increpitus* cont.

| Species | County | City/Town | DecDeg N | DecDeg W | Location Notes | Altitude | Date | Collector | Determination | Series | Museum |
|---|---|---|---|---|---|---|---|---|---|---|---|
| *Aedes increpitus* Dyar | Jackson | n/a | | | County Road 11 A | | 14-Jun-2014 | DARose | DARose | 3 | CSU |
| *Aedes increpitus* Dyar | Lake | Leadville | | | 2 mi. So. Leadville | | 6-Jul-1917 | Henderson, Andrews | DARose | 4 | UCM |
| *Aedes increpitus* Dyar | Lake | n/a | | | Hwy 24 & CR 19, 0.60 mi in on CR 19 | | 28-Jun-2014 | DARose & CLPeters | DARose | 9 | CSU |
| *Aedes increpitus* Dyar | Lake | Twin Lakes | | | Upper Twin Lake | | 5-Jul-1917 | Henderson, Andrews | DARose | 1 | UCM |
| *Aedes increpitus* Dyar | Larimer | Loveland | | | Big Thompson River Natural Area | | 8-Jun-2014 | DARose | DARose | 1 | CSU |
| *Aedes increpitus* Dyar | Larimer | n/a | | | Hwy 14 Ouzell Day Use Recreation area mm 110 | | 13-Jun-2014 | DARose & CLPeters | DARose | 4 | CSU |
| *Aedes increpitus* Dyar | Larimer | n/a | | | Hwy 14 Poudre Canyon mm 96 | | 13-Jun-2014 | DARose & CLPeters | DARose | 1 | CSU |
| *Aedes increpitus* Dyar | Larimer | n/a | | | Lone Pine Creek | | 21-May-1994 | DWest | DWest | 21 | CSU |
| *Aedes increpitus* Dyar | Larimer | n/a | | | Lone Pine creek Cherokee Park | | 2-Apr-1994 | DWest | DWest | 1 | CSU |
| *Aedes increpitus* Dyar | Larimer | Fort Collins | | | Miller Circle & CR 59 | | 5-Jul-2011 | BCKondratieff | MJWeissmann | 1 | CSU |
| *Aedes increpitus* Dyar | Larimer | Fort Collins | | | n/a | | 5-Jun-1941 | MTJames | DARose | 5 | CSU |
| *Aedes increpitus* Dyar | Larimer | Fort Collins | | | n/a | | 6-Jun-1941 | MTJames | DARose | 14 | CSU |
| *Aedes increpitus* Dyar | Larimer | Fort Collins | | | n/a | | 15-Jun-1942 | n/a | n/a | 1 | CSU |
| *Aedes increpitus* Dyar | Larimer | Fort Collins | | | n/a | | 1-Aug-1941 | MTJames | DARose | 1 | CSU |
| *Aedes increpitus* Dyar | Larimer | Fort Collins | | | n/a | | 13-Jul-1942 | MAPalmer | n/a | 2 | CSU |
| *Aedes increpitus* Dyar | Larimer | Fort Collins | | | n/a | | 2-Jun-1942 | MAPalmer | n/a | 1 | CSU |
| *Aedes increpitus* Dyar | Larimer | Fort Collins | | | Poudre River Drive on the Poudre River | | 9-Jun-2014 | DARose | DARose | 13 | CSU |
| *Aedes increpitus* Dyar | Larimer | Estes Park | | | RMNP Fern Lake Trail | | 15-May-1994 | DWest | DWest | 1 | CSU |
| *Aedes increpitus* Dyar | Larimer | n/a | | | Rocky Mountain National Park | | 26-May-1972 | FCHarmston & LJOgden | DARose | 24 | CDC |
| *Aedes increpitus* Dyar | Larimer | n/a | | | Rocky Mountain National Park | | 21-May-1971 | LJOgden | DARose | 1 | CSU |
| *Aedes increpitus* Dyar | Larimer | n/a | | | Soapstone Prairie Natural Area Spottlewood Creek Area | | 23-Jul-2009 | BCKondratieff & RStoaks | MJWeissmann | 8 | CSU |
| *Aedes increpitus* Dyar | Larimer | Timanth | | | Walmart Pourde River Access | | 10-Jun-2014 | DARose | DARose | 1 | CSU |
| *Aedes increpitus* Dyar | Moffat | n/a | | | CR 20, E of Wymore Gulch | | 21-Jun-2014 | DARose & CLPeters | DARose | 1 | CSU |
| *Aedes increpitus* Dyar | Montezuma | Dolores | 37.55750 | -108.37110 | Dolores Stone Mountain | 7305 ft. | 13-Jun-2013 | CMC tech | MJWeissmann | 1 | CSU |
| *Aedes increpitus* Dyar | Montrose | Nucla | | | CR. CC & 2900 | | 21-Jul-2013 | DARose | DARose | 1 | CSU |
| *Aedes increpitus* Dyar | Montrose | Naturita | | | Downtown Naturita | | 21-Jul-2013 | DARose | DARose | 1 | CSU |
| *Aedes increpitus* Dyar | Montrose | n/a | | | Hwy. 90 mm 32 | | 21-Jul-2013 | DARose | DARose | 1 | CSU |
| *Aedes increpitus* Dyar | Montrose | n/a | | | Junction Hwy. 141 & Hwy. 90 | | 21-Jul-2013 | DARose | DARose | 6 | CSU |
| *Aedes increpitus* Dyar | Pitkin | | | | Crystal River 1 mi. above Redstone | | 27-Jul-1917 | P. Andrews | unknown | 2 | WRBU |
| *Aedes increpitus* Dyar | Routt | n/a | | | Yampa SWA #1 DA-118 | | 21-Jun-2014 | DARose & CLPeters | DARose | 3 | CSU |
| *Aedes increpitus* Dyar | Teller | Florrisant | | | Florrisant | | 26-Jun-1907 | SA Rohwer | unknown | 4 | WRBU |
| *Aedes increpitus* Dyar | Weld | n/a | | | CR 155 and Hwy 14 | | 10-Aug-2014 | DARose | DARose | 1 | CSU |
| *Aedes increpitus* Dyar | Weld | Greeley | 40.44890 | -104.70490 | n/a | 4660 ft. | 4-Jun-2013 | CMC tech | DARose | 1 | CSU |
| *Aedes increpitus* Dyar | Weld | Greeley | | | n/a | | 4-Jun-2013 | CMC tech | DARose | 1 | CSU |
| *Aedes increpitus* Dyar | Yuma | n/a | | | Bonny State Wildlife Area | | 1-Jul-2014 | DARose | DARose | 1 | CSU |
| *Aedes increpitus* Dyar | Yuma | n/a | | | Hale Ponds West Enterance | | 31-May-2014 | DARose | DARose | 2 | CSU |
| *Aedes increpitus* Dyar | Yuma | n/a | | | Hale Ponds West Enterance Ultra-violet trap | | 31-May-2014 | DARose | DARose | 2 | CSU |
| *Aedes increpitus* Dyar | | | | | "Modern, Colo" "Between Boulder and Denver" | | 28-May-???? | TDACockerell | unknown | 1 | WRBU |

## *Aedes intrudens*

| Species | County | City/Town | DecDeg N | DecDeg W | Location Notes | Altitude | Date | Collector | Determination | Series | Museum |
|---|---|---|---|---|---|---|---|---|---|---|---|
| *Aedes intrudens* Dyar | Boulder | Nederland | | | n/a | | 9-Jul-1962 | FCHarmston | DARose | 9 | CSU |
| *Aedes intrudens* Dyar | Boulder | Ward | | | n/a | | 25-Jun-2015 | FCHarmston | DARose | 8 | CSU |
| *Aedes intrudens* Dyar | Garfield | n/a | | | Deep Creek Road | | 28-May-1903 | n/a | DARose | 4 | CSU |
| *Aedes intrudens* Dyar | Grand | Grand Lake | | | Grand Lake | | 30May-24June 1923 | HG Dyar | unknown | 1 | WRBU |
| *Aedes intrudens* Dyar | Gunnison | Gunnison | | | Gunnison Colorado | | 27-Jun-1968 | FCHarmston | DARose | 2 | CDC |
| *Aedes intrudens* Dyar | Jackson | n/a | | | Big Creek Lakes | | 5-Jul-1965 | FCHarmston | DARose | 1 | CSU |
| *Aedes intrudens* Dyar | Jackson | n/a | | | Hwy. 14 mm 57 | | 22-Jun-2013 | DARose | DARose | 2 | CSU |
| *Aedes intrudens* Dyar | Lake | n/a | | | Hwy 24 & CR 19, 0.60 mi in on CR 19 | | 28-Jun-2014 | DARose & CLPeters | DARose | 9 | CSU |
| *Aedes intrudens* Dyar | Larimer | | | | Chambers Lake | | 14-Aug-1946 | MTJames | DARose | 1 | CSU |
| *Aedes intrudens* Dyar | Larimer | Fort Collins | | | n/a | | 12-Jun-1924 | n/a | DARose | 1 | CSU |
| *Aedes intrudens* Dyar | Larimer | Glendevey | | | n/a | | 7-Jul-1946 | DGates | DARose | 2 | CSU |
| *Aedes intrudens* Dyar | Larimer | Glendevey | | | n/a | | 14-Jul-1946 | DGates | DARose | 4 | CSU |
| *Aedes intrudens* Dyar | Larimer | n/a | | | Rocky Mountain National Park | | 26-May-1972 | FCHarmston & LJOgden | DARose | 5 | CDC |
| *Aedes intrudens* Dyar | Larimer | n/a | | | Rocky Mountain National Park | | 21-May-1968 | FCHarmston & EJHeidig | DARose | 13 | CSU |
| *Aedes intrudens* Dyar | Larimer | n/a | | | Rocky Mountain National Park | | 24-Aug-1967 | FCHarmston | DARose | 11 | CSU |
| *Aedes intrudens* Dyar | Larimer | n/a | | | Rocky Mountain National Park | | 28-May-1968 | LJOgden & FCHarmston | DARose | 1 | CSU |
| *Aedes intrudens* Dyar | Larimer | n/a | | | Rocky Mountain National Park | | 21-May-1971 | LJOgden | DARose | 1 | CSU |
| *Aedes intrudens* Dyar | Larimer | n/a | | | Timber Creek Camp RMNP | | 22-Jun-1953 | LWQuate | DARose | 1 | CSU |
| *Aedes intrudens* Dyar | Moffat | n/a | | | Big Bottom up to Maybell Bridge Boat Launch Yampa River DA-124 | | 21-Jun-2014 | DARose & CLPeters | DARose | 1 | CSU |
| *Aedes intrudens* Dyar | Park | n/a | | | Kenosha Pass | | 20-May-1964 | FCHarmston | DARose | 10 | CSU |
| *Aedes intrudens* Dyar | Pitkin | Aspen | 39.16410 | -106.79035 | East Aspen North Star | 8055 ft. | 1-Jul-2009 | CMC tech | MJWeissmann | 8 | CSU |
| *Aedes intrudens* Dyar | Pitkin | Aspen | 39.15335 | -106.78565 | East Aspen Wildwood School (AS-02) | 8055 ft. | 16-Jul-2014 | M.Swenson | MJWeissmann | 4 | CSU |
| *Aedes intrudens* Dyar | Pitkin | Aspen | 39.16410 | -106.79035 | n/a | 8055 ft. | 12-Jun-2013 | CMC tech | MJWeissmann | 2 | CSU |
| *Aedes intrudens* Dyar | Pitkin | Aspen | | | n/a | | 12-Jun-2013 | CMC tech | MJWeissmann | 2 | CSU |
| *Aedes intrudens* Dyar | Routt | n/a | | | Yampa SWA #1 DA-118 | | 21-Jun-2014 | DARose & CLPeters | DARose | 10 | CSU |
| *Aedes intrudens* Dyar | Routt | n/a | | | Yampa SWA near Craig | | 21-Jun-2014 | DARose & CLPeters | DARose | 19 | CSU |

## *Aedes melanimon*

| Species | County | City/Town | DecDeg N | DecDeg W | Location Notes | Altitude | Date | Collector | Determination | Series | Museum |
|---|---|---|---|---|---|---|---|---|---|---|---|
| *Aedes melanimon* Dyar | Adams | Brighton | 39.93715 | -104.75310 | Barr Lake State Park | 5100 ft. | 23-May-1985 | CSeidman & MWeissmann | MJWeissmann | 39 | UCM |
| *Aedes melanimon* Dyar | Alamosa | Alamosa | | | n/a | | 4-Aug-1938 | MTJames & UNLanham | DARose | 1 | CSU |
| *Aedes melanimon* Dyar | Alamosa | n/a | | | Sand Dunes Nat. Mon. | | 21-Jun-1955 | HGRodeck | DARose | 1 | UCM |
| *Aedes melanimon* Dyar | Bent | Hasty | | | Hasty Cemetery | | 14-Jul-2013 | DARose | DARose | 2 | CSU |
| *Aedes melanimon* Dyar | Boulder | Boulder | 40.05135 | -105.17900 | Boulder Creek at 75th Street | 5120 ft. | 21-Jun-1985 | MJWeissmann | MJWeissmann | 1 | UCM |
| *Aedes melanimon* Dyar | Boulder | n/a | | | LT-12 Omaha Place | | 18-Jul-1984 | Boulder Co. Health Dept. | MJWeissmann | 4 | UCM |
| *Aedes melanimon* Dyar | Boulder | n/a | | | LT-16 Kenosha | | 20-Jun-1983 | Boulder Co. Health Dept. | MJWeissmann | 1 | UCM |
| *Aedes melanimon* Dyar | Boulder | n/a | | | LT-24 McCormick | | 29-Jun-1984 | Boulder Co. Health Dept. | MJWeissmann | 4 | UCM |
| *Aedes melanimon* Dyar | Boulder | Longmont | | | LT-3 Granada | | 9-Jul-1984 | Boulder Co. Health Dept. | MJWeissmann | 1 | UCM |
| *Aedes melanimon* Dyar | Boulder | n/a | | | LT-8 Munsons | | 11-Jul-1983 | Boulder Co. Health Dept. | MJWeissmann | 1 | UCM |
| *Aedes melanimon* Dyar | Boulder | n/a | | | LT-8 Munsons | | 21-Jun-1983 | Boulder Co. Health Dept. | MJWeissmann | 1 | UCM |
| *Aedes melanimon* Dyar | Boulder | Longmont | | | n/a | | 6-Aug-2012 | CMC tech | MJWeissmann | 1 | CSU |
| *Aedes melanimon* Dyar | Boulder | Lafayette | 39.99315 | -105.11625 | Waneka Lake | 5330 ft. | 26-Jun-1988 | MJWeissmann | MJWeissmann | 11 | UCM |
| *Aedes melanimon* Dyar | Eagle | n/a | | | Hwy 131 mm 1.0 | | 29-Jun-2014 | DARose & CLPeters | DARose | 1 | CSU |
| *Aedes melanimon* Dyar | Eagle | n/a | | | Hwy 131 mm 12.5 | | 29-Jun-2014 | DARose & CLPeters | DARose | 5 | CSU |
| *Aedes melanimon* Dyar | Eagle | n/a | | | Hwy 6 mm 151 | | 29-Jun-2014 | DARose & CLPeters | DARose | 1 | CSU |
| *Aedes melanimon* Dyar | Eagle | n/a | | | Hwy 6, 1 mi SE of Jct w/ Hwy 131 | | 29-Jun-2014 | DARose & CLPeters | DARose | 13 | CSU |
| *Aedes melanimon* Dyar | El Paso | Fountain | | | n/a | | 14-Jun-1966 | FCHarmston | DARose | 4 | CSU |
| *Aedes melanimon* Dyar | Gunnison | n/a | | | Hwy 50 and CR 45 | | 27-Jul-2014 | DARose | DARose | 1 | CSU |

# *Aedes melanimon* cont.

| Species | County | City/Town | DecDeg N | DecDeg W | Location Notes | Altitude | Date | Collector | Determination | Series | Museum |
|---|---|---|---|---|---|---|---|---|---|---|---|
| *Aedes melanimon* Dyar | Gunnison | n/a | | | n/a | | 13-Jun-61 | FCHarmston | FCHarmston | 1 | CDC |
| *Aedes melanimon* Dyar | Jackson | n/a | | | CR 18 crossing N. Platte River | | 14-Jun-2014 | DARose & BCKondratieff | DARose | 5 | CSU |
| *Aedes melanimon* Dyar | Jackson | Walden | | | Diamond J SWA | | 23-Jun-2013 | DARose | DARose | 1 | CSU |
| *Aedes melanimon* Dyar | Jackson | Walden | | | Diamond J SWA | | 14-Jun-2014 | DARose & BCKondratieff | DARose | 2 | CSU |
| *Aedes melanimon* Dyar | Jefferson | Arvada | 39.85050 | -105.10815 | n/a | 5525 ft. | 24-Aug-2010 | CMC tech | MJWeissmann | 1 | CSU |
| *Aedes melanimon* Dyar | Jefferson | Arvada | | | n/a | | 24-Aug-2010 | CMC tech | MJWeissmann | 1 | CSU |
| *Aedes melanimon* Dyar | Larimer | Berthoud | | | Berthoud Park | | 11-Jun-2014 | DARose | DARose | 1 | CSU |
| *Aedes melanimon* Dyar | Larimer | Loveland | | | End of City Limits North | | 8-Jun-2014 | DARose | DARose | 1 | CSU |
| *Aedes melanimon* Dyar | Larimer | Fort Collins | | | Fort Collins | | 17-Aug-1912 | GP Weldon | unknown | 1 | WRBU |
| *Aedes melanimon* Dyar | Larimer | n/a | | | Hwy 14 Ouzell Day Use Recreation Area mm 110 | | 13-Jun-2014 | DARose & CLPeters | DARose | 3 | CSU |
| *Aedes melanimon* Dyar | Larimer | Fort Collins | | | n/a | | 24-Jun-1941 | MTJames | DARose | 1 | CSU |
| *Aedes melanimon* Dyar | Larimer | Fort Collins | | | n/a | | 25-Jul-1941 | MYReagan | DARose | 2 | CSU |
| *Aedes melanimon* Dyar | Larimer | Fort Collins | | | n/a | | 2-Jun-1941 | MTJames | DARose | 3 | CSU |
| *Aedes melanimon* Dyar | Larimer | Fort Collins | | | n/a | | 29-Jul-1941 | MTJames | DARose | 8 | CSU |
| *Aedes melanimon* Dyar | Larimer | Fort Collins | | | n/a | | 30-Jul-1941 | MTJames | DARose | 2 | CSU |
| *Aedes melanimon* Dyar | Larimer | Fort Collins | | | n/a | | 28-Jun-1941 | MAPalmer | DARose | 1 | CSU |
| *Aedes melanimon* Dyar | Larimer | Fort Collins | | | n/a | | 11-Jun-1941 | MTJames | DARose | 1 | CSU |
| *Aedes melanimon* Dyar | Larimer | Fort Collins | | | n/a | | 5-Jun-1941 | MTJames | DARose | 1 | CSU |
| *Aedes melanimon* Dyar | Larimer | n/a | | | Ouzel Day Use Recreational Area Hwy 14 mm 110 | | 13-Jun-2014 | DARose | DARose | 3 | CSU |
| *Aedes melanimon* Dyar | Larimer | Timanth | | | Walmart Poudre River Access | | 10-Jun-2014 | DARose | DARose | 1 | CSU |
| *Aedes melanimon* Dyar | Larimer | Fort Collins | | | West Chase Residental | | 10-Jun-2014 | BGVBoze | BGVBoze | 2 | CSU |
| *Aedes melanimon* Dyar | Larimer | Timanth | | | Wildwing Residental | | 10-Jun-2014 | DARose | DARose | 1 | CSU |
| *Aedes melanimon* Dyar | Logan | Crook | | | Crook Colorado | | 22-May-1973 | FCHarmston & LJOgden | DARose | 2 | CDC |
| *Aedes melanimon* Dyar | Moffat | n/a | | | Big Bottom up to Maybell Bridge Boat Launch Yampa River DA-124 | | 21-Jun-2014 | DARose & CLPeters | DARose | 3 | CSU |
| *Aedes melanimon* Dyar | Moffat | Maybell | | | n/a | | 25-May-1946 | MTJames | DARose | 6 | CSU |
| *Aedes melanimon* Dyar | Moffat | n/a | | | n/a | | 14-Jun-1999 | MNelson | DARose | 1 | CSU |
| *Aedes melanimon* Dyar | Moffat | n/a | | | Yampa River Boat Launch | | 21-Jun-2014 | DARose & CLPeters | DARose | 1 | CSU |
| *Aedes melanimon* Dyar | Montrose | Naturita | | | Downtown Naturita | | 21-Jul-2013 | DARose | DARose | 1 | CSU |
| *Aedes melanimon* Dyar | Montrose | n/a | | | Junction Hwy. 141 & Hwy. 90 | | 21-Jul-2013 | DARose | DARose | 6 | CSU |
| *Aedes melanimon* Dyar | Pueblo | Boone | 38.24790 | -104.25245 | (PU-17) | 4460 ft. | 29-Jul-2014 | C.Rodosevich | ADvanGulik | 3 | CSU |
| *Aedes melanimon* Dyar | Routt | n/a | | | Yampa SWA #1 DA-118 | | 21-Jun-2014 | DARose & CLPeters | DARose | 9 | CSU |
| *Aedes melanimon* Dyar | Routt | n/a | | | Yampa SWA near Craig | | 21-Jun-2014 | DARose & CLPeters | DARose | 13 | CSU |
| *Aedes melanimon* Dyar | Saguache | n/a | 37.82970 | -105.59170 | Great Sand Dunes Nat. Mon., Sand Creek | 7900 ft. | 12-Jul-1991 | MWeissmann & LClement | MJWeissmann | 2 | UCM |
| *Aedes melanimon* Dyar | Saguache | n/a | 37.82970 | -105.59170 | Great Sand Dunes Nat. Mon., Sand Creek | 7900 ft. | 13-Jul-1991 | MWeissmann & LClement | MJWeissmann | 2 | UCM |
| *Aedes melanimon* Dyar | Saguache | n/a | | | Hwy 50 and CR 243 | | 27-Jul-2014 | DARose | DARose | 6 | CSU |
| *Aedes melanimon* Dyar | Saguache | n/a | | | Sand Dunes Nat. Mon. | | 12-Jul-1991 | MJWeissmann & LClement | MJWeissmann | 4 | CSU |
| *Aedes melanimon* Dyar | Sedgwick | n/a | | | Julesburg Reservoir | | 22-May-1973 | FCHarmston & LJOgden | DARose | 1 | CSU |
| *Aedes melanimon* Dyar | Weld | Greeley | 40.44890 | -104.70490 | n/a | 4660 ft. | 4-Jun-2013 | DARose | DARose | 3 | CSU |
| *Aedes melanimon* Dyar | Weld | Roggen | | | n/a | | 15-Aug-1941 | MTJames | DARose | 1 | CSU |
| *Aedes melanimon* Dyar | Weld | Dacono | | | n/a | | 14-Aug-2012 | CMC tech | MJWeissmann | 2 | CSU |
| *Aedes melanimon* Dyar | Weld | Greeley | 40.44890 | -104.70490 | n/a | 4660 ft. | 5-Jun-2012 | CMC tech | MJWeissmann | 11 | CSU |
| *Aedes melanimon* Dyar | Weld | Erie | 40.04935 | -105.04980 | n/a | 5025 ft. | 6-Aug-2012 | CMC tech | MJWeissmann | 1 | CSU |
| *Aedes melanimon* Dyar | Weld | Windsor | | | n/a | | 19-Jun-1962 | FCHarmston | DARose | 2 | CSU |
| *Aedes melanimon* Dyar | Weld | Greeley | | | n/a | | 4-Jun-2013 | DARose | DARose | 3 | CSU |
| *Aedes melanimon* Dyar | Weld | Greeley | | | n/a | | 5-Jun-2012 | CMC tech | MJWeissmann | 11 | CSU |

## *Aedes melanimon* cont.

| Species | County | City/Town | DecDeg N | DecDeg W | Location Notes | Altitude | Date | Collector | Determination | Series | Museum |
|---|---|---|---|---|---|---|---|---|---|---|---|
| *Aedes melanimon* Dyar | Weld | Erie | | | n/a | | 6-Aug-2012 | CMC tech | MJWeissmann | 1 | CSU |
| *Aedes melanimon* Dyar | Weld | Fort Lupton | 40.09495 | -104.81945 | Original Fort Site (FL-04) | 4890 ft. | 16-Jun-2015 | CMC tech | MJWeissmann | 1 | CSU |
| *Aedes melanimon* Dyar | Weld | n/a | | | T1NR68WB23 | | 27-Jul-1964 | LRErtle | unknown | 3 | WRBU |
| *Aedes melanimon* Dyar | Weld | n/a | | | T1NR68WB24 | | 27-Jul-1964 | LRErtle | unknown | 2 | WRBU |
| *Aedes melanimon* Dyar | Weld | n/a | | | T1NR68WB24 | | 26-Jul-1964 | LRErtle | unknown | 2 | WRBU |
| *Aedes melanimon* Dyar | | | | | Evan Marr Ranch | | 8-28 Aug ???? | Mary Marr | unknown | 20 | WRBU |

## *Aedes nigromaculis*

| Species | County | City/Town | DecDeg N | DecDeg W | Location Notes | Altitude | Date | Collector | Determination | Series | Museum |
|---|---|---|---|---|---|---|---|---|---|---|---|
| *Aedes nigromaculis* (Ludlow) | Larimer | Fort Collins | | | Applewood Estates | | 26-Aug-1966 | JHShaw | JHShaw | 1 | CSU |
| *Aedes nigromaculis* (Ludlow) | Larimer | Fort Collins | | | Applewood Estates | | 24-Aug-1966 | JHShaw | JHShaw | 1 | CSU |
| *Aedes nigromaculis* (Ludlow) | Larimer | Fort Collins | | | Applewood Estates | | 30-Jul-1966 | JHShaw | JHShaw | 1 | CSU |
| *Aedes nigromaculis* (Ludlow) | Weld | CPER | 40.8457 | -104.7640 | CPER 084 NEON | | 13-Aug-2014 | T. Baldwin | MJWeissmann | 4 | CSU |
| *Aedes nigromaculis* (Ludlow) | Weld | CPER | 40.8257 | -104.7626 | CPER 087 NEON | | 13-Aug-2014 | T. Baldwin | MJWeissmann | 6 | CSU |
| *Aedes nigromaculis* (Ludlow) | Weld | CPER | 40.8257 | -104.7626 | CPER 087 NEON | | 12-Aug-2014 | T. Baldwin | MJWeissmann | 2 | CSU |
| *Aedes nigromaculis* (Ludlow) | Weld | CPER | 40.8119 | -104.7723 | CPER 088 NEON | | 12-Aug-2014 | T. Baldwin | MJWeissmann | 7 | CSU |
| *Aedes nigromaculis* (Ludlow) | Weld | CPER | 40.8127 | -104.7631 | CPER 089 NEON | | 13-Aug-2014 | T. Baldwin | MJWeissmann | 3 | CSU |
| *Aedes nigromaculis* (Ludlow) | Weld | CPER | 40.8127 | -104.7631 | CPER 089 NEON | | 12-Aug-2014 | T. Baldwin | MJWeissmann | 1 | CSU |
| *Aedes nigromaculis* (Ludlow) | Weld | CPER | 40.8127 | -104.7631 | CPER 089 NEON | | 17-Aug-2014 | T. Baldwin | MJWeissmann | 2 | CSU |
| *Aedes nigromaculis* (Ludlow) | Delta | n/a | | | Dominguez Canyon | | 28-Jul-1962 | UNLanham et al | MJWeissmann | 1 | UCM |
| *Aedes nigromaculis* (Ludlow) | Weld | n/a | | | Hwy 14 and CR 149 Prairie Café | | 10-Aug-2014 | DARose | DARose | 3 | CSU |
| *Aedes nigromaculis* (Ludlow) | Weld | n/a | | | Hwy 14 and CR 155 | | 10-Aug-2014 | DARose | DARose | 27 | CSU |
| *Aedes nigromaculis* (Ludlow) | Logan | n/a | | | Hwy 14 and CR 17 | | 10-Aug-2014 | DARose | DARose | 1 | CSU |
| *Aedes nigromaculis* (Ludlow) | Logan | n/a | | | Hwy 14 and CR 25 | | 10-Aug-2014 | DARose | DARose | 38 | CSU |
| *Aedes nigromaculis* (Ludlow) | Weld | n/a | | | Hwy 14 and CR 57 | | 10-Aug-2014 | DARose | DARose | 11 | CSU |
| *Aedes nigromaculis* (Ludlow) | Weld | n/a | | | Hwy 14 and CR 63 | | 10-Aug-2014 | DARose | DARose | 51 | CSU |
| *Aedes nigromaculis* (Ludlow) | Weld | n/a | | | Hwy 14 Crow Valley National Campground | | 10-Aug-2014 | DARose | DARose | 3 | CSU |
| *Aedes nigromaculis* (Ludlow) | Larimer | n/a | | | Laramie River at Poudre Tunnel | | 26-Jun-1938 | ORJones | DARose | 1 | CSU |
| *Aedes nigromaculis* (Ludlow) | Larimer | Loveland | | | Linda & 26 St. South West | | 4-Jun-2014 | DARose | DARose | 17 | CSU |
| *Aedes nigromaculis* (Ludlow) | Adams | Brighton | 39.97590 | -104.83620 | n/a | 4970 ft. | 18-Aug-2010 | CMC tech | MJWeissmann | 1 | CSU |
| *Aedes nigromaculis* (Ludlow) | Alamosa | Alamosa | | | n/a | | 4-Aug-1938 | MTJames & UNLanham | DARose | 4 | CSU |
| *Aedes nigromaculis* (Ludlow) | Garfield | Rifle | 39.52560 | -107.74835 | n/a | 5365 ft. | 5-Aug-2004 | JKBennett | JKBennett | 2 | CSU |
| *Aedes nigromaculis* (Ludlow) | Larimer | Fort Collins | | | n/a | | 23-Aug-1941 | MAPalmer | MTJames | 6 | CSU |
| *Aedes nigromaculis* (Ludlow) | Larimer | Fort Collins | | | n/a | | 26-Aug-1941 | MAPalmer | MTJames | 2 | CSU |
| *Aedes nigromaculis* (Ludlow) | Larimer | Fort Collins | | | n/a | | 25-Jun-1942 | MAPalmer | MTJames | 5 | CSU |
| *Aedes nigromaculis* (Ludlow) | Larimer | Fort Collins | | | n/a | | 24-Jun-1942 | MAPalmer | MTJames | 7 | CSU |
| *Aedes nigromaculis* (Ludlow) | Larimer | Fort Collins | | | n/a | | 22-Jun-1942 | MAPalmer | MTJames | 9 | CSU |
| *Aedes nigromaculis* (Ludlow) | Larimer | Fort Collins | | | n/a | | 19-Aug-1941 | MYRagan | MTJames | 1 | CSU |
| *Aedes nigromaculis* (Ludlow) | Larimer | Fort Collins | | | n/a | | 2-Aug-1941 | MYRagan | MTJames | 1 | CSU |
| *Aedes nigromaculis* (Ludlow) | Larimer | Fort Collins | | | n/a | | 26-Jun-1941 | MAPalmer | MTJames | 1 | CSU |
| *Aedes nigromaculis* (Ludlow) | Larimer | Fort Collins | | | n/a | | 24-Jun-1941 | MAPalmer | DARose | 3 | CSU |
| *Aedes nigromaculis* (Ludlow) | Larimer | Fort Collins | | | n/a | | 2-Aug-1935 | RHSwain | n/a | 1 | CSU |
| *Aedes nigromaculis* (Ludlow) | Larimer | Fort Collins | | | n/a | | 23-Jun-1941 | MAPalmer | MTJames | 3 | CSU |

## *Aedes nigromaculis* cont.

| Species | County | City/Town | DecDeg N | DecDeg W | Location Notes | Altitude | Date | Collector | Determination | Series | Museum |
|---|---|---|---|---|---|---|---|---|---|---|---|
| *Aedes nigromaculis* (Ludlow) | Larimer | Fort Collins | | | n/a | | 12-Jun-1941 | MAPalmer | MTJames | 1 | CSU |
| *Aedes nigromaculis* (Ludlow) | Larimer | Fort Collins | | | n/a | | 31-Jul-1941 | MYRagan | MTJames | 4 | CSU |
| *Aedes nigromaculis* (Ludlow) | Larimer | Fort Collins | | | n/a | | 30-Jul-1941 | MAPalmer | MTJames | 1 | CSU |
| *Aedes nigromaculis* (Ludlow) | Larimer | Fort Collins | | | n/a | | 25-Jul-1941 | MYRagan | MTJames | 12 | CSU |
| *Aedes nigromaculis* (Ludlow) | Larimer | Fort Collins | | | n/a | | 26-Jul-1941 | MYRagan | MTJames | 4 | CSU |
| *Aedes nigromaculis* (Ludlow) | Larimer | Fort Collins | | | n/a | | 24-Jun-1941 | n/a | DARose | 1 | CSU |
| *Aedes nigromaculis* (Ludlow) | Weld | La Salle | 40.34940 | -104.70075 | n/a | 4680 ft. | 30-Jul-2013 | DARose | DARose | 1 | CSU |
| *Aedes nigromaculis* (Ludlow) | Weld | Ft. Lupton | 40.09495 | -104.81945 | n/a | 4890 ft. | 16-Aug-2011 | CMC tech | MJWeissmann | 6 | CSU |
| *Aedes nigromaculis* (Ludlow) | Weld | Platteville | 40.22150 | -104.83900 | n/a | 4800 ft. | 26-Jul-2005 | JKBennett | JKBennett | 1 | CSU |
| *Aedes nigromaculis* (Ludlow) | Weld | Platteville | | | n/a | | 21-Jul-2004 | JKBennett | JKBennett | 2 | CSU |
| *Aedes nigromaculis* (Ludlow) | Weld | Johnstown | 40.33720 | -104.92470 | n/a | 4895 ft. | 2-Aug-2005 | JKBennett | JKBennett | 4 | CSU |
| *Aedes nigromaculis* (Ludlow) | Adams | Brighton | | | n/a | | 18-Aug-2010 | CMC tech | MJWeissmann | 1 | CSU |
| *Aedes nigromaculis* (Ludlow) | Garfield | Rifle | | | n/a | | 5-Aug-2004 | JKBennett | JKBennett | 2 | CSU |
| *Aedes nigromaculis* (Ludlow) | Weld | Longmont | | | n/a | | 18-Jun-2013 | DARose | DARose | 1 | CSU |
| *Aedes nigromaculis* (Ludlow) | Weld | La Salle | | | n/a | | 30-Jul-2013 | DARose | DARose | 1 | CSU |
| *Aedes nigromaculis* (Ludlow) | Weld | Ft. Lupton | | | n/a | | 16-Aug-2011 | CMC tech | MJWeissmann | 6 | CSU |
| *Aedes nigromaculis* (Ludlow) | Weld | Platteville | | | n/a | | 26-Jul-2005 | JKBennett | JKBennett | 1 | CSU |
| *Aedes nigromaculis* (Ludlow) | Weld | Johnstown | | | n/a | | 2-Aug-2005 | JKBennett | JKBennett | 4 | CSU |
| *Aedes nigromaculis* (Ludlow) | Weld | Longmont | 40.14240 | -105.00325 | n/a (Lighthouse Cove per MJW) | 4870 ft. | 18-Jun-2013 | DARose | DARose | 1 | CSU |
| *Aedes nigromaculis* (Ludlow) | Larimer | n/a | 40.48610 | -104.97385 | Ptarmigan Golf Course | 4815 ft. | 26-Aug-2010 | CMC tech | MJWeissmann | 5 | CSU |
| *Aedes nigromaculis* (Ludlow) | Pueblo | Pueblo | 38.27745 | -104.48355 | Pueblo Airport Industrial Park (PB-23) | 4600 ft. | 29-Jul-2014 | C.Rososevich | MJWeissmann | 1 | CSU |
| *Aedes nigromaculis* (Ludlow) | Adams | n/a | 39.92995 | -104.87820 | Riverdale Golf Course | 5020 ft. | 31-Jul-2013 | DARose | DARose | 1 | CSU |
| *Aedes nigromaculis* (Ludlow) | Larimer | Fort Collins | | | Rockcreek | | 1-Jun-2014 | BGVBoze | BGVBose | 6 | CSU |
| *Aedes nigromaculis* (Ludlow) | Larimer | Timnath | | | Summerfield Residental | | 10-Jun-2014 | DARose | DARose | 1 | CSU |
| *Aedes nigromaculis* (Ludlow) | Washintgon | Xenia | | | 7.5 miles west of Xenia | | 16-Aug | TDACockerell | MJWeissmann | 1 | UCM |
| *Aedes nigromaculis* (Ludlow) | Washington | Messex | | | n/a | | 14-Jul-72 | JCross | JCross | 1 | |

## *Aedes niphadopsis*

| Species | County | City/Town | DecDeg N | DecDeg W | Location Notes | Altitude | Date | Collector | Determination | Series | Museum |
|---|---|---|---|---|---|---|---|---|---|---|---|
| *Aedes niphadopsis* Dyar and Knab | Jackson | n/a | | | County Road 11 A | | 14-Jun-2014 | DARose | DARose | 4 | CSU |
| *Aedes niphadopsis* Dyar and Knab | Jackson | n/a | | | Hwy. 14 mm 41 | | 22-Jun-2013 | DARose | DARose | 8 | CSU |
| *Aedes niphadopsis* Dyar and Knab | Jackson | n/a | | | Hwy. 14 mm 49 | | 22-Jun-2013 | DARose | DARose | 5 | CSU |

## *Aedes pionips*

| Species | County | City/Town | DecDeg N | DecDeg W | Location Notes | Altitude | Date | Collector | Determination | Series | Museum |
|---|---|---|---|---|---|---|---|---|---|---|---|
| *Aedes pionips* Dyar | Summit | n/a | | | Hwy 9 Hoosier Pass Summit | n/a | 12-Jul-2014 | DARose | DARose | 3 | CSU |

# *Aedes pullatus*

| Species | County | City/Town | DecDeg | DecDeg W | Location Notes | Altitude | Date | Collector | Determination | Series | Museum |
|---|---|---|---|---|---|---|---|---|---|---|---|
| *Aedes pullatus* (Coquillett) | Boulder | n/a | | | Long Lake | 10,520 | 31-Jul-1989 | DWInouyi | REHarback | 1 | UCM |
| *Aedes pullatus* (Coquillett) | Boulder | Nederland | | | n/a | | 9-Jul-1962 | FCHarmston | DARose | 6 | CSU |
| *Aedes pullatus* (Coquillett) | Boulder | Ward | | | n/a | | 25-Jun-1962 | FCHarmston | DARose | 15 | CSU |
| *Aedes pullatus* (Coquillett) | Boulder | Ward | | | Niwot Ridge Alpine Zone | | 15-Aug-1961 | UNLanham | AStone | 1 | UCM |
| *Aedes pullatus* (Coquillett) | Boulder | n/a | | | Niwot Ridge Alpine Zone | | 3-Aug-1961 | SCJohonnott | DARose | 1 | UCM |
| *Aedes pullatus* (Coquillett) | Chaffee | | | | "Cottonwood L" (Lake?) | | 9-Jul-1959 | CL Hogue | unknown | 2 | WRBU |
| *Aedes pullatus* (Coquillett) | Clear Creek | n/a | | | Berthoud Pass | 13,000 ft. | 2-Jul-1944 | UNLanham | DARose | 2 | WRBU |
| *Aedes pullatus* (Coquillett) | Clear Creek | n/a | | | Guanella Pass mm 17 | | 15-Jun-2013 | DARose | DARose | 2 | CSU |
| *Aedes pullatus* (Coquillett) | Eagle | Minturn | | | Hometsake Road at Campground | | 28-Jun-2014 | DARose & CLPeters | DARose | 1 | CSU |
| *Aedes pullatus* (Coquillett) | Eagle | n/a | | | Tigwon Road | | 28-Jun-2014 | DARose & CLPeters | DARose | 2 | CSU |
| *Aedes pullatus* (Coquillett) | Grand | Grand Lake | | | Grand Lake | | 30May-24June 1923 | HG Dyar | unknown | 1 | WRBU |
| *Aedes pullatus* (Coquillett) | Gunnison | Gunnison | | | Gunnison Colorado | | 27-Jun-1968 | FCHarmston | DARose | 3 | CDC |
| *Aedes pullatus* (Coquillett) | Gunnison | n/a | | | Hwy 50 mm 192.50 | | 27-Jul-2014 | DARose & CLPeters | DARose | 1 | CSU |
| *Aedes pullatus* (Coquillett) | Gunnison | Gunnison | 38.59485 | -106.92555 | n/a | 7810 ft. | 13-Jun-2013 | DARose | MJWeissmann | 1 | CSU |
| *Aedes pullatus* (Coquillett) | Gunnison | Gunnison | | | n/a | | 27-Jun-2005 | CMC tech | MJWeissmann | 1 | CSU |
| *Aedes pullatus* (Coquillett) | Gunnison | Gunnison | | | n/a | | 13-Jun-2013 | DARose | MJWeissmann | 1 | CSU |
| *Aedes pullatus* (Coquillett) | Gunnison | Gunnison | 38.59485 | -106.92555 | North Elk Meadows | 7810 ft. | 19-Jul-2012 | CMC tech | MJWeissmann | 1 | CSU |
| *Aedes pullatus* (Coquillett) | Jackson | Walden | | | Diamond J SWA | | 23-Jun-2013 | DARose | DARose | 4 | CSU |
| *Aedes pullatus* (Coquillett) | Jackson | n/a | | | Grizzly Creek Camp Ground | | 16-Jul-1946 | MTJames | DARose | 25 | CSU |
| *Aedes pullatus* (Coquillett) | Jackson | Rand | | | n/a | | 18-Jul-1946 | MTJames | DARose | 7 | CSU |
| *Aedes pullatus* (Coquillett) | Jackson | n/a | | | Rabbit Ears Pass | | 18-Jul-1946 | MTJames | DARose | 1 | CSU |
| *Aedes pullatus* (Coquillett) | Jefferson | Evergreen | | | n/a | | 7-Jul-1941 | MTJames & HBJames | DARose | 2 | CSU |
| *Aedes pullatus* (Coquillett) | Jefferson | Evergreen | | | n/a | | 28-Jun-1941 | MTJames | DARose | 1 | CSU |
| *Aedes pullatus* (Coquillett) | La Plata | Hermosa | | | Hermosa | | 8-Jul-1959 | CL Hogue | unknown | 1 | WRBU |
| *Aedes pullatus* (Coquillett) | Lake | n/a | | | 2 mi. W. of Tennessee Pass | | 19-Jul-1917 | Henderson & Andrews | Cockerell | 1 | UCM |
| *Aedes pullatus* (Coquillett) | Larimer | Estes Park | | | Alluvial Fan Park RMNP | | 16-Apr-1994 | DWest | DWest | 9 | CSU |
| *Aedes pullatus* (Coquillett) | Larimer | Estes Park | | | Alluvial Fan Park RMNP | | 15-Jun-1994 | DWest | DWest | 6 | CSU |
| *Aedes pullatus* (Coquillett) | Larimer | n/a | | | Cameron Pass | | 14-Aug-1946 | MTJames | DARose | 5 | CSU |
| *Aedes pullatus* (Coquillett) | Larimer | n/a | | | Chambers Lake | | 14-Aug-1946 | MTJames | DARose | 8 | CSU |
| *Aedes pullatus* (Coquillett) | Larimer | Glendevey | | | Deadmans Pass | | 7-Jul-1946 | DGates | DARose | 6 | CSU |
| *Aedes pullatus* (Coquillett) | Larimer | Estes Park | | | Estes Park | | 10-Jul-1959 | CL Hogue | unknown | 1 | WRBU |
| *Aedes pullatus* (Coquillett) | Larimer | n/a | | | Greyrock Trail | | 16-Jul-1995 | SFitzgerald & AFoley | DARose | 3 | CSU |
| *Aedes pullatus* (Coquillett) | Larimer | n/a | | | Grizzly Creek Camp Ground | | 17-Jul-1946 | MTJames | DARose | 4 | CSU |
| *Aedes pullatus* (Coquillett) | Larimer | | | | Longs Peak Trail | | 18-Jul-???? | TDA Cockerell | unknown | 2 | WRBU |
| *Aedes pullatus* (Coquillett) | Larimer | | | | Longs Peak Trail "Hudsonian Zone"? | | 22-Jul-???? | TDA Cockerell | unknown | 1 | WRBU |
| *Aedes pullatus* (Coquillett) | Larimer | Estes Park | | | Mile 8, Fall River Rd. RMNP | | 26-Jun-1994 | DWest | DWest | 10 | CSU |
| *Aedes pullatus* (Coquillett) | Larimer | n/a | | | Morgan Farm Cherokee Prk. | | 8-May-1994 | DWest | DWest | 1 | CSU |
| *Aedes pullatus* (Coquillett) | Larimer | n/a | | | N. of Grizzly Creek Camp Ground | | 17-Jul-1946 | MTJames | DARose | 5 | CSU |
| *Aedes pullatus* (Coquillett) | Larimer | Estes Park | | | n/a | | 14-Aug-1941 | BHuey | DARose | 2 | CSU |
| *Aedes pullatus* (Coquillett) | Larimer | Glendevey | | | n/a | | 14-Jul-1946 | DGates | DARose | 1 | CSU |
| *Aedes pullatus* (Coquillett) | Larimer | Estes Park | | | Phantom Valley RMNP | | 19-Jul-1946 | MTJames | DARose | 1 | CSU |
| *Aedes pullatus* (Coquillett) | Larimer | Poudre Lakes | | | Poudre Lakes | | 8-Jul-1923 | HG Dyar | unknown | 3 | WRBU |

## *Aedes pullatus* cont.

| Species | County | City/Town | DecDeg | DecDeg W | Location Notes | Altitude | Date | Collector | Determination | Series | Museum |
|---|---|---|---|---|---|---|---|---|---|---|---|
| *Aedes pullatus* (Coquillett) | Larimer | Poudre Lakes | | | Poudre Lakes | | 11-Jul-1923 | HG Dyar | unknown | 1 | WRBU |
| *Aedes pullatus* (Coquillett) | Larimer | n/a | | | Rocky Mountain National Park | | 3-Aug-1968 | FCHarmston & NCRonald | DARose | 34 | CDC |
| *Aedes pullatus* (Coquillett) | Larimer | n/a | | | Rocky Mountain National Park | | 26-May-1972 | FCHarmston & LJOgden | DARose | 6 | CDC |
| *Aedes pullatus* (Coquillett) | Larimer | n/a | | | Rocky Mountain National Park | | 21-May-1968 | FCHarmston & EJHeidig | DARose | 1 | CDC |
| *Aedes pullatus* (Coquillett) | Larimer | n/a | | | Rocky Mountain National Park | | 24-Aug-1967 | FCHarmston | DARose | 3 | CSU |
| *Aedes pullatus* (Coquillett) | Moffat | n/a | | | Cold Spring Mountain | | 24-Jun-1946 | MTJames | DARose | 3 | CSU |
| *Aedes pullatus* (Coquillett) | Park | Camp Wheeler | | | Camp Wheeler | | 23-25 June 1923 | HG Dyar | unknown | 1 | WRBU |
| *Aedes pullatus* (Coquillett) | Park | | | | Geneva Park | | 19-Jul-1916 | LO Jackson | unknown | 1 | WRBU |
| *Aedes pullatus* (Coquillett) | Park | Grant | | | Grant? | | 17-Jul-1916 | LO Jackson | unknown | 3 | WRBU |
| *Aedes pullatus* (Coquillett) | Park | n/a | | | Hwy 9 & CR 6 | | 12-Jul-2014 | DARose | DARose | 1 | CSU |
| *Aedes pullatus* (Coquillett) | Park | Fairplay | | | Jct. Hwy 9 & Hwy 285 | | 12-Jul-2014 | DARose | DARose | 1 | CSU |
| *Aedes pullatus* (Coquillett) | Park | n/a | | | Kenosha Pass | | 20-May-1964 | FCHarmston | DARose | 1 | CSU |
| *Aedes pullatus* (Coquillett) | Routt | Yampa | | | n/a | | 22-Jun-2005 | CMC tech | MJWeissmann | 1 | CSU |
| *Aedes pullatus* (Coquillett) | San Juan | n/a | | | Molas Divide Colorado | | 14-Jun-1961 | FCHarmston | DARose | 1 | CDC |
| *Aedes pullatus* (Coquillett) | San Miguel | Ophir | | | Ophir Colorado | | 13-Jun-1961 | FCHarmston | DARose | 6 | CDC |
| *Aedes pullatus* (Coquillett) | Summit | n/a | | | Hwy 9 mm 77.90 | | 12-Jul-2014 | DARose | DARose | 1 | CSU |
| *Aedes pullatus* (Coquillett) | Summit | n/a | | | Loveland Pass | | 8-Aug-1968 | FCHarmston | DARose | 32 | CDC |

## *Aedes punctor*

| Species | County | City/Town | DecDeg N | DecDeg W | Location Notes | Altitude | Date | Collector | Determination | Series | Museum |
|---|---|---|---|---|---|---|---|---|---|---|---|
| *Aedes punctor* (Kirby) | Boulder | Nederland | | | n/a | | 9-Jul-1962 | FCHarmston | DARose | 24 | CSU |
| *Aedes punctor* (Kirby) | Boulder | Ward | | | n/a | | 25-Jun-1962 | FCHarmston | DARose | 32 | CSU |
| *Aedes punctor* (Kirby) | Eagle | Minturn | | | Homestake Rd. at Campground | | 28-Jun-2014 | DARose & CLPeters | DARose | 5 | CSU |
| *Aedes punctor* (Kirby) | Eagle | Minturn | | | Homestake Rd. at Campground | | 28-Jun-2014 | DARose & CLPeters | DARose | 5 | CSU |
| *Aedes punctor* (Kirby) | Eagle | n/a | | | Hwy 131 mm 1.0 | | 29-Jun-2014 | DARose & CLPeters | DARose | 1 | CSU |
| *Aedes punctor* (Kirby) | Eagle | n/a | | | Hwy 6 mm 157 | | 29-Jun-2014 | DARose & CLPeters | DARose | 2 | CSU |
| *Aedes punctor* (Kirby) | Grand | Grand Lake | | | Grand Lake | | 30May-24June 1923 | HG Dyar | unknown | 1 | WRBU |
| *Aedes punctor* (Kirby) | Gunnison | Gunnison | | | Gunnison Colorado | | 23-May-1968 | FCHarmston | DARose | 2 | CDC |
| *Aedes punctor* (Kirby) | Gunnison | Gunnison | | | Gunnison Colorado | | 27-Jun-1968 | FCHarmston | DARose | 2 | CDC |
| *Aedes punctor* (Kirby) | Larimer | n/a | | | Pingree Park | | 10-Jul-1938 | MTJames | THGAitken | 1 | CSU |
| *Aedes punctor* (Kirby) | Larimer | Poudre Lakes | | | Poudre Lakes | | 4-8 July 1923 | HG Dyar | | 1 | WRBU |
| *Aedes punctor* (Kirby) | n/a | n/a | n/a | n/a | n/a | n/a | 21-May-1905 | FCHarmston | n/a | n/a | CDC |
| *Aedes punctor* (Kirby) | Park | n/a | | | Hwy 9 & CR 6 | | 12-Jul-2014 | DARose | DARose | 3 | CSU |
| *Aedes punctor* (Kirby) | Park | n/a | | | Hwy 9 mm 73.50 | | 12-Jul-2014 | DARose | DARose | 6 | CSU |
| *Aedes punctor* (Kirby) | Summit | n/a | | | Hwy 9 mm 83.25, N of Fairplay | | 12-Jul-2014 | DARose & CLPeters | DARose | 2 | CSU |

## *Aedes schizopinax*

| Species | County | City/Town | DecDeg N | DecDeg W | Location Notes | Altitude | Date | Collector | Determination | Series | Museum |
|---|---|---|---|---|---|---|---|---|---|---|---|
| *Aedes schizopinax* Dyar | Gunnison | Gunnison | | | Gunnison Colorado | | 27-Jun-1968 | FCHarmton | DARose | 24 | CDC |
| *Aedes schizopinax* Dyar | Gunnison | Gunnison | | | n/a | | 23-May-1968 | FCHarmton | FCHarmston | 18 | CDC |
| *Aedes schizopinax* Dyar | Gunnison | Gunnison | | | n/a | | 13-Jun-1961 | FCHarmton | FCHarmston | 1 | CDC |
| *Aedes schizopinax* Dyar | Larimer | n/a | | | Morgan Farm Cherokee Park | | 8-May-1994 | DWest | DWest | 10 | CSU |
| *Aedes schizopinax* Dyar | Ouray | Ridgway | | | Ridgway Colorado | | 1-Jun-1961 | FCHarmton | DARose | 1 | CDC |
| *Aedes schizopinax* Dyar | Park | n/a | | | Hwy 9 & CR 6 | | 12-Jul-2014 | DARose | DARose | 2 | CSU |

## *Aedes spencerii idahoensis* cont.

| Species | County | City/Town | DecDeg N | DecDeg W | Location Notes | Altitude | Date | Collector | Determination | Series | Museum |
|---|---|---|---|---|---|---|---|---|---|---|---|
| *Aedes spencerii idahoensis* (Theobald) | Alamosa | n/a | | | Sand Dunes Nat. Mon. | | 21-Jun-1955 | HGRodeck | DARose | 1 | UCM |
| *Aedes spencerii idahoensis* (Theobald) | Broomfield | Broomfield | 39.92350 | -105.01540 | n/a | 5195 ft. | 20-Jul-2010 | APartridge | DARose | 1 | CSU |
| *Aedes spencerii idahoensis* (Theobald) | Broomfield | Broomfield | | | n/a | | 20-Jul-2010 | APartridge | DARose | 1 | CSU |
| *Aedes spencerii idahoensis* (Theobald) | Chaffee | Buena Vista | | | n/a | | 2-Aug-1938 | MTJames & UNLanham | DARose | 2 | CSU |
| *Aedes spencerii idahoensis* (Theobald) | Eagle | n/a | | | 6 mi above Wolcott | | 16-Jul-1917 | PAndrews | unknown | 3 | WRBU |
| *Aedes spencerii idahoensis* (Theobald) | Eagle | n/a | | | Creek between Gypsum & Glenwood Springs via Cottonw | | 16-Jul-1917 | PAndrews | unknown | 2 | WRBU |
| *Aedes spencerii idahoensis* (Theobald) | Eagle | n/a | | | Hwy 131 mm 12.50 | | 29-Jun-2014 | DARose & CLPeters | DARose | 1 | CSU |
| *Aedes spencerii idahoensis* (Theobald) | Eagle | Eagle | | | Hwy 6 mm 151 | | 29-Jun-2014 | DARose & CLPeters | DARose | 1 | CSU |
| *Aedes spencerii idahoensis* (Theobald) | Eagle | n/a | | | Mouth of cross creek | | 14-Jul-1917 | PAndrews | unknown | 1 | WRBU |
| *Aedes spencerii idahoensis* (Theobald) | Garfield | n/a | | | 3 or 4 mi. above Carbondale, CO | | 19-Jul-1917 | PAndrews | unknown | 1 | WRBU |
| *Aedes spencerii idahoensis* (Theobald) | Garfield | n/a | 39.44375 | -108.04210 | Battlement Mesa | 5140 ft. | 14-Jun-2011 | CMC tech | DARose | 1 | CSU |
| *Aedes spencerii idahoensis* (Theobald) | Grand | Fraser | | | Fraser Colorado | | 23-Jun-1923 | HGDyar | unknown | 1 | WRBU |
| *Aedes spencerii idahoensis* (Theobald) | Grand | Granby | | | Granby Colorado | | 26-Jun-1923 | HGDyar | unknown | 1 | WRBU |
| *Aedes spencerii idahoensis* (Theobald) | Grand | Grand Lake | | | Grand Lake | | 10-Jun-1923 | HGDyar | unknown | 1 | WRBU |
| *Aedes spencerii idahoensis* (Theobald) | Grand | Grand Lake | | | Grand Lake | | 16-Jun-1923 | HGDyar | unknown | 1 | WRBU |
| *Aedes spencerii idahoensis* (Theobald) | Grand | Grand Lake | | | Grand Lake | | 17-Jun-1923 | HGDyar | unknown | 1 | WRBU |
| *Aedes spencerii idahoensis* (Theobald) | Grand | Grand Lake | | | Grand Lake | | 18-Jun-1923 | HGDyar | unknown | 1 | WRBU |
| *Aedes spencerii idahoensis* (Theobald) | Grand | Hot Sulphur Springs | | | n/a | | 26-Jun-1946 | MTJames | DARose | 14 | CSU |
| *Aedes spencerii idahoensis* (Theobald) | Gunnison | n/a | 38.54275 | -106.88415 | 2 mi. E of Gunnison on Tomichi Creek | 7710 ft. | 8-Jun-2008 | CMC tech | DARose | 2 | CSU |
| *Aedes spencerii idahoensis* (Theobald) | Gunnison | n/a | 38.54275 | -106.88415 | 5 mi. E of Gunnison on Tomichi Creek | 7710 ft. | 27-Jul-2005 | CMC tech | DARose | 2 | CSU |
| *Aedes spencerii idahoensis* (Theobald) | Gunnison | Gunnison | | | n/a | | 7-Sep-1967 | FCHarmston | n/a | 1 | CDC |
| *Aedes spencerii idahoensis* (Theobald) | Jackson | Walden | | | Chedsey Motel | | 14-Jun-2014 | DARose & BCKondratieff | DARose | 10 | CSU |
| *Aedes spencerii idahoensis* (Theobald) | Jackson | n/a | | | County Road 11 A | | 14-Jun-2014 | DARose & BCKondratieff | DARose | 10 | CSU |
| *Aedes spencerii idahoensis* (Theobald) | Jackson | n/a | | | County Road 18 crossing North Platte river | | 14-Jun-2014 | DARose & BCKondratieff | DARose | 5 | CSU |
| *Aedes spencerii idahoensis* (Theobald) | Jackson | n/a | | | County Road 7 at Independence Mountain | | 14-Jun-2014 | DARose & BCKondratieff | DARose | 4 | CSU |
| *Aedes spencerii idahoensis* (Theobald) | Jackson | n/a | | | CR 18 crossing N. Platte River | | 14-Jun-2014 | DARose & CLPeters | DARose | 4 | CSU |
| *Aedes spencerii idahoensis* (Theobald) | Jackson | n/a | | | CR 24 before Coalmont | | 14-Jun-2014 | DARose & BCKondratieff | DARose | 11 | CSU |
| *Aedes spencerii idahoensis* (Theobald) | Jackson | Walden | | | Diamond J SWA | | 14-Jun-2014 | DARose & BCKondratieff | DARose | 10 | CSU |
| *Aedes spencerii idahoensis* (Theobald) | Jackson | n/a | | | Hwy. 14 mm 41 | | 22-Jun-2013 | DARose | DARose | 34 | CSU |
| *Aedes spencerii idahoensis* (Theobald) | Jackson | n/a | | | Hwy. 14 mm 49 | | 22-Jun-2013 | DARose | DARose | 4 | CSU |
| *Aedes spencerii idahoensis* (Theobald) | Jackson | n/a | | | Hwy. 14 mm 57 | | 22-Jun-2013 | DARose | DARose | 1 | CSU |

## *Aedes spencerii idahoensis*

| Species | County | City/Town | DecDeg N | DecDeg W | Location Notes | Altitude | Date | Collector | Determination | Series | Museum |
|---|---|---|---|---|---|---|---|---|---|---|---|
| *Aedes spencerii idahoensis* (Theobald) | Jackson | Walden | | | n/a | | 28-Jul-1938 | n/a | DARose | 7 | CSU |
| *Aedes spencerii idahoensis* (Theobald) | Jackson | n/a | | | Odd Fellows State Wildlife Area County Road 20 | | 14-Jun-2014 | DARose & BCKondratieff | DARose | 8 | CSU |
| *Aedes spencerii idahoensis* (Theobald) | Jackson | n/a | | | Rabbit Ears Pass | | 18-Jul-1946 | MTJames | DARose | 1 | CSU |
| *Aedes spencerii idahoensis* (Theobald) | Jackson | n/a | | | Verner off CR 18 | | 13-Jun-2014 | BCKondraiteff | DARose | 4 | CSU |
| *Aedes spencerii idahoensis* (Theobald) | Larimer | n/a | | | Hwy 14 Ouzell Day Use Recreation Area mm 110 | | 13-Jun-2014 | DARose & CLPeters | DARose | 1 | CSU |
| *Aedes spencerii idahoensis* (Theobald) | Moffat | n/a | | | Big Bottom up to Maybell Bridge Boat Launch Yampa Ri | | 21-Jun-2014 | DARose & CLPeters | DARose | 3 | CSU |
| *Aedes spencerii idahoensis* (Theobald) | Moffat | n/a | | | CR 20, E of Wymore Gulch | | 21-Jun-2014 | DARose & CLPeters | DARose | 1 | CSU |
| *Aedes spencerii idahoensis* (Theobald) | Moffat | Maybell | | | n/a | | 25-Jun-1946 | n/a | DARose | 1 | CSU |
| *Aedes spencerii idahoensis* (Theobald) | Montezuma | Dolores | 37.49550 | -108.40825 | n/a | 7140 ft. | 27-Jun-2013 | CMC tech | DARose | 1 | CSU |
| *Aedes spencerii idahoensis* (Theobald) | Montezuma | Dolores | | | n/a | | 27-Jun-2013 | CMC tech | DARose | 1 | CSU |
| *Aedes spencerii idahoensis* (Theobald) | Park | Fairplay | | | n/a | | 22-Jun-1959 | LJOgden | n/a | 2 | CDC |
| *Aedes spencerii idahoensis* (Theobald) | Park | Como | | | n/a | | 22-May-1961 | n/a | n/a | 5 | CDC |
| *Aedes spencerii idahoensis* (Theobald) | Pitkin | Aspen | | | East Aspen | | 1-Jun-2006 | CMC tech | DARose | 3 | CSU |
| *Aedes spencerii idahoensis* (Theobald) | Pueblo | Avondale | 38.23830 | -104.34710 | Avondale | 4550 ft. | 25-Jun-2013 | CMC tech | DARose | 1 | CSU |
| *Aedes spencerii idahoensis* (Theobald) | Pueblo | Pueblo | | | n/a | | 25-Jun-2013 | CMC tech | DARose | 1 | CSU |
| *Aedes spencerii idahoensis* (Theobald) | Routt | n/a | | | Yampa SWA #1 DA-118 | | 21-Jun-2014 | DARose & CLPeters | DARose | 5 | CSU |
| *Aedes spencerii idahoensis* (Theobald) | Routt | n/a | | | Yampa SWA near Craig | | 21-Jun-2014 | DARose & CLPeters | DARose | 13 | CSU |
| *Aedes spencerii idahoensis* (Theobald) | Saguache | n/a | | | Hwy. 114 mm 13 | | 9-Jun-2013 | DARose | DARose | 1 | CSU |
| *Aedes spencerii idahoensis* (Theobald) | Saguache | n/a | | | Hwy. 114 mm 17.9 | | 9-Jun-2013 | DARose | DARose | 1 | CSU |
| *Aedes spencerii idahoensis* (Theobald) | Saguache | n/a | | | Hwy. 114 mm 8 | | 9-Jun-2013 | DARose | DARose | 1 | CSU |
| *Aedes spencerii idahoensis* (Theobald) | Saguache | n/a | | | John Smith Range, Cochetopa, Nat. Forest [Rio Grand Na | | 8-Jul-1911 | AKFisher | unknown | 6 | WRBU |
| *Aedes spencerii idahoensis* (Theobald) | Saguache | n/a | | | Whittier Range, Cochetopa Nat. Forest [Rio Grand Natior | | 9-Jul-1911 | AKFisher | unknown | 9 | WRBU |
| *Aedes spencerii idahoensis* (Theobald) | Teller | Florrisant | | | Florrisant | | 4-Jul-??? | TDACockerell | unknown | 1 | WRBU |
| *Aedes spencerii idahoensis* (Theobald) | Weld | Greeley | 40.44890 | -104.70490 | (GY-15) | 4660 ft. | 3-Jun-2014 | CMC tech | ADvanGulik | 1 | CSU |
| *Aedes spencerii idahoensis* (Theobald) | Weld | Greeley | 40.43035 | -104.78290 | (GY-21) | 4740 ft. | 17-Jun-2014 | CMC tech | ADvanGulik | 3 | CSU |
| *Aedes spencerii idahoensis* (Theobald) | | | | | Evan Marr Ranch | | 28-August-???? | MMarr | unknown | 1 | WRBU |
| *Aedes spencerii idahoensis* (Theobald) | | Ute Creek | | | Ute Creek | | 3-Jul-???? | L Bruner | A Stone | 2 | WRBU |

## *Aedes spencerii spencerii*

| Species | County | City/Town | DecDeg N | DecDeg W | Location Notes | Altitude | Date | Collector | Determination | Series | Museum |
|---|---|---|---|---|---|---|---|---|---|---|---|
| *Aedes spencerii* (Theobald) | Jackson | n/a | | | Arapahoe National Wildlife Refuge | | 14-Jun-2014 | DARose | DARose | 6 | CSU |
| *Aedes spencerii* (Theobald) | Jackson | Walden | | | Chedsey Motel | | 14-Jun-2014 | DARose | DARose | 7 | CSU |
| *Aedes spencerii* (Theobald) | Jackson | n/a | | | County Road 11A | | 14-Jun-2014 | DARose | DARose | 1 | CSU |
| *Aedes spencerii* (Theobald) | Jackson | n/a | | | CR 18 crossing N. Platte River | | 14-Jun-2014 | DARose & BCKondratieff | DARose | 3 | CSU |
| *Aedes spencerii* (Theobald) | Jackson | n/a | | | CR 24 before Coalmont | | 14-Jun-2014 | DARose & BCKondratieff | DARose | 4 | CSU |
| *Aedes spencerii* (Theobald) | Jackson | Walden | | | Diamond J SWA | | 14-Jun-2014 | DARose & BCKondratieff | DARose | 9 | CSU |
| *Aedes spencerii* (Theobald) | Jackson | n/a | | | Hwy. 14 mm 41 | | 22-Jun-2013 | DARose | DARose | 67 | CSU |
| *Aedes spencerii* (Theobald) | Jackson | n/a | | | Hwy. 14 mm 49 | | 22-Jun-2013 | DARose | DARose | 11 | CSU |
| *Aedes spencerii* (Theobald) | Jackson | Walden | | | Walden Information Center/ vistors center | | 22-Jun-2013 | DARose | DARose | 3 | CSU |
| *Aedes spencerii* (Theobald) | Moffat | n/a | | | Big Bottom Up to Maybell Bridge Boat Launch Yampa River DA-124 | | 21-Jun-2014 | DARose & CLPeters | DARose | 9 | CSU |
| *Aedes spencerii* (Theobald) | Morgan | Snyder | | | n/a | | 19-Jul-1972 | FCHarmton & LJOgden | DARose | 1 | CDC |

## *Aedes sticticus*

| Species | County | City/Town | DecDeg N | DecDeg W | Location Notes | Altitude | Date | Collector | Determination | Series | Museum |
|---|---|---|---|---|---|---|---|---|---|---|---|
| *Aedes sticticus* (Meigen) | Chaffee | Salida | | | River Bottom 3 mi. SW Salida | | 1-Jul-1917 | Henderson & Andrew | DARose | 1 | UCM |
| *Aedes sticticus* (Meigen) | Eagle | Minturn | | | "mouth of Cross Creek" | | 14-Jul-1917 | P. Andrews | DARose | 1 | UCM |
| *Aedes sticticus* (Meigen) | Larimer | Johnstown | 40.39260 | -104.99050 | Thompson River Ranch | 4850 ft. | 16-Jun-2011 | CMC tech | MJWeissmann | 1 | CSU |
| *Aedes sticticus* (Meigen) | Moffat | n/a | | | Big Bottom up to Maybell Bridge Boat Launch Yampa River DA-124 | | 21-Jun-2014 | DARose & CLPeters | DARose | 10 | CSU |
| *Aedes sticticus* (Meigen) | Moffat | n/a | | | CR 20, E of Wymore Gulch | | 21-Jun-2014 | DARose & CLPeters | DARose | 1 | CSU |
| *Aedes sticticus* (Meigen) | Routt | n/a | | | Yampa SWA #1 DA-118 | | 21-Jun-2014 | DARose & CLPeters | DARose | 23 | CSU |
| *Aedes sticticus* (Meigen) | Routt | n/a | | | Yampa SWA near Craig | | 21-Jun-2014 | DARose & CLPeters | DARose | 31 | CSU |
| *Aedes sticticus* (Meigen) | Ouray | Ridgway | | | n/a | | 1-Jun-1961 | FCHarsmton | FCHarmston | 1 | CDC |
| *Aedes sticticus* (Meigen) | San Juan | n/a | | | Molas Divide aka Molas Pass | | 1-Jul-1962 | FCHarsmton | FCHarmston | 1 | CDC |

## *Aedes triseriatus*

| Species | County | City/Town | DecDeg N | DecDeg W | Location Notes | Altitude | Date | Collector | Determination | Series | Note | Museum |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| *Aedes triseriatus* (Say) | Weld | Greeley | | | n/a | | 4-Jul-1965 | n/a | n/a | 27 | Confirmed by DARose | CDC |
| *Aedes triseriatus* (Say) | Weld | Greeley | | | n/a | | 5-Jul-1965 | n/a | n/a | 19 | Confirmed by DARose | CDC |
| *Aedes triseriatus* (Say) | Weld | Greeley | | | n/a | | 21-Jun-1965 | n/a | n/a | 7 | Confirmed by DARose | CDC |
| *Aedes triseriatus* (Say) | Weld | Greeley | | | n/a | | 30-Jun-1965 | n/a | n/a | 5 | Confirmed by DARose | CDC |
| *Aedes triseriatus* (Say) | Weld | Greeley | | | n/a | | 27-Jun-1965 | n/a | n/a | 5 | Confirmed by DARose | CDC |
| *Aedes triseriatus* (Say) | Weld | Greeley | | | n/a | | 23-Jun-1965 | n/a | n/a | 6 | Confirmed by DARose | CDC |

## *Aedes trivittatus*

| Species | County | City/Town | DecDeg N | DecDeg W | Location Notes | Altitude | Date | Collector | Determination | Series | Museum |
|---|---|---|---|---|---|---|---|---|---|---|---|
| *Aedes trivittatus* (Coquillett) | Adams | Brighton | 39.96485 | -104.80675 | n/a | 5020 ft. | 25-Aug-2010 | CMC tech | MJWeissmann | 2 | CSU |
| *Aedes trivittatus* (Coquillett) | Adams | Northglenn | 39.88855 | -104.97990 | n/a | 5290 ft. | 24-Aug-2010 | CMC tech | MJWeissmann | 3 | CSU |
| *Aedes trivittatus* (Coquillett) | Adams | Brighton | | | n/a | | 25-Aug-2010 | CMC tech | MJWeissmann | 2 | CSU |
| *Aedes trivittatus* (Coquillett) | Adams | Northglenn | | | n/a | | 24-Aug-2010 | CMC tech | MJWeissmann | 3 | CSU |
| *Aedes trivittatus* (Coquillett) | Baca | n/a | | | Carrizo Creek Camp Ground | | 13-Jul-2013 | DARose | DARose | 2 | CSU |
| *Aedes trivittatus* (Coquillett) | Bent | Hasty | | | Hasty Swim Beach | | 14-Jul-2013 | DARose | DARose | 1 | CSU |
| *Aedes trivittatus* (Coquillett) | Boulder | Boulder | | | Boulder | | ??-July-???? | TDA Cockerell | unknown | 2 | WRBU |
| *Aedes trivittatus* (Coquillett) | Boulder | Boulder | | | Boulder | | 30-Jun-???" | TDA Cockerell | unknown | 6 | WRBU |
| *Aedes trivittatus* (Coquillett) | Boulder | Boulder | 40.05135 | -105.17900 | Boulder Creek at 75th St. | 5120 ft. | 21-Jun-1985 | MJWeissmann | MJWeissmann | 25 | UCM |
| *Aedes trivittatus* (Coquillett) | Boulder | Boulder | 40.05135 | -105.17900 | Boulder Creek at 75th St. | 5120 ft. | 19-Jun-1985 | MJWeissmann | MJWeissmann | 4 | UCM |
| *Aedes trivittatus* (Coquillett) | Boulder | Boulder | | | Gunbarrel Area | | 29-Jun-1985 | MJWeissmann | MJWeissmann | 11 | UCM |
| *Aedes trivittatus* (Coquillett) | Boulder | Boulder | | | Gunbarrel Area | | 29-Jun-1985 | MJWeissmann | MJWeissmann | 8 | UCM |
| *Aedes trivittatus* (Coquillett) | Boulder | Longmont | 40.13525 | -105.12290 | Left Hand Creek | 4990 ft. | 20-Aug-2012 | CMC tech | MJWeissmann | 2 | CSU |
| *Aedes trivittatus* (Coquillett) | Boulder | Longmont | | | Left Hand Creek | | 20-Aug-2012 | CMC tech | MJWeissmann | 2 | CSU |

# *Aedes trivittatus* cont.

| Species | County | City/Town | DecDeg N | DecDeg W | Location Notes | Altitude | Date | Collector | Determination | Series | Museum |
|---|---|---|---|---|---|---|---|---|---|---|---|
| *Aedes trivittatus* (Coquillett) | Boulder | n/a | | | LT-1 Hovings | | 29-Jun-1984 | Boulder Co. Health Dept. | MJWeissmann | 2 | UCM |
| *Aedes trivittatus* (Coquillett) | Boulder | n/a | | | LT-1 Hovings | | 15-Jun-1984 | Boulder Co. Health Dept. | MJWeissmann | 4 | UCM |
| *Aedes trivittatus* (Coquillett) | Boulder | n/a | | | LT-1 Hovings | | 20-Sep-1984 | Boulder Co. Health Dept. | MJWeissmann | 1 | UCM |
| *Aedes trivittatus* (Coquillett) | Boulder | n/a | | | LT-17 Yost | | 14-Aug-1984 | Boulder Co. Health Dept. | MJWeissmann | 1 | UCM |
| *Aedes trivittatus* (Coquillett) | Boulder | n/a | | | LT-18 Rose | | 10-Jun-1983 | Boulder Co. Health Dept. | MJWeissmann | 1 | UCM |
| *Aedes trivittatus* (Coquillett) | Boulder | n/a | | | LT-2 Stanley | | 16-Aug-1983 | Boulder Co. Health Dept. | MJWeissmann | 1 | UCM |
| *Aedes trivittatus* (Coquillett) | Boulder | Longmont | | | LT-3 Grenada Ct. | | 26-Jun-1984 | Boulder Co. Health Dept. | MJWeissmann | 1 | UCM |
| *Aedes trivittatus* (Coquillett) | Boulder | n/a | | | LT-4 B Millers | | 17-Aug-1984 | Boulder Co. Health Dept. | MJWeissmann | 1 | UCM |
| *Aedes trivittatus* (Coquillett) | Boulder | n/a | | | LT-5 Gainor Lake | | 9-Jul-1984 | Boulder Co. Health Dept. | MJWeissmann | 4 | UCM |
| *Aedes trivittatus* (Coquillett) | Boulder | n/a | | | LT-6 Woodbourne Hollow | | 9-Aug-1983 | Boulder Co. Health Dept. | MJWeissmann | 1 | UCM |
| *Aedes trivittatus* (Coquillett) | Boulder | n/a | | | LT-7 Walden Ponds | | 29-Jun-1984 | Boulder Co. Health Dept. | MJWeissmann | 1 | UCM |
| *Aedes trivittatus* (Coquillett) | Boulder | Boulder | | | n/a | | 13-Sep-1935 | HGRodeck | MJWeissmann | 1 | UCM |
| *Aedes trivittatus* (Coquillett) | Boulder | Longmont | | | n/a | | 3-Jun-2013 | CMC tech | DARose | 1 | CSU |
| *Aedes trivittatus* (Coquillett) | Boulder | Longmont | | | n/a | | 12-Aug-2013 | DARose | DARose | 3 | CSU |
| *Aedes trivittatus* (Coquillett) | Boulder | Boulder | | | n/a | | 25-Jul-1941 | MTJames | DARose | 7 | CSU |
| *Aedes trivittatus* (Coquillett) | Boulder | Superior | 39.95200 | -105.16935 | n/a | 5490 ft. | 27-Aug-2012 | CMC tech | MJWeissmann | 5 | CSU |
| *Aedes trivittatus* (Coquillett) | Boulder | Longmont | | | n/a | | 13-Aug-2012 | CMC tech | MJWeissmann | 4 | CSU |
| *Aedes trivittatus* (Coquillett) | Boulder | Longmont | | | n/a | | 27-Aug-2012 | CMC tech | MJWeissmann | 1 | CSU |
| *Aedes trivittatus* (Coquillett) | Boulder | Longmont | | | n/a | | 6-Aug-2012 | CMC tech | MJWeissmann | 1 | CSU |
| *Aedes trivittatus* (Coquillett) | Boulder | Superior | | | n/a | | 27-Aug-2012 | CMC tech | MJWeissmann | 5 | CSU |
| *Aedes trivittatus* (Coquillett) | Boulder | Boulder | | | Quarry So. of Boulder | | 29-Jul-???? | TDA Cockerell | unknown | 3 | WRBU |
| *Aedes trivittatus* (Coquillett) | Boulder | Valmont | | | Valmont | | 1-Aug-???? | TDA Cockerell | unknown | 2 | WRBU |
| *Aedes trivittatus* (Coquillett) | Boulder | Lafayette | 39.99315 | -105.11625 | Waneka Lake | 5330 ft. | 26-Jun-1988 | MJWeissmann | MJWeissmann | 4 | UCM |
| *Aedes trivittatus* (Coquillett) | Boulder | Lafayette | | | Waneka Lake | | 26-Jun-1988 | MJWeissmann | MJWeissmann | 4 | UCM |
| *Aedes trivittatus* (Coquillett) | Boulder | | | | White Rocks | | 19-Jul-???? | TDA Cockerell | unknown | 1 | WRBU |
| *Aedes trivittatus* (Coquillett) | Broomfield | Broomfield | | | n/a | | 4-Jun-2013 | DARose | DARose | 1 | CSU |
| *Aedes trivittatus* (Coquillett) | Denver | Denver | | | Denver (Fitzimons Hospital) | | 3-Jul-1945 | Laskey | Laskey | 4 | WRBU |
| *Aedes trivittatus* (Coquillett) | El Paso | Yoder | | | Yoder | | 30-Aug-1951 | Gibson | Pratt | 1 | WRBU |
| *Aedes trivittatus* (Coquillett) | Fremont | Canon City | | | Canon City | | 9-Sep-1975 | GF Hevel | DARose | 6 | WRBU |
| *Aedes trivittatus* (Coquillett) | Larimer | Berthoud | | | Bonnell West | | 8-Jun-2014 | DARose | DARose | 3 | CSU |
| *Aedes trivittatus* (Coquillett) | Larimer | Fort Collins | | | Dixon Reservoir | | 23-Jul-1993 | DWest | DWest | 1 | CSU |
| *Aedes trivittatus* (Coquillett) | Larimer | Loveland | | | End of City Limits North | | 8-Jun-2014 | DARose | DARose | 1 | CSU |
| *Aedes trivittatus* (Coquillett) | Larimer | n/a | | | Hwy 14 Ouzell Day Use Recreation Area mm 110 | | 13-Jun-2014 | DARose & CLPeters | DARose | 3 | CSU |
| *Aedes trivittatus* (Coquillett) | Larimer | Fort Collins | | | Lee Martinez Park | | 15-Jul-1993 | SFitzgerald | DARose | 3 | CSU |
| *Aedes trivittatus* (Coquillett) | Larimer | Loveland | | | Linda & 26 St. South West | | 4-Jun-2014 | DARose | DARose | 5 | CSU |
| *Aedes trivittatus* (Coquillett) | Larimer | Fort Collins | | | n/a | | 2-Jun-1924 | n/a | DARose | 1 | CSU |
| *Aedes trivittatus* (Coquillett) | Larimer | Fort Collins | | | n/a | | 6-Jun-1941 | MTJames | DARose | 1 | CSU |
| *Aedes trivittatus* (Coquillett) | Larimer | Fort Collins | | | n/a | | 21-Aug-1941 | MTJames | DARose | 1 | CSU |
| *Aedes trivittatus* (Coquillett) | Larimer | Fort Collins | | | n/a | | 19-Aug-1942 | MTJames | DARose | 1 | CSU |
| *Aedes trivittatus* (Coquillett) | Larimer | Fort Collins | | | n/a | | 18-Aug-1942 | MTJames | DARose | 1 | CSU |
| *Aedes trivittatus* (Coquillett) | Larimer | Fort Collins | | | n/a | | 13-Aug-1942 | MTJames | DARose | 1 | CSU |
| *Aedes trivittatus* (Coquillett) | Lincoln | Limon | | | Limon | | 12-Sep-1930 | FC Bishop | unknown | 1 | WRBU |

## *Aedes trivittatus* cont.

| Species | County | City/Town | DecDeg N | DecDeg W | Location Notes | Altitude | Date | Collector | Determination | Series | Museum |
|---|---|---|---|---|---|---|---|---|---|---|---|
| *Aedes trivittatus* (Coquillett) | Montrose | Naturita | | | Downtown Naturita | | 21-Jul-2013 | DARose | DARose | 1 | CSU |
| *Aedes trivittatus* (Coquillett) | Montrose | n/a | | | Hwy. 90 mm 32 | | 21-Jul-2013 | DARose | DARose | 2 | CSU |
| *Aedes trivittatus* (Coquillett) | Montrose | n/a | | | Junction Hwy. 141 & Hwy. 90 | | 21-Jul-2013 | DARose | DARose | 2 | CSU |
| *Aedes trivittatus* (Coquillett) | Montrose | Nucla | | | Top End Nucla | | 21-Jul-2013 | DARose | DARose | 1 | CSU |
| *Aedes trivittatus* (Coquillett) | Weld | Longmont | 40.15335 | -105.04045 | East Longmont Sandstone Ranch | 4895 ft. | 6-Aug-2012 | CMC tech | MJWeissmann | 2 | CSU |
| *Aedes trivittatus* (Coquillett) | Weld | Longmont | | | East Longmont Sandstone Ranch | | 6-Aug-2012 | CMC tech | MJWeissmann | 2 | CSU |
| *Aedes trivittatus* (Coquillett) | Weld | n/a | | | Hwy 14 and CR 57 | | 10-Aug-2014 | DARose | DARose | 3 | CSU |
| *Aedes trivittatus* (Coquillett) | Weld | n/a | | | Hwy 14 Crow Valley National Campground | | 10-Aug-2014 | DARose | DARose | 1 | CSU |
| *Aedes trivittatus* (Coquillett) | Weld | Longmont | 40.14240 | -105.00325 | Lighthouse Cove | 4870 ft. | 28-Aug-2012 | CMC tech | MJWeissmann | 1 | CSU |
| *Aedes trivittatus* (Coquillett) | Weld | Longmont | | | Lighthouse Cove | | 28-Aug-2012 | CMC tech | MJWeissmann | 1 | CSU |
| *Aedes trivittatus* (Coquillett) | Weld | Roggen | | | n/a | | 15-Aug-1941 | MTJames | DARose | 2 | CSU |
| *Aedes trivittatus* (Coquillett) | Weld | Johnstown | 40.33705 | -104.95970 | n/a | 4980 ft. | 14-Aug-2012 | CMC tech | MJWeissmann | 1 | CSU |
| *Aedes trivittatus* (Coquillett) | Weld | Windsor | | | n/a | | 19-Jun-1962 | FCHarmston | DARose | 1 | CSU |
| *Aedes trivittatus* (Coquillett) | Weld | Johnstown | | | n/a | | 14-Aug-2012 | CMC tech | MJWeissmann | 1 | CSU |
| *Aedes trivittatus* (Coquillett) | Weld | n/a | | | T1NR68WB23 | | 31-Aug-1964 | LR Ertle | unknown | 3 | WRBU |
| *Aedes trivittatus* (Coquillett) | Weld | n/a | | | T1NR68WB23 | | 21-Oct-1964 | LR Ertle | unknown | 2 | WRBU |
| *Aedes trivittatus* (Coquillett) | Weld | n/a | | | T1NR68WB23 | | 8-Sep-1964 | LR Ertle | unknown | 3 | WRBU |
| *Aedes trivittatus* (Coquillett) | Weld | n/a | | | T1NR68WB24 | | 24-Jul-1964 | LR Ertle | unknown | 2 | WRBU |
| *Aedes trivittatus* (Coquillett) | Weld | n/a | | | T1NR68WB24 | | 21-Aug-1964 | LR Ertle | unknown | 4 | WRBU |
| *Aedes trivittatus* (Coquillett) | Weld | n/a | | | T1NR68WB24 | | 20-Aug-1964 | LR Ertle | unknown | 2 | WRBU |
| *Aedes trivittatus* (Coquillett) | Weld | n/a | | | T1NR68WB24 | | 27-Jul-1964 | LR Ertle | unknown | 2 | WRBU |
| *Aedes trivittatus* (Coquillett) | Weld | n/a | | | T1NR68WB24 | | 24-Jul-1964 | LR Ertle | unknown | 1 | WRBU |
| *Aedes trivittatus* (Coquillett) | Weld | n/a | | | T1NR69WB22 | | 31-Aug-1964 | LR Ertle | unknown | 1 | WRBU |
| *Aedes trivittatus* (Coquillett) | Weld | n/a | | | T1NR69WB22 | | 8-Sep-1964 | LR Ertle | unknown | 1 | WRBU |
| *Aedes trivittatus* (Coquillett) | Weld | n/a | | | T1NR69WB24 | | 21-Aug-1964 | LR Ertle | unknown | 2 | WRBU |
| *Aedes trivittatus* (Coquillett) | Weld | n/a | | | T1NR69WB24 | | 27-Jul-1964 | LR Ertle | unknown | 1 | WRBU |
| *Aedes trivittatus* (Coquillett) | | Devoe | | | Devoe, Colorado | | ???? | R. Fritz | unknown | 1 | WRBU |
| *Aedes trivittatus* (Coquillett) | | Oxford | | | Oxford (Mt. Oxford? Chaffee Co.) | | 1-Sep-1918 | LM Way | unknown | 3 | WRBU |

## *Aedes vexans*

| Species | County | City/Town | DecDeg N | DecDeg W | Location Notes | Altitude | Date | Collector | Determination | Series | Museum |
|---|---|---|---|---|---|---|---|---|---|---|---|
| *Aedes vexans* (Meigen) | Adams | Brighton | 39.93715 | -104.75310 | Barr Lake State Park | 5100 ft. | 23-May-1985 | CSeidman & MWeissmann | MJWeissmann | 9 | UCM |
| *Aedes vexans* (Meigen) | Adams | Brighton | 39.93715 | -104.75310 | Barr Lake State Park | 5100 ft. | 27-May-1987 | MJWeissmann | MJWeissmann | 1 | UCM |
| *Aedes vexans* (Meigen) | Adams | Northglenn | 39.83720 | -104.96860 | Welby | 5150 ft. | 24-Aug-2010 | CMC tech | MJWeissmann | 2 | CSU |
| *Aedes vexans* (Meigen) | Arapahoe | Littleton | | | Chatfield State Park | | 19-Jun-2011 | Bkondratieff | MJWeissmann | 1 | CSU |
| *Aedes vexans* (Meigen) | Arapahoe | Aurora | | | n/a | | 31-Jul-2013 | CMC tech | DARose | 1 | CSU |
| *Aedes vexans* (Meigen) | Bent | Hasty | | | Hasty Cemetery | | 14-Jul-2013 | DARose | DARose | 2 | CSU |
| *Aedes vexans* (Meigen) | Bent | Hasty | | | J. Martin Dam | | 22-Aug-1960 | R.K. Dreisbach | unknown | 1 | WRBU |
| *Aedes vexans* (Meigen) | Bent | Las Animas | | | Las Animas | | 27-Jun-1948 | LD Beadle | DARose | 1 | WRBU |
| *Aedes vexans* (Meigen) | Bent | Lamar | | | Rd. 34.5 | | 14-Jul-2013 | DARose | DARose | 1 | CSU |

# *Aedes vexans* cont.

| Species | County | City/Town | DecDeg N | DecDeg W | Location Notes | Altitude | Date | Collector | Determination | Series | Museum |
|---|---|---|---|---|---|---|---|---|---|---|---|
| *Aedes vexans* (Meigen) | Boulder | Longmont | 40.18920 | -105.05975 | (LM-03) | 4995 ft. | 4-Aug-2014 | CMC tech | MJWeissmann | 1 | CSU |
| *Aedes vexans* (Meigen) | Boulder | Boulder | | | Boulder | | 13-Aug-???? | TDACockerell | TDACockerell | 1 | WRBU |
| *Aedes vexans* (Meigen) | Boulder | Boulder | | | Boulder | | ??-Jul-???? | TDACockerell | TDACockerell | 1 | WRBU |
| *Aedes vexans* (Meigen) | Boulder | Boulder | 40.05135 | -105.17900 | Boulder Creek at 75th St. | 5120 ft. | 23-May-1985 | CSeidman & MWeissmann | MJWeissmann | 3 | UCM |
| *Aedes vexans* (Meigen) | Boulder | Boulder | 40.05135 | -105.17900 | Boulder Creek at 75th St. | 5120 ft. | 19-Jun-1985 | MJWeissmann | MJWeissmann | 7 | UCM |
| *Aedes vexans* (Meigen) | Boulder | Boulder | 40.05135 | -105.17900 | Boulder Creek at 75th St. | 5120 ft. | 21-Jun-1985 | MJWeissmann | MJWeissmann | 7 | UCM |
| *Aedes vexans* (Meigen) | Boulder | Boulder | | | Gunbarrel Area | | 29-Jun-1985 | MJWeissmann | MJWeissmann | 23 | UCM |
| *Aedes vexans* (Meigen) | Boulder | Boulder | | | Gunbarrel Area Stonegate Apts. | | 24-Jul-1985 | MJWeissmann | MJWeissmann | 18 | UCM |
| *Aedes vexans* (Meigen) | Boulder | Boulder | | | Gunbarrel Area Stonegate Apts. | | 25-Jul-1985 | MJWeissmann | MJWeissmann | 6 | UCM |
| *Aedes vexans* (Meigen) | Boulder | Boulder | | | Gunbarrel Area Stonegate Apts. | | 24-Jul-1985 | MJWeissmann | MJWeissmann | 29 | UCM |
| *Aedes vexans* (Meigen) | Boulder | Boulder | | | Gunbarrel Area Stonegate Apts. | | 25-Jul-1985 | MJWeissmann | MJWeissmann | 10 | UCM |
| *Aedes vexans* (Meigen) | Boulder | Lafayette | 39.99315 | -105.11625 | Lake Waneka | 5330 ft. | 26-Jun-1988 | MJWeissmann | MJWeissmann | 13 | UCM |
| *Aedes vexans* (Meigen) | Boulder | Longmont | 40.13525 | -105.12290 | Left Hand Creek | 4990 ft. | 20-Aug-2012 | CMC tech | MJWeissmann | 1 | CSU |
| *Aedes vexans* (Meigen) | Boulder | | | | LT-1 Hovings | | 9-Jun-1983 | Boulder Co. Health Dept. | MJWeissmann | 1 | UCM |
| *Aedes vexans* (Meigen) | Boulder | | | | LT-1 Hovings | | 21-Jun-1983 | Boulder Co. Health Dept. | MJWeissmann | 1 | UCM |
| *Aedes vexans* (Meigen) | Boulder | | | | LT-1 Hovings | | 20-Jul-1983 | Boulder Co. Health Dept. | MJWeissmann | 1 | UCM |
| *Aedes vexans* (Meigen) | Boulder | | | | LT-1 Hovings | | 15-Jun-1984 | Boulder Co. Health Dept. | MJWeissmann | 4 | UCM |
| *Aedes vexans* (Meigen) | Boulder | | | | LT-1 Hovings | | 29-Jun-1984 | Boulder Co. Health Dept. | MJWeissmann | 5 | UCM |
| *Aedes vexans* (Meigen) | Boulder | | | | LT-1 Hovings | | 16-Jul-1984 | Boulder Co. Health Dept. | MJWeissmann | 7 | UCM |
| *Aedes vexans* (Meigen) | Boulder | | | | LT-1 Hovings | | 14-Aug-1984 | Boulder Co. Health Dept. | MJWeissmann | 1 | UCM |
| *Aedes vexans* (Meigen) | Boulder | | | | LT-11 Lyons | | 16-Jul-1984 | Boulder Co. Health Dept. | MJWeissmann | 1 | UCM |
| *Aedes vexans* (Meigen) | Boulder | | | | LT-12 Omaha Place | | 18-Jul-1984 | Boulder Co. Health Dept. | MJWeissmann | 1 | UCM |
| *Aedes vexans* (Meigen) | Boulder | | | | LT-16 Kenosha | | 20-Jun-1983 | Boulder Co. Health Dept. | MJWeissmann | 1 | UCM |
| *Aedes vexans* (Meigen) | Boulder | | | | LT-17 Yost | | 16-Jul-1984 | Boulder Co. Health Dept. | MJWeissmann | 1 | UCM |
| *Aedes vexans* (Meigen) | Boulder | | | | LT-19 Bross | | 10-Jun-1983 | Boulder Co. Health Dept. | MJWeissmann | 1 | UCM |
| *Aedes vexans* (Meigen) | Boulder | | | | LT-2 Stanley | | 16-Aug-1983 | Boulder Co. Health Dept. | MJWeissmann | 3 | UCM |
| *Aedes vexans* (Meigen) | Boulder | | | | LT-2 Stanley | | 29-Jun-1984 | Boulder Co. Health Dept. | MJWeissmann | 2 | UCM |
| *Aedes vexans* (Meigen) | Boulder | | | | LT-2 Stanley | | 15-Jun-1984 | Boulder Co. Health Dept. | MJWeissmann | 5 | UCM |
| *Aedes vexans* (Meigen) | Boulder | | | | LT-24 McCormick | | 11-Jul-1983 | Boulder Co. Health Dept. | MJWeissmann | 1 | UCM |
| *Aedes vexans* (Meigen) | Boulder | | | | LT-24 McCormick | | 29-Jun-1984 | Boulder Co. Health Dept. | MJWeissmann | 1 | UCM |
| *Aedes vexans* (Meigen) | Boulder | Longmont | | | LT-3 Granada Ct. | | 18-Jul-1984 | Boulder Co. Health Dept. | MJWeissmann | 2 | UCM |
| *Aedes vexans* (Meigen) | Boulder | Longmont | | | LT-3 Granada Ct. | | 26-Jun-1984 | Boulder Co. Health Dept. | MJWeissmann | 2 | UCM |
| *Aedes vexans* (Meigen) | Boulder | Longmont | | | LT-3 Granada Ct. | | 13-Jun-1984 | Boulder Co. Health Dept. | MJWeissmann | 1 | UCM |
| *Aedes vexans* (Meigen) | Boulder | | | | LT-5 Gainor Lake | | 15-Aug-1984 | Boulder Co. Health Dept. | MJWeissmann | 2 | UCM |
| *Aedes vexans* (Meigen) | Boulder | | | | LT-6 Mazal | | 15-Jun-1984 | Boulder Co. Health Dept. | MJWeissmann | 1 | UCM |
| *Aedes vexans* (Meigen) | Boulder | | | | LT-7 Walden Ponds | | 29-Jun-1984 | Boulder Co. Health Dept. | MJWeissmann | 1 | UCM |
| *Aedes vexans* (Meigen) | Boulder | | | | LT-8 Munsons | | 11-Jul-1983 | Boulder Co. Health Dept. | MJWeissmann | 1 | UCM |
| *Aedes vexans* (Meigen) | Boulder | Longmont | | | n/a | | 5-Jun-1946 | MTJames | n/a | 1 | CSU |
| *Aedes vexans* (Meigen) | Boulder | Boulder | | | n/a | | 23-Jun-1941 | MTJames | n/a | 12 | CSU |
| *Aedes vexans* (Meigen) | Boulder | Boulder | | | n/a | | 25-Jul-1941 | MTJames | n/a | 1 | CSU |
| *Aedes vexans* (Meigen) | Boulder | Longmont | | | n/a | | 22-Sep-1991 | MJWeissmann | MJWeissmann | 1 | CSU |
| *Aedes vexans* (Meigen) | Boulder | Lafayette | | | n/a | | 3-Jun-2013 | CMC tech | DARose | 1 | CSU |
| *Aedes vexans* (Meigen) | Boulder | Erie | 40.04935 | -105.04980 | Old town Erie | 5025 ft. | 20-Aug-2012 | CMC tech | MJWeissmann | 1 | CSU |

## *Aedes vexans* cont.

| Species | County | City/Town | DecDeg N | DecDeg W | Location Notes | Altitude | Date | Collector | Determination | Series | Museum |
|---|---|---|---|---|---|---|---|---|---|---|---|
| *Aedes vexans* (Meigen) | Boulder | Valmont | | | Valmont | | 1-Aug-???? | TDACockerell | TDACockerell | 2 | WRBU |
| *Aedes vexans* (Meigen) | Boulder | White Rocks | | | White Rocks | | 19-Jul-???? | TDACockerell | TDACockerell | 5 | WRBU |
| *Aedes vexans* (Meigen) | Broomfield | Broomfield | 39.93260 | -105.10940 | Josh's Pond | 5355 ft. | 22-Aug-2012 | CMC tech | MJWeissmann | 1 | CSU |
| *Aedes vexans* (Meigen) | Broomfield | Broomfield | 39.93480 | -105.07765 | Miramonte Park | 5400 ft. | 5-Aug-1985 | MJWeissmann | MJWeissmann | 1 | UCM |
| *Aedes vexans* (Meigen) | Broomfield | Broomfield | 39.93695 | -105.01710 | Zuni Reservoir | 5205 ft. | 15-Aug-2012 | CMC tech | MJWeissmann | 2 | CSU |
| *Aedes vexans* (Meigen) | Denver | Denver | | | Denver | | ??-Aug-???? | E.S. Tucker | unknown | 2 | WRBU |
| *Aedes vexans* (Meigen) | Denver | Stapleton | 39.76475 | -104.87535 | n/a | 5275 ft. | 25-Aug-2010 | CMC tech | MJWeissmann | 1 | CSU |
| *Aedes vexans* (Meigen) | Denver | Stapleton | | | n/a | | 25-Aug-2010 | CMC tech | MJWeissmann | 1 | CSU |
| *Aedes vexans* (Meigen) | Douglas | Parker | | | n/a | | 4-Jun-2013 | CMC tech | DARose | 1 | CSU |
| *Aedes vexans* (Meigen) | Eagle | | | | btwn. Gypsum & Glenwood Springs | | 16-Jul-1917 | Phil Andrews | TDACockerell | 2 | UCM |
| *Aedes vexans* (Meigen) | Eagle | Eagle | | | Hwy 6 mm 154.50 | | 29-Jun-2014 | DARose & CLPeters | DARose | 3 | CSU |
| *Aedes vexans* (Meigen) | Eagle | n/a | | | Hwy 6 mm 157 | | 29-Jun-2014 | DARose & CLPeters | DARose | 1 | CSU |
| *Aedes vexans* (Meigen) | Eagle | n/a | | | Hwy 6, 1 mi SE of Jct. w/ Hwy131 | | 29-Jun-2014 | DARose & CLPeters | DARose | 1 | CSU |
| *Aedes vexans* (Meigen) | El Paso | Fountain | | | Fountain | | 14-Jun-1966 | FC Harmston | DARose | 12 | CSU |
| *Aedes vexans* (Meigen) | Fremont | Canyon City | | | Canon City | | 6-Aug-1973 | G. F. Hevel | DARose | 12 | WRBU |
| *Aedes vexans* (Meigen) | Fremont | Canyon City | | | Canon City | | 9-Sep-1975 | G. F. Hevel | DARose | 14 | WRBU |
| *Aedes vexans* (Meigen) | Fremont | Canyon City | | | Canyon City | | 9-Sep-1966 | G.F. Hevel | unknown | 2 | WRBU |
| *Aedes vexans* (Meigen) | Garfield | | | | 13 mi. above Glenwood Springs | | 2-Aug-1917 | Phil Andrews | TDACockerell | 4 | UCM |
| *Aedes vexans* (Meigen) | Garfield | | | | Rifle Range near Baldwin | | 6-Sep-2014 | Meader & Cockerell | TDACockerell | 1 | UCM |
| *Aedes vexans* (Meigen) | Jefferson | Lakewood | | | Hayden Green Mt. Park | | 19-Sep-1991 | RSBeal | n/a | 1 | CSU |
| *Aedes vexans* (Meigen) | Jefferson | Evergreen | | | n/a | | 17-Jul-1941 | MTJames | n/a | 1 | CSU |
| *Aedes vexans* (Meigen) | Jefferson | Lakewood | | | n/a | | 5-Aug-2003 | MJWeissmann | MJWeissmann | 1 | CSU |
| *Aedes vexans* (Meigen) | Lake | | | | Tennessee Pass | | 24-Jul-1917 | unknown | unknown | 1 | WRBU |
| *Aedes vexans* (Meigen) | Larimer | Fort Collins | | | Apple Wood Estates | | 20-Aug-1966 | JHShaw | JHSHaw | 1 | CSU |
| *Aedes vexans* (Meigen) | Larimer | Fort Collins | | | Apple Wood Estates | | 26-Aug-1966 | JHShaw | JHSHaw | 1 | CSU |
| *Aedes vexans* (Meigen) | Larimer | Fort Collins | | | Apple Wood Estates | | 24-Aug-1966 | JHShaw | JHSHaw | 1 | CSU |
| *Aedes vexans* (Meigen) | Larimer | Fort Collins | | | Apple Wood Estates | | 18-Jul-1966 | JHShaw | JHSHaw | 1 | CSU |
| *Aedes vexans* (Meigen) | Larimer | Loveland | | | Big Thompson River Natural Area | | 8-Jun-2014 | DARose | DARose | 2 | CSU |
| *Aedes vexans* (Meigen) | Larimer | Fort Collins | | | Cattail Marsh | | 21-Jul-1966 | JHShaw | JHSHaw | 1 | CSU |
| *Aedes vexans* (Meigen) | Larimer | Fort Collins | | | Dixon Reservoir | | 23-Jul-1993 | Dwest | Dwest | 18 | CSU |
| *Aedes vexans* (Meigen) | Larimer | Fort Collins | | | Dixon Reservoir | | 23-Jul-1993 | Dwest | Dwest | 2 | CSU |
| *Aedes vexans* (Meigen) | Larimer | Fort Collins | | | Egert & Rookery Fossil Creek Resivour | | 9-Jun-2014 | DARose | DARose | 4 | CSU |
| *Aedes vexans* (Meigen) | Larimer | Fort Collins | | | Fort Collins | | 26-July ???? | TDACockerell | TDACockerell | 1 | WRBU |
| *Aedes vexans* (Meigen) | Larimer | Fort Collins | | | From E Prospect | | 31-May-1938 | Eheiss | n/a | 11 | CSU |
| *Aedes vexans* (Meigen) | Larimer | n/a | | | Hwy 14 Ouzell Day Use Recreation Area mm 110 | | 13-Jun-2014 | DARose & CLPeters | DARose | 1 | CSU |
| *Aedes vexans* (Meigen) | Larimer | Johnstown | 40.39260 | -104.99050 | Johnstown River Ranch | 4850 ft. | 23-Aug-2012 | CMC tech | MJWeissmann | 1 | CSU |
| *Aedes vexans* (Meigen) | Larimer | Fort Collins | | | n/a | | 10-Jun-1942 | MAPalmer | n/a | 1 | CSU |
| *Aedes vexans* (Meigen) | Larimer | Fort Collins | | | n/a | | 6-Jun-1941 | MTJames | n/a | 1 | CSU |
| *Aedes vexans* (Meigen) | Larimer | Fort Collins | | | n/a | | 29-Jul-1941 | MTJames | n/a | 22 | CSU |
| *Aedes vexans* (Meigen) | Larimer | Fort Collins | | | n/a | | 1-Aug-1941 | MTJames | n/a | 17 | CSU |
| *Aedes vexans* (Meigen) | Larimer | Fort Collins | | | n/a | | 6-Jun-1941 | MTJames | n/a | 16 | CSU |
| *Aedes vexans* (Meigen) | Larimer | Fort Collins | | | n/a | | 6-Aug-1935 | Rswain | n/a | 2 | CSU |
| *Aedes vexans* (Meigen) | Larimer | Fort Collins | | | n/a | | 12-Jun-1936 | n/a | n/a | 1 | CSU |

# ***Aedes vexans* cont.**

| Species | County | City/Town | DecDeg N | DecDeg W | Location Notes | Altitude | Date | Collector | Determination | Series | Museum |
|---|---|---|---|---|---|---|---|---|---|---|---|
| *Aedes vexans* (Meigen) | Larimer | Fort Collins | | | n/a | | 2-Aug-1941 | Rswain | n/a | 6 | CSU |
| *Aedes vexans* (Meigen) | Larimer | Fort Collins | | | n/a | | 13-Aug-1941 | MAPalmer | n/a | 4 | CSU |
| *Aedes vexans* (Meigen) | Larimer | Fort Collins | | | n/a | | 23-Jul-1941 | MYRagan | n/a | 3 | CSU |
| *Aedes vexans* (Meigen) | Larimer | Fort Collins | | | n/a | | 11-Sep-1941 | MAPalmer | n/a | 3 | CSU |
| *Aedes vexans* (Meigen) | Larimer | Fort Collins | | | n/a | | 18-Jun-1941 | MAPalmer | n/a | 1 | CSU |
| *Aedes vexans* (Meigen) | Larimer | Fort Collins | | | n/a | | 5-Jun-1942 | MAPalmer | n/a | 1 | CSU |
| *Aedes vexans* (Meigen) | Larimer | Fort Collins | | | n/a | | 5-Jun-1941 | MTJames | n/a | 2 | CSU |
| *Aedes vexans* (Meigen) | Larimer | Fort Collins | | | n/a | | 24-Jun-1941 | MTJames | n/a | 4 | CSU |
| *Aedes vexans* (Meigen) | Larimer | Fort Collins | | | n/a | | 10-Jun-1942 | MAPalmer | n/a | 2 | CSU |
| *Aedes vexans* (Meigen) | Larimer | Fort Collins | | | n/a | | 26-Jun-1941 | MAPalmer | n/a | 2 | CSU |
| *Aedes vexans* (Meigen) | Larimer | Fort Collins | | | n/a | | 30-Aug-1941 | MAPalmer | n/a | 2 | CSU |
| *Aedes vexans* (Meigen) | Larimer | Fort Collins | | | n/a | | 10-Jul-1935 | MTJames | n/a | 1 | CSU |
| *Aedes vexans* (Meigen) | Larimer | Fort Collins | | | n/a | | 3-Jun-1942 | MAPalmer | n/a | 1 | CSU |
| *Aedes vexans* (Meigen) | Larimer | Fort Collins | | | n/a | | 28-Aug-1941 | MAPalmer | n/a | 2 | CSU |
| *Aedes vexans* (Meigen) | Larimer | Fort Collins | | | n/a | | 24-Jun-1941 | MAPalmer | n/a | 2 | CSU |
| *Aedes vexans* (Meigen) | Larimer | Fort Collins | | | n/a | | 2-Sep-1941 | MTJames | n/a | 3 | CSU |
| *Aedes vexans* (Meigen) | Larimer | Fort Collins | | | n/a | | 4-Jun-1941 | MTJames | n/a | 2 | CSU |
| *Aedes vexans* (Meigen) | Larimer | Fort Collins | | | n/a | | 29-Jul-1941 | MYRagan | n/a | 1 | CSU |
| *Aedes vexans* (Meigen) | Larimer | Fort Collins | | | n/a | | | MAPalmer | n/a | 1 | CSU |
| *Aedes vexans* (Meigen) | Larimer | Fort Collins | | | n/a | | 20-Jun-1941 | MAPalmer | n/a | 1 | CSU |
| *Aedes vexans* (Meigen) | Larimer | Fort Collins | | | n/a | | 19-Jun-1941 | MAPalmer | n/a | 1 | CSU |
| *Aedes vexans* (Meigen) | Larimer | Fort Collins | | | n/a | | 2-Sep-1941 | MAPalmer | n/a | 1 | CSU |
| *Aedes vexans* (Meigen) | Larimer | Fort Collins | | | n/a | | 7-Jul-1941 | MAPalmer | n/a | 1 | CSU |
| *Aedes vexans* (Meigen) | Larimer | Fort Collins | | | n/a | | 21-Jun-2010 | Bkondratieff | n/a | 1 | CSU |
| *Aedes vexans* (Meigen) | Larimer | Fort Collins | | | n/a | | 5-Aug-2011 | Bkondratieff | MJWeissmann | 1 | CSU |
| *Aedes vexans* (Meigen) | Larimer | Fort Collins | | | n/a | | 21-Aug-1941 | MAPalmer | n/a | 1 | CSU |
| *Aedes vexans* (Meigen) | Larimer | n/a | | | Ouzel Day Use Recreational Area Hwy 14 mm 110 | | 13-Jun-2014 | DARose | DARose | 2 | CSU |
| *Aedes vexans* (Meigen) | Larimer | Fort Collins | | | Poudre River Drive on Poudre River | | 9-Jun-2014 | DARose | DARose | 1 | CSU |
| *Aedes vexans* (Meigen) | Larimer | Timnath | | | Walmart Poudre River Access | | 10-Jun-2014 | DARose | DARose | 2 | CSU |
| *Aedes vexans* (Meigen) | Larimer | Windsor | | | Windsor | | 19-Jun-1962 | FCHarmston | DARose | 31 | CSU |
| *Aedes vexans* (Meigen) | Logan | Crook | | | Crook Colorado | | 22-May-1973 | FCHarmston & LJOgden | DARose | 1 | CSU |
| *Aedes vexans* (Meigen) | Logan | Crook | | | Crook Colorado | | 22-May-1973 | FCHarmston & LJOgden | DARose | 1 | CDC |
| *Aedes vexans* (Meigen) | Logan | n/a | | | Hwy 14 and CR 17 | | 10-Aug-2014 | DARose & CLPeters | DARose | 1 | CSU |
| *Aedes vexans* (Meigen) | Logan | n/a | | | Hwy 14 and CR 25 | | 10-Aug-2014 | DARose & CLPeters | DARose | 4 | CSU |
| *Aedes vexans* (Meigen) | Logan | Sterling | | | Sterling | | 19-Jun-1973 | FCHarmston & LJOgden | DARose | 6 | CSU |
| *Aedes vexans* (Meigen) | Logan | Sterling | | | Walmart in vegatation in SE part of parking lot | | 10-Aug-2014 | DARose & CLPeters | DARose | 3 | CSU |
| *Aedes vexans* (Meigen) | Mesa | | | | 4 mi. W. of Mesa | | 18-Jun-1938 | UNLanham | MJWeissmann | 1 | UCM |
| *Aedes vexans* (Meigen) | Mesa | | | | Colorado National Monument | | | | MJWeissmann | 1 | UCM |
| *Aedes vexans* (Meigen) | Mesa | Grand Junction | | | Grand Junction | | 23-Jul-1906 | unknown | unknown | 41 | WRBU |
| *Aedes vexans* (Meigen) | Mesa | Grand Junction | | | Grand Junction | | 21-Jul-1906 | unknown | unknown | 8 | WRBU |
| *Aedes vexans* (Meigen) | Mesa | Grand Junction | | | Grand Junction | | 27-May-1911 | G.P. Weldon | unknown | 1 | WRBU |
| *Aedes vexans* (Meigen) | Mesa | Grand Junction | | | Grand Junction | | 24-May-1911 | G.P. Weldon | unknown | 1 | WRBU |
| *Aedes vexans* (Meigen) | Mesa | Grand Junction | | | Grand Junction | | 14-Jun-1927 | J. M. Aldrich | unknown | 3 | WRBU |

# *Aedes vexans* cont.

| Species | County | City/Town | DecDeg N | DecDeg W | Location Notes | Altitude | Date | Collector | Determination | Series | Museum |
|---|---|---|---|---|---|---|---|---|---|---|---|
| *Aedes vexans* (Meigen) | Mesa | n/a | | | Hwy 65 at Big Wash Creek | | 16-Aug-2014 | DARose & CLPeters | DARose | 2 | CSU |
| *Aedes vexans* (Meigen) | Mesa | n/a | | | Hwy 65 mm 55.5 Near Plateau Creek | | 16-Aug-2014 | DARose & CLPeters | DARose | 2 | CSU |
| *Aedes vexans* (Meigen) | Mesa | Palisade | | | Palisade | | 11-Aug-1911 | G.P. Weldon | unknown | 1 | WRBU |
| *Aedes vexans* (Meigen) | Moffat | n/a | | | Big Bottom Up to Maybell Bridge Boat Launch Yampa River DA-124 | | 21-Jun-2014 | DARose & CLPeters | DARose | 1 | CSU |
| *Aedes vexans* (Meigen) | Moffat | Dinosaur | | | Dinosaur National Monument | | 14-Jun-1999 | NNelson | n/a | 1 | CSU |
| *Aedes vexans* (Meigen) | Moffat | n/a | | | Yampa River Boat Launch | | 21-Jun-2014 | DARose & CLPeters | DARose | 2 | CSU |
| *Aedes vexans* (Meigen) | Montrose | Nucla | | | CR. CC & 2900 | | 21-Jul-2013 | DARose | DARose | 1 | CSU |
| *Aedes vexans* (Meigen) | Montrose | n/a | | | Hwy. 90 mm 32 | | 21-Jul-2013 | DARose | DARose | 1 | CSU |
| *Aedes vexans* (Meigen) | Montrose | n/a | | | Junction Hwy. 141 & Hwy. 90 | | 21-Jul-2013 | DARose | DARose | 8 | CSU |
| *Aedes vexans* (Meigen) | Montrose | Nucla | | | Top End of Nucla | | 21-Jul-2013 | DARose | DARose | 1 | CSU |
| *Aedes vexans* (Meigen) | Morgan | Snyder | | | Snyder Colorado | | 19-Jul-1972 | FCHarmston & LJOgden | DARose | 2 | CDC |
| *Aedes vexans* (Meigen) | Pitkin | | | | Crystal River 1 mi above Redstone | | 27-Jul-1917 | P. Andrews | unknown | 1 | WRBU |
| *Aedes vexans* (Meigen) | Prowers | Bristol | | | Center of Town in Bristol | | 1-Jun-2014 | DARose | DARose | 1 | CSU |
| *Aedes vexans* (Meigen) | Pueblo | Boone | 38.24790 | -104.25245 | (PU-17) | 4460 ft. | 29-Jul-2014 | CRodosevich | ADvanGulik | 1 | CSU |
| *Aedes vexans* (Meigen) | Pueblo | Pueblo | | | n/a | | 5-Aug-1938 | UNLanham | n/a | 3 | CSU |
| *Aedes vexans* (Meigen) | Routt | n/a | | | Yampa SWA #1 DA-118 | | 21-Jun-2014 | DARose & CLPeters | DARose | 2 | CSU |
| *Aedes vexans* (Meigen) | Routt | n/a | | | Yampa SWA near Craig | | 21-Jun-2014 | DARose & CLPeters | DARose | 13 | CSU |
| *Aedes vexans* (Meigen) | Routt? | | | | Evan Marr Ranch | | 20-Aug-???? | Mary Marr | unknown | 1 | WRBU |
| *Aedes vexans* (Meigen) | Routt? | | | | Evan Marr Ranch | | 7-Aug-???? | Mary Marr | unknown | 1 | WRBU |
| *Aedes vexans* (Meigen) | Sedgwick | n/a | | | Julesburg Reservoir | | 22-May-1973 | FCHarmston & LJOgden | DARose | 40 | CSU |
| *Aedes vexans* (Meigen) | Sedgwick | Ovid | | | Ovid Colorado | | 22-May-1973 | FCHarmston & LJOgden | DARose | 2 | CSU |
| *Aedes vexans* (Meigen) | Sedgwick | Ovid | | | Ovid Colorado | | 22-May-1973 | FCHarmston & LJOgden | DARose | 2 | CDC |
| *Aedes vexans* (Meigen) | Weld | CPER | 40.8119 | -104.7723 | CPER 088 | | 13-Aug-2014 | T. Baldwin | MJWeissmann | 1 | CSU |
| *Aedes vexans* (Meigen) | Weld | n/a | | | Hwy 14 and CR 155 | | 10-Aug-2014 | DARose & CLPeters | DARose | 7 | CSU |
| *Aedes vexans* (Meigen) | Weld | n/a | | | Hwy 14 and CR 63 | | 10-Aug-2014 | DARose & CLPeters | DARose | 4 | CSU |
| *Aedes vexans* (Meigen) | Weld | n/a | | | Hwy 14 Crow Valley National Campground | | 10-Aug-2014 | DARose & CLPeters | DARose | 5 | CSU |
| *Aedes vexans* (Meigen) | Weld | Johnstown | 40.33705 | -104.95970 | Johnstown Reservoir | 4980 ft. | 14-Aug-2012 | CMC tech | MJWeissmann | 2 | CSU |
| *Aedes vexans* (Meigen) | Weld | Johnstown | 40.30985 | -104.90840 | Johnstown Stroh Farm | 4865 ft. | 21-Aug-2012 | CMC tech | MJWeissmann | 1 | CSU |
| *Aedes vexans* (Meigen) | Weld | Roggen | | | n/a | | 7-Sep-1991 | MJWeissmann | n/a | 1 | CSU |
| *Aedes vexans* (Meigen) | Weld | Dacono | | | n/a | | 28-Aug-2012 | CMC tech | MJWeissmann | 1 | CSU |
| *Aedes vexans* (Meigen) | Weld | Longmont | | | n/a | | 4-Jun-2013 | CMC tech | DARose | 1 | CSU |
| *Aedes vexans* (Meigen) | Weld | Windsor | | | n/a | | 19-Jun-1962 | FCHarmston | DARose | 31 | CSU |
| *Aedes vexans* (Meigen) | Weld | unknown | | | T1N R68W B23 | | 1-Sep-1964 | L. R. Ertle | unknown | 1 | WRBU |
| *Aedes vexans* (Meigen) | Weld | Windsor | | | Windsor at Poudre River | | 30-Aug-2012 | CMC tech | MJWeissmann | 1 | CSU |
| *Aedes vexans* (Meigen) | | Boon | | | (Pueblo County Boone??) | | 28-Jun-1985 | Phil Andrews | MJWeissmann | 4 | UCM |
| *Aedes vexans* (Meigen) | | | | | Boon | | 28-Jun-1917 | Phil Andrews | TDACockerell | 3 | UCM |
| *Aedes vexans* (Meigen) | | | | | Camp Baldwin | | 6-Sep-2014 | Meader & Cockerell | TDACockerell | 5 | UCM |
| *Aedes vexans* (Meigen) | | | | | Evan Marr Ranch | | 20-Aug-???? | Mary Marr | unknown | 1 | WRBU |
| *Aedes vexans* (Meigen) | | | | | Evan Marr Ranch | | 7-Aug-???? | Mary Marr | unknown | 1 | WRBU |
| *Aedes vexans* (Meigen) | | | | | Goodview | | 16-Jun-2014 | TDACockerell | TDACockerell | 2 | UCM |
| *Aedes vexans* (Meigen) | | Oxford | | | Oxford | | 1-Sep-1918 | I. M. Way | unknown | 1 | WRBU |
| *Aedes vexans* (Meigen) | | Boon | | | | | 28-Jun-1985 | Phil Andrews | MJWeissmann | 4 | UCM |

## *Anopheles barberi*

| Species | County | City/Town | DecDeg N | DecDeg | Location Notes | Altitude | Date | Collector | Determination | Series | Museum |
|---|---|---|---|---|---|---|---|---|---|---|---|
| *Anopheles barberi* Coquillett | Adams | Thornton | 39.93045 | -104.95720 | Lake Village Park (TH-01) | 5255 ft. | 14-Sep-2012 | CMC tech | MJWeissmann | 1 | CSU |

## *Anopheles earlei*

| Species | County | City/Town | DecDeg N | DecDeg W | Location Notes | Altitude | Date | Collector | Determination | Series | Museum |
|---|---|---|---|---|---|---|---|---|---|---|---|
| *Anopheles earlei* Vargas | Arapahoe | Columbine Valley | 39.59505 | -105.03035 | Columbine Valley Golf Course | 5340 ft. | 27-Aug-2010 | CMC tech | MJWeissmann | 1 | CSU |
| *Anopheles earlei* Vargas | Douglas | Castle Rock | 39.40205 | -104.90895 | n/a | 6135 ft. | 13-Aug-2010 | MChapple | MJWeissmann | 1 | CSU |
| *Anopheles earlei* Vargas | El Paso | Monument | 39.08440 | -104.87750 | (MT-02) | 6885 ft. | 31-Jul-2015 | CMC tech | MJWeissmann | 10 | CSU |
| *Anopheles earlei* Vargas | El Paso | Monument | 39.08440 | -104.87750 | (MT-02) | 6885 ft. | 7-Aug-2015 | CMC tech | MJWeissmann | 1 | CSU |
| *Anopheles earlei* Vargas | El Paso | Monument | 39.09470 | -104.88370 | (MT-03) | 6965 ft. | 17-Jul-2015 | CMC tech | MJWeissmann | 1 | CSU |
| *Anopheles earlei* Vargas | El Paso | Monument | 39.09470 | -104.88370 | (MT-03) | 6965 ft. | 28-Aug-2015 | MJWeissmann | MJWeissmann | 1 | CSU |
| *Anopheles earlei* Vargas | Garfield | Battlement Mesa | 39.44375 | -108.04210 | (BM-09) | 5140 ft. | 3-Jun-2014 | S.Sheaffer | ADvanGulik | 1 | CSU |
| *Anopheles earlei* Vargas | Jackson | Walden | | | Diamond J SWA | | 14-Jun-2014 | DARose & BCKondratieff | DARose | 1 | CSU |
| *Anopheles earlei* Vargas | Larimer | Fort Collins | | | Fort Collins | | 2-Aug-1967 | FCHarmston | DARose | 32 | CSU |
| *Anopheles earlei* Vargas | Larimer | n/a | | | West of Loveland | | 23-Aug-1994 | MDoyle | DWest | 1 | CSU |
| *Anopheles earlei* Vargas | Larimer | Fort Collins | | | n/a | | 2-Aug-67 | FCHarmston | FCHarmston | 12 | CDC |
| *Anopheles earlei* Vargas | Moffat | n/a | | | Yampa River Boat launch South of Craig | | 21-Jun-2014 | DARose & CLPeters | DARose | 2 | CSU |
| *Anopheles earlei* Vargas | Montezuma | Dolores | 37.47460 | -108.45340 | Dolores River RV Park (DO-18) | 7020 ft. | 18-Jul-2014 | J.Carruth | MJWeissmann | 1 | CSU |
| *Anopheles earlei* Vargas | Pueblo | Pueblo | 38.27745 | -104.48355 | Airport Industrial Park | 4600 ft. | 16-Jul-2013 | CMC tech | DARose | 1 | CSU |
| *Anopheles earlei* Vargas | Pueblo | Pueblo | 38.26925 | -104.48215 | Meadowbrook MHP | 4565 ft. | 18-Jun-2013 | CMC tech | DARose | 1 | CSU |
| *Anopheles earlei* Vargas | Pueblo | Pueblo | 38.25785 | -104.68110 | Stonemoor | 4785 ft. | 29-Jun-2011 | CMC tech | MJWeissmann | 1 | CSU |
| *Anopheles earlei* Vargas | Pueblo | Pueblo | 38.25905 | -104.54825 | The Mesa | 4655 ft. | 25-Jun-2013 | CMC tech | DARose | 1 | CSU |
| *Anopheles earlei* Vargas | Routt | n/a | | | Yampa SWA #1 DA-118 | | 21-Jun-2014 | DARose & CLPeters | DARose | 7 | CSU |
| *Anopheles earlei* Vargas | Routt | n/a | | | Yampa SWA near Craig | | 21-Jun-2014 | DARose & CLPeters | DARose | 2 | CSU |

## *Anopheles fraciscanus*

| Species | County | City/Town | DecDeg N | DecDeg W | Location Notes | Altitude | Date | Collector | Determination | Series | Museum |
|---|---|---|---|---|---|---|---|---|---|---|---|
| *Anopheles fraciscanus* McCracken | Kane | | | | n/a | | 28-Sep-1952 | n/a | n/a | 3 | CDC |
| *Anopheles fraciscanus* McCracken | Mesa | Fruita | | | n/a | | 31-Aug-2004 | SDefeyter | SDefeyter | 1 | CSU |
| *Anopheles fraciscanus* McCracken | Montezuma | Cortez | 37.31775 | -108.62065 | G-1, (MC-10) | | 29-Jul-2014 | JCarruth | MJWeissmann | 1 | CSU |
| *Anopheles fraciscanus* McCracken | Montrose | Naturita | | | Downtown Naturita | | 21-Jul-2013 | DARose | DARose | 1 | CSU |
| *Anopheles fraciscanus* McCracken | Pueblo | Pueblo | 38.25740 | -104.60015 | Runyan Park | 4645 ft. | 20-Jul-2010 | CMC tech | MJWeissmann | 1 | CSU |
| *Anopheles fraciscanus* McCracken | Weld | Windsor | 40.48870 | -104.91125 | Lake Osterhout | 4805 ft. | 25-Sep-2010 | CMC tech | MJWeissmann | 1 | CSU |
| *Anopheles fraciscanus* McCracken | Weld | Johnstown | | | Johnstown | | 8-Oct-1960 | unknown | unknown | 1 | CDC |
| *Anopheles fraciscanus* McCracken | Weld | Greeley | | | Greeley | | 26-Sep-1966 | unknown | unknown | 1 | CDC |

## *Anopheles freeborni*

| Species | County | City/Town | DecDeg N | DecDeg W | Location Notes | Altitude | Date | Collector | Determination | Series | Museum |
|---|---|---|---|---|---|---|---|---|---|---|---|
| *Anopheles freeborni* Aitken | Bent | Caddoa | | | Caddoa | | 28-Jun-1948 | LD Beadle | unknown | 4 | WRBU |
| *Anopheles freeborni* Aitken | Bent | Fort Lyon | | | Fort Lyon | | 28-Jun-1948 | LD Beadle | unknown | 34 | WRBU |
| *Anopheles freeborni* Aitken | Bent | Los Animas | | | Los Animas | | 27-Jun-1948 | LD Beadle | unknown | 7 | WRBU |
| *Anopheles freeborni* Aitken | Kane | | | | n/a | | 27-Sep-1952 | unknown | unknown | 6 | CDC |
| *Anopheles freeborni* Aitken | La Plata | Tiffany | N37.033 | W-107.538 | Tiffany | | 23-Aug-1941 | B. Rotger | unknown | 25 | WRBU |
| *Anopheles freeborni* Aitken | Mesa | n/a | | | n/a | | 24-Sep-1952 | Aitken | Aitken | 7 | CDC |
| *Anopheles freeborni* Aitken | Pueblo | Boone | | | Boone | | 9-Sep-1951 | unknown | HDPratt | 5 | WRBU |

## *Anopheles hermsi*

| Species | County | City/Town | DecDeg N | DecDeg W | Location Notes | Altitude | Date | Collector | Determination | Series | Museum |
|---|---|---|---|---|---|---|---|---|---|---|---|
| *Anopheles hermsi* Barr and Guptavanij | Baca | n/a | | | Carrizo Creek Camp Ground | | 13-Jul-2013 | DARose | DARose | 1 | CSU |
| *Anopheles hermsi* Barr and Guptavanij | Baca | n/a | | | Carrizo Creek Rd. M | | 13-Jul-2013 | DARose | DARose | 2 | CSU |
| *Anopheles hermsi* Barr and Guptavanij | Garfield | n/a | 39.44375 | -108.04210 | Battlement Mesa Willow Creek | 5140 ft. | 22-Aug-2012 | CMC tech | MJWeissmann | 1 | CSU |
| *Anopheles hermsi* Barr and Guptavanij | Garfield | Parachute | 39.44335 | -108.04815 | n/a | 5060 ft. | 26-Jul-2005 | CMC tech | MJWeissmann | 1 | CSU |
| *Anopheles hermsi* Barr and Guptavanij | Garfield | Silt | 39.54615 | -107.65315 | Silt Kum & Go | 5440 ft. | 16-Jul-2013 | CMC tech | DARose | 1 | CSU |
| *Anopheles hermsi* Barr and Guptavanij | Jefferson | Lakewood | 39.65820 | -105.13270 | Fox Hollow Golf Course | 5515 ft. | 3-Jul-2003 | n | MJWeissmann | 1 | CSU |
| *Anopheles hermsi* Barr and Guptavanij | Jefferson | Arvada | 39.83765 | -105.15635 | n/a | 5525 ft. | 13-Jul-2010 | CMC tech | MJWeissmann | 1 | CSU |
| *Anopheles hermsi* Barr and Guptavanij | Jefferson | Ridge | 39.77485 | -105.12780 | Prospect Park | 5410 ft. | 15-Aug-2003 | AHickman | AHickman | 1 | CSU |
| *Anopheles hermsi* Barr and Guptavanij | La Plata | Ignacio | | | n/a | | 13-Jun-2013 | CMC tech | DARose | 3 | CSU |
| *Anopheles hermsi* Barr and Guptavanij | Larimer | Johnstown | 40.39260 | -104.99050 | Johnstown River Ranch | 4850 ft. | 9-Aug-2012 | CMC tech | DARose | 1 | CSU |
| *Anopheles hermsi* Barr and Guptavanij | Monrtose | Nucla | | | Top End Nucla | | 21-Jul-2013 | DARose | DARose | 1 | CSU |
| *Anopheles hermsi* Barr and Guptavanij | Montezuma | Cortez | | | n/a | | 10-Jul-2013 | CMC tech | DARose | 1 | CSU |
| *Anopheles hermsi* Barr and Guptavanij | Montrose | Nucla | | | CR. CC & 2900 | | 21-Jul-2013 | DARose | DARose | 2 | CSU |
| *Anopheles hermsi* Barr and Guptavanij | Montrose | Naturita | | | Downtown Naturita | | 21-Jul-2013 | DARose | DARose | 1 | CSU |
| *Anopheles hermsi* Barr and Guptavanij | Prowers | Lamar | | | n/a | | 14-Jul-2013 | DARose | DARose | 4 | CSU |
| *Anopheles hermsi* Barr and Guptavanij | Pueblo | Pueblo | | | 34155 Alba Rd. | | 14-Aug-2012 | CMC tech | MJWeissmann | 1 | CSU |
| *Anopheles hermsi* Barr and Guptavanij | Pueblo | Pueblo | 38.25905 | -104.54825 | n/a | 4655 ft. | 18-Jun-2013 | CMC tech | DARose | 1 | CSU |
| *Anopheles hermsi* Barr and Guptavanij | Pueblo | Pueblo | 38.25905 | -104.54825 | The Mesa | 4655 ft. | 25-Jun-2013 | CMC tech | DARose | 3 | CSU |
| *Anopheles hermsi* Barr and Guptavanij | Weld | Greeley | 40.42805 | -104.75250 | Epple Park (GY-20) | 4750 ft. | 12-Aug-2014 | CMC tech | MJWeissmann | 1 | CSU |

## *Anopheles punctipennis*

| Species | County | City/Town | DecDeg N | DecDeg W | Location Notes | Altitude | Date | Collector | Determination | Series | Museum |
|---|---|---|---|---|---|---|---|---|---|---|---|
| *Anopheles punctipennis* (Say) | Adams | Thornton | 39.87275 | -104.90955 | 9702 Monaco Rd., Waste Water Treatment Plant | 5060 ft. | 6-Jun-2007 | Tri County Health Dept. | JKBennett | 1 | CSU |
| *Anopheles punctipennis* (Say) | Weld | Gowanda | | | Gowanda | | 22-Sep-66 | MMontoya | MMontoya | 1 | CDC |

## *Coquillettidia perturbans*

| Species | County | City/Town | DecDeg N | DecDeg W | Location Notes | Altitude | Date | Collector | Determination | Series | Museum |
|---|---|---|---|---|---|---|---|---|---|---|---|
| *Coquillettidia perturbans* (Walker) | Adams | Brighton | | | n/a | | 26-Jun-2013 | DARose | DARose | 1 | CSU |
| *Coquillettidia perturbans* (Walker) | Boulder | Erie | 40.02050 | -105.09090 | Erie Arapahoe Ridge | 5200 ft. | 29-Jul-2013 | DARose | DARose | 3 | CSU |
| *Coquillettidia perturbans* (Walker) | Boulder | | | | LT-1 Hovings | | 29-Jun-1984 | Boulder Co. Health Dept. | MJWeissmann | 9 | UCM |
| *Coquillettidia perturbans* (Walker) | Boulder | | | | LT-1 Hovings | | 16-Jul-1984 | Boulder Co. Health Dept. | MJWeissmann | 1 | UCM |
| *Coquillettidia perturbans* (Walker) | Boulder | | | | LT-1 Hovings | | 21-Jun-1983 | Boulder Co. Health Dept. | MJWeissmann | 2 | UCM |
| *Coquillettidia perturbans* (Walker) | Boulder | | | | LT-1 Hovings | | 15-Jun-1984 | Boulder Co. Health Dept. | MJWeissmann | 1 | UCM |
| *Coquillettidia perturbans* (Walker) | Boulder | | | | LT-1 Hovings | | 20-Jul-1983 | Boulder Co. Health Dept. | MJWeissmann | 2 | UCM |
| *Coquillettidia perturbans* (Walker) | Boulder | | | | LT-6 Mazal | | 20-Jul-1983 | Boulder Co. Health Dept. | MJWeissmann | 1 | UCM |
| *Coquillettidia perturbans* (Walker) | Boulder | | | | LT-7 Walden Ponds | | 29-Jun-1984 | Boulder Co. Health Dept. | MJWeissmann | 5 | UCM |
| *Coquillettidia perturbans* (Walker) | Boulder | | | | LT-8 Munsons | | 11-Jul-1983 | Boulder Co. Health Dept. | MJWeissmann | 1 | UCM |
| *Coquillettidia perturbans* (Walker) | Broomfield | Broomfield | | | n/a | | 26-Jun-2013 | DARose | DARose | 1 | CSU |
| *Coquillettidia perturbans* (Walker) | Sedgwick | Julesburg | | | CR. 32.5 SW End of Rd. | | 27-Jul-2013 | DARose | DARose | 1 | CSU |

## *Culex erythrothorax*

| Species | County | City/Town | DecDeg N | DecDeg W | Location Notes | Altitude | Date | Collector | Determinatio | Series | Museum |
|---|---|---|---|---|---|---|---|---|---|---|---|
| *Culex erythrothorax* Dyar | Bent | Las Animas | | | Las Animas, US 109-23 (mislabeled "Dent Co.") | | 17-Aug-1988 | Jacob & Davis | unknown | 30 | WRBU |
| *Culex erythrothorax* Dyar | Denver | Denver | 39.78725 | -104.75365 | Green Valley Ranch Golf Course (GV-01) | 5375 ft. | | | | | CSU |
| *Culex erythrothorax* Dyar | Garfield | Parachutte | 39.44335 | -108.04815 | Cottonwood Park (PR-01) | 5065 ft. | | | | | CSU |
| *Culex erythrothorax* Dyar | Garfield | Battlement Mesa | 39.44375 | -108.04210 | Willow Creek (BM-09) | 5140 ft. | | | | | |
| *Culex erythrothorax* Dyar | Weld | Longmont | | | n/a | | 18-Jun-2013 | DARose | DARose | 1 | CSU |

## *Culex pipiens*

| Species | County | City/Town | DecDeg N | DecDeg W | Location Notes | Altitude | Date | Collector | Determination | Series | Museum |
|---|---|---|---|---|---|---|---|---|---|---|---|
| *Culex pipiens* Linnaeus | Adams | Thornton | 39.92050 | -104.95915 | Eastlake | 5270 ft. | 17-Aug-2010 | MChapple | MChapple | 2 | CSU |
| *Culex pipiens* Linnaeus | Adams | Thornton | 39.87980 | -104.97410 | Harvest Ridge | 5305 ft. | 17-Aug-2010 | MChapple | MChapple | 1 | CSU |
| *Culex pipiens* Linnaeus | Adams | Northglenn | | | n/a | | 12-Jun-2013 | DARose | DARose | 1 | CSU |
| *Culex pipiens* Linnaeus | Adams | Westminster | 39.90560 | -105.03340 | n/a | 5220 ft. | 15-Jun-2006 | JKBennett | JKBennett | 1 | CSU |

## *Culex pipiens* cont.

| Species | County | City/Town | DecDeg N | DecDeg W | Location Notes | Altitude | Date | Collector | Determination | Series | Museum |
|---|---|---|---|---|---|---|---|---|---|---|---|
| *Culex pipiens* Linnaeus | Adams | Commerce City | | | n/a | | 22-Jun-2005 | JKBennett | JKBennett | 1 | CSU |
| *Culex pipiens* Linnaeus | Arapahoe | Centennial | | | n/a | | 26-Jun-2013 | DARose | DARose | 1 | CSU |
| *Culex pipiens* Linnaeus | Arapahoe | Columbine Valley | 39.60610 | -105.03015 | n/a | 5330 ft. | 27-Aug-2010 | MJWeissmann | MJWeissmann | 2 | CSU |
| *Culex pipiens* Linnaeus | Boulder | Boulder | 40.05860 | -105.16665 | Heatherwood | 5270 ft. | 25-Jul-2005 | JKBennett | JKBennett | 1 | CSU |
| *Culex pipiens* Linnaeus | Boulder | n/a | | | LT-19 Bross | | 5-Jul-1983 | Boulder Co. Health Dept. | DARose | 1 | UCM |
| *Culex pipiens* Linnaeus | Boulder | Boulder | 40.05700 | -105.21200 | Willows | 5190 ft. | 25-Jul-2005 | JKBennett | JKBennett | 1 | CSU |
| *Culex pipiens* Linnaeus | Denver | Aurora | | | n/a | | 1-Oct-1945 | WRLasky | DARose | 3 | CSU |
| *Culex pipiens* Linnaeus | Larimer | n/a | | | 6 mi. N. of Rt. 14 Kremmer Cave | | 3-Apr-1992 | SFitzgerald | DARose | 1 | CSU |
| *Culex pipiens* Linnaeus | Larimer | Fort Collins | | | Colorado State Univ. | | 21-Sep-2011 | BCKondratieff | MJWeissmann | 1 | CSU |
| *Culex pipiens* Linnaeus | Larimer | Fort Collins | | | Colorado State Univ. | | 4-Nov-2008 | BCKondratieff | BCKondratieff | 1 | CSU |
| *Culex pipiens* Linnaeus | Larimer | Fort Collins | | | Johnson Elementry School | | 4-Aug-1993 | DWest | DWest | 3 | CSU |
| *Culex pipiens* Linnaeus | Larimer | n/a | | | Kremmer Cave | | 8-May-1993 | SFitzgerald | SFitzgerald | 2 | CSU |
| *Culex pipiens* Linnaeus | Larimer | Fort Collins | | | Kremmer Cave | | 30-Sep-1996 | SFitzgerald | SFitzgerald | 1 | CSU |
| *Culex pipiens* Linnaeus | Larimer | Fort Collins | | | Laurel Hall | | 3-Oct-2009 | BCKondratieff | DARose | 6 | CSU |
| *Culex pipiens* Linnaeus | Larimer | Fort Collins | | | n/a | | 5-Sep-2011 | BCKondratieff | MJWeissmann | 1 | CSU |
| *Culex pipiens* Linnaeus | Larimer | Fort Collins | | | n/a | | 28-Oct-1991 | MJWeissmann | MJWeissmann | 1 | CSU |
| *Culex pipiens* Linnaeus | Larimer | Fort Collins | | | n/a | | 20-Oct-2005 | MKondratieff | DARose | 1 | CSU |
| *Culex pipiens* Linnaeus | Larimer | Fort Collins | | | n/a | | 27-Oct-1996 | AFoley | DARose | 1 | CSU |
| *Culex pipiens* Linnaeus | Larimer | Fort Collins | | | Storm drain | | 2-Feb-1967 | Johnson & Ronald | DARose | 22 | CSU |
| *Culex pipiens* Linnaeus | Weld | Erie | 40.02150 | -105.04640 | ER-02 | 5050 ft. | 4-Aug-2006 | CMC tech | MJWeissmann | 1 | CSU |
| *Culex pipiens* Linnaeus | Weld | Erie | 40.04935 | -105.04980 | Erie old-town | 5025 ft. | 27-Aug-2012 | CMC tech | MJWeissmann | 1 | CSU |
| *Culex pipiens* Linnaeus | Weld | Evans | 40.36790 | -104.68975 | n/a | 4650 ft. | 4-Jun-2013 | DARose | DARose | 2 | CSU |
| *Culex pipiens* Linnaeus | Weld | Windsor | 40.50445 | -104.89920 | Windsor North Shores | 4850 ft. | 11-Jul-2013 | CMC tech | DARose | 1 | CSU |

## *Culex restuans*

| Species | County | City/Town | DecDeg N | DecDeg W | Location Notes | Altitude | Date | Collector | Determination | Series | Museum |
|---|---|---|---|---|---|---|---|---|---|---|---|
| *Culex restuans* Theobald | Arapahoe | Centennial | | | n/a | | 26-Jun-2013 | DARose | DARose | 1 | CSU |
| *Culex restuans* Theobald | Boulder | Erie | 40.06525 | -105.05710 | Erie Village/Kenosha Estates (ER-04) | 4990 ft. | 27-Jul-2015 | CMC tech | MJWeissmann | 1 | CSU |
| *Culex restuans* Theobald | Pueblo | Pueblo | 38.25905 | -104.54825 | The Mesa | 4655 ft. | 18-Jun-2013 | CMC tech | DARose | 1 | CSU |

## *Culex salinarius*

| Species | County | City/Town | DecDeg N | DecDeg W | Location Notes | Altitude | Date | Collector | Determination | Series | Museum |
|---|---|---|---|---|---|---|---|---|---|---|---|
| *Culex salinarius* Coquillett | Adams | Thornton | 39.93045 | -104.95720 | CMC Trap Site TH-01 | 5255 ft. | 11-Jul-2012 | CMC tech | MJWeissmann | 1 | CSU |
| *Culex salinarius* Coquillett | Bent | Las Animas | | | Las Animas | | 4-Jul-1987 | Ted Davis | unknown | 8 | WRBU |
| *Culex salinarius* Coquillett | Boulder | Erie | 40.02050 | -105.09090 | Arapahoe Ridge | 5200 ft. | 5-Aug-2013 | CMC tech | DARose | 1 | CSU |

## *Aedes salinarius* cont.

| Species | County | City/Town | DecDeg N | DecDeg W | Location Notes | Altitude | Date | Collector | Determination | Series | Museum |
|---|---|---|---|---|---|---|---|---|---|---|---|
| *Culex salinarius* Coquillett | Boulder | n/a | | | LT-24 McCormick | | 9-Aug-1983 | Boulder Co. Health Dept. | DARose | 1 | UCM |
| *Culex salinarius* Coquillett | Boulder | Longmont | | | n/a | | 13-Jun-2013 | DARose | DARose | 1 | CSU |
| *Culex salinarius* Coquillett | Boulder | Boulder | 40.06140 | -105.19375 | Twin Lakes | 5170 ft. | 25-Jul-2005 | CMC tech | MJWeissmann | 1 | CSU |
| *Culex salinarius* Coquillett | Broomfield | Broomfield | 39.99860 | -105.03910 | Anthem | 5150 ft. | 22-Aug-2012 | CMC tech | MJWeissmann | 2 | CSU |
| *Culex salinarius* Coquillett | Broomfield | Broomfield | 39.94785 | -105.04535 | Broadlands | 5295 ft. | 29-Aug-2012 | CMC tech | MJWeissmann | 2 | CSU |
| *Culex salinarius* Coquillett | Broomfield | Broomfield | 39.93480 | -105.07765 | Miramonte Park | 5400 ft. | 5-Aug-1985 | MJWeissmann | DARose | 4 | UCM |
| *Culex salinarius* Coquillett | Broomfield | Broomfield | 39.93480 | -105.07765 | Miramonte Park | 5400 ft. | 12-Jul-1985 | MJWeissmann | MJWeissmann | 3 | UCM |
| *Culex salinarius* Coquillett | Denver | Denver | 39.78725 | -104.75365 | Green Valley Ranch Golf Course | 5375 ft. | 10-Jul-2013 | CMC tech | DARose | 1 | CSU |
| *Culex salinarius* Coquillett | Denver | Denver | | | n/a | | 5-Aug-2004 | CMC tech | MJWeissmann | 2 | CSU |
| *Culex salinarius* Coquillett | Douglas | Parker | 39.51615 | -104.73795 | Sulphur Gulch | 5945 ft. | 29-Aug-2012 | CMC tech | MJWeissmann | 1 | CSU |
| *Culex salinarius* Coquillett | Larimer | Fort Collins | | | n/a | | 2-Feb-1967 | Johnson & Ronald | DARose | 30 | CSU |
| *Culex salinarius* Coquillett | Prowers | Lamar | | | n/a | | 14-Jul-2013 | DARose | DARose | 13 | CSU |
| *Culex salinarius* Coquillett | Pueblo | Boone | 38.24790 | -104.25245 | n/a | 4460 ft. | 7-Aug-2012 | CMC tech | MJWeissmann | 1 | CSU |
| *Culex salinarius* Coquillett | Pueblo | Pueblo | 38.26140 | -104.62400 | n/a | 4745 ft. | 8-Aug-2012 | CMC tech | MJWeissmann | 1 | CSU |
| *Culex salinarius* Coquillett | Weld | Lochbuie | 40.00065 | -104.70785 | Lochbuie Swamp (nr. LB-01) | 5010 ft. | 3-Mar-2006 | RKozar | MJWeissmann | 1 | CSU |
| *Culex salinarius* Coquillett | Weld | Longmont | 40.15530 | -104.99170 | n/a | 4855 ft. | 11-Jun-2013 | DARose | MJWeissmann | 2 | CSU |
| *Culex salinarius* Coquillett | Weld | Windsor | 40.46040 | -104.89775 | Water Valley | 4760 ft. | 30-Aug-2012 | CMC tech | MJWeissmann | 5 | CSU |

## *Culex tarsalis*

| Species | County | City/Town | DecDeg N | DecDeg W | Location Notes | Altitude | Date | Collector | Determination | Series | Museum |
|---|---|---|---|---|---|---|---|---|---|---|---|
| *Culex tarsalis* Coquillett | Adams | Brighton | 39.93715 | -104.75310 | Barr Lake State Park | 5100 ft. | 27-May-1987 | MJWeissmann | MJWeissmann | 2 | UCM |
| *Culex tarsalis* Coquillett | Adams | Brighton | 39.93715 | -104.75310 | Barr Lake State Park | 5100 ft. | 20-Jun-1985 | MJWeissmann | MJWeissmann | 7 | UCM |
| *Culex tarsalis* Coquillett | Adams | Brighton | 39.93715 | -104.75310 | Barr Lake State Park | 5100 ft. | 16-Jun-1985 | MJWeissmann | MJWeissmann | 2 | UCM |
| *Culex tarsalis* Coquillett | Adams | Commerce City | 39.87230 | -104.85910 | Eagle Creek (EK-01) | 5125 ft. | 18-Aug-2010 | CMC tech | MJWeissmann | 1 | CSU |
| *Culex tarsalis* Coquillett | Adams | Commerce City | 39.87230 | -104.85910 | Eagle Creek (EK-01) | 5125 ft. | 23-Jun-2010 | MChapple | MChapple | 1 | CSU |
| *Culex tarsalis* Coquillett | Adams | Thornton | 39.93045 | -104.95720 | n/a | 5255 ft. | 22-Aug-2012 | CMC tech | MJWeissmann | 1 | CSU |
| *Culex tarsalis* Coquillett | Adams | Thornton | 39.88600 | -104.92880 | TH-04 (Riverdale Greenbelt) | 5125 ft. | 9-Jun-2005 | CMC tech | JKBennett | 1 | CSU |
| *Culex tarsalis* Coquillett | Arapahoe | Columbine Valley | 39.59505 | -105.03035 | Columbine Valley Golf Course | 5340 ft. | 27-Aug-2010 | CMC tech | MJWeissmann | 1 | CSU |
| *Culex tarsalis* Coquillett | Arapahoe | Aurora | | | n/a | | 1-Oct-1945 | WRLasky | WRLasky | 6 | CSU |
| *Culex tarsalis* Coquillett | Baca | n/a | | | Carrizo Creek Rd. M | | 13-Jul-2013 | DARose | DARose | 1 | CSU |
| *Culex tarsalis* Coquillett | Bent | Hasty | | | Hasty Swim Beach | | 14-Jul-2013 | DARose | DARose | 2 | CSU |
| *Culex tarsalis* Coquillett | Bent | Las Animas | | | Las Animas | | 27-Jun-1948 | LD Beadle | unknown | 26 | WRBU |
| *Culex tarsalis* Coquillett | Bent | n/a | | | Rd. 34 | | 14-Jul-2013 | DARose | DARose | 1 | CSU |
| *Culex tarsalis* Coquillett | Bent | n/a | | | Rd. 34.5 & Ark. River crossing | | 14-Jul-2013 | DARose | DARose | 1 | CSU |
| *Culex tarsalis* Coquillett | Boulder | Longmont | 40.24560 | -105.14720 | 3 mi. no. Longmont (BC-14) | 5165 ft. | 25-Jul-2005 | JKBennett | JKBennett | 4 | CSU |
| *Culex tarsalis* Coquillett | Boulder | Boulder | | | Boulder | | unknown | TDA Cockerell | unknown | 2 | WRBU |
| *Culex tarsalis* Coquillett | Boulder | Boulder | | | Boulder | | ??-Nov-???? | TDA Cockerell | unknown | 1 | WRBU |
| *Culex tarsalis* Coquillett | Boulder | Boulder | | | Boulder | | ??-Aug-???? | TDA Cockerell | unknown | 1 | WRBU |
| *Culex tarsalis* Coquillett | Boulder | Boulder | | | Boulder | | 15-Oct-???? | TDA Cockerell | unknown | 1 | WRBU |

# ***Culex tarsalis* cont.**

| Species | County | City/Town | DecDeg N | DecDeg W | Location Notes | Altitude | Date | Collector | Determination | Series | Museum |
|---|---|---|---|---|---|---|---|---|---|---|---|
| *Culex tarsalis* Coquillett | Boulder | Boulder | | | Boulder | | 22-Oct-???? | TDA Cockerell | unknown | 2 | WRBU |
| *Culex tarsalis* Coquillett | Boulder | Boulder | 40.05135 | -105.17900 | Boulder Creek at 75th St | 5120 ft. | 23-May-1985 | CSeidman & MJWeissmann | MJWeissmann | 2 | UCM |
| *Culex tarsalis* Coquillett | Boulder | Boulder | 40.03055 | -105.21940 | Boulder Creek at Valmont | 5190 ft. | 9-Jul-1985 | MJWeissmann | MJWeissmann | 14 | UCM |
| *Culex tarsalis* Coquillett | Boulder | Boulder | 40.03055 | -105.21940 | Boulder Creek at Valmont | 5190 ft. | 23-May-1985 | CSeidman & MJWeissmann | MJWeissmann | 5 | UCM |
| *Culex tarsalis* Coquillett | Boulder | Boulder | 40.00405 | -105.27965 | Boulder, 908 10th St. | 5540 ft. | 1-Aug-???? | TDA Cockerell | unknown | 3 | WRBU |
| *Culex tarsalis* Coquillett | Boulder | Boulder | 40.00405 | -105.27965 | Boulder, 908 10th St. | 5540 ft. | unknown | TDA Cockerell | unknown | 2 | WRBU |
| *Culex tarsalis* Coquillett | Boulder | Boulder | | | Campus of University of Colorado | | 2-Aug-???? | J Henderson | unknown | 1 | WRBU |
| *Culex tarsalis* Coquillett | Boulder | Boulder | | | Campus of University of Colorado | | 19-Sep-???? | TDA Cockerell | unknown | 1 | WRBU |
| *Culex tarsalis* Coquillett | Boulder | Boulder | | | Campus of University of Colorado | | 20-Sep-1917 | illegible | unknown | 1 | WRBU |
| *Culex tarsalis* Coquillett | Boulder | Boulder | | | Campus of University of Colorado | | 27-Sep-???? | TDA Cockerell | unknown | 6 | WRBU |
| *Culex tarsalis* Coquillett | Boulder | Boulder | | | Campus of University of Colorado | | 8-Aug-???? | TDA Cockerell | unknown | 1 | WRBU |
| *Culex tarsalis* Coquillett | Boulder | Boulder | | | Campus of University of Colorado | | 4-Aug-???? | TDA Cockerell | unknown | 1 | WRBU |
| *Culex tarsalis* Coquillett | Boulder | Boulder | | | Golf Course | 5230 ft. | 30-Aug-2006 | ALHicks | DARose | 1 | UCM |
| *Culex tarsalis* Coquillett | Boulder | Boulder | 40.05970 | -105.18175 | Gunbarrel Area, in house | 5190 ft. | 16-Nov-1986 | MJWeissmann | MJWeissmann | 1 | UCM |
| *Culex tarsalis* Coquillett | Boulder | Erie | 40.06525 | -105.05710 | Kenosha Estates | 4990 ft. | 12-Aug-2013 | CMC tech | DARose | 1 | CSU |
| *Culex tarsalis* Coquillett | Boulder | n/a | | | LT-1 Hovings | | 9-Jun-1983 | Boulder Co. Health Dept. | MJWeissmann | 1 | UCM |
| *Culex tarsalis* Coquillett | Boulder | n/a | | | LT-1 Hovings | | 20-Jul-1983 | Boulder Co. Health Dept. | MJWeissmann | 1 | UCM |
| *Culex tarsalis* Coquillett | Boulder | n/a | | | LT-1 Hovings | | 16-Jul-1989 | Boulder Co. Health Dept. | MJWeissmann | 2 | UCM |
| *Culex tarsalis* Coquillett | Boulder | n/a | | | LT-12 Omaha Pl. | | 18-Jul-1984 | Boulder Co. Health Dept. | MJWeissmann | 1 | UCM |
| *Culex tarsalis* Coquillett | Boulder | n/a | | | LT-12 Omaha Pl. | | 18-Jul-1984 | Boulder Co. Health Dept. | MJWeissmann | 8 | UCM |
| *Culex tarsalis* Coquillett | Boulder | n/a | | | LT-17 Yost | | 16-Aug-1983 | Boulder Co. Health Dept. | MJWeissmann | 1 | UCM |
| *Culex tarsalis* Coquillett | Boulder | n/a | | | LT-19 Bross | | 10-Jun-1983 | Boulder Co. Health Dept. | MJWeissmann | 1 | UCM |
| *Culex tarsalis* Coquillett | Boulder | n/a | | | LT-2 Stanley | | 16-Aug-1983 | Boulder Co. Health Dept. | MJWeissmann | 6 | UCM |
| *Culex tarsalis* Coquillett | Boulder | n/a | | | LT-24 McCormick | | 11-Jul-1983 | Boulder Co. Health Dept. | MJWeissmann | 2 | UCM |
| *Culex tarsalis* Coquillett | Boulder | n/a | | | LT-24 McCormick | | 9-Aug-1983 | Boulder Co. Health Dept. | MJWeissmann | 2 | UCM |
| *Culex tarsalis* Coquillett | Boulder | Longmont | | | LT-3 Granada Ct. | | 13-Jun-1984 | Boulder Co. Health Dept. | MJWeissmann | 1 | UCM |
| *Culex tarsalis* Coquillett | Boulder | Longmont | | | LT-3 Granada Ct. | | 26-Jun-1984 | Boulder Co. Health Dept. | MJWeissmann | 1 | UCM |
| *Culex tarsalis* Coquillett | Boulder | n/a | | | LT-5 Gainor Lake | | 15-Aug-1984 | Boulder Co. Health Dept. | MJWeissmann | 3 | UCM |
| *Culex tarsalis* Coquillett | Boulder | n/a | | | LT-6 Kenosha | | 11-Jul-1983 | Boulder Co. Health Dept. | MJWeissmann | 1 | UCM |
| *Culex tarsalis* Coquillett | Boulder | n/a | | | LT-9 Westview | | 20-Jul-1983 | Boulder Co. Health Dept. | MJWeissmann | 1 | UCM |
| *Culex tarsalis* Coquillett | Boulder | Boulder | | | Mine Tunnel, Boulder Canyon | 7500 ft. | 9-Mar-1963 | BVogel & CJMcCoy | MJWeissmann | 5 | UCM |
| *Culex tarsalis* Coquillett | Boulder | Longmont | | | n/a | | 8-Jul-2013 | CMC tech | MJWeissmann | 1 | CSU |
| *Culex tarsalis* Coquillett | Boulder | Longmont | | | n/a | | 3-Jun-2013 | CMC tech | DARose | 1 | CSU |
| *Culex tarsalis* Coquillett | Boulder | Lafayette | | | n/a | | 3-Jun-2013 | CMC tech | DARose | 1 | CSU |
| *Culex tarsalis* Coquillett | Boulder | Longmont | | | n/a | | 5-Jun-1946 | MTJames | MTJames | 1 | CSU |
| *Culex tarsalis* Coquillett | Boulder | Longmont | | | n/a | | 25-Jul-2005 | JKBennett | JKBennett | 4 | CSU |
| *Culex tarsalis* Coquillett | Boulder | Boulder | 40.00690 | -105.27255 | UCM Building [Henderson] | 5430 ft. | 3-Nov-1987 | MJWeissmann | MJWeissmann | 1 | UCM |
| *Culex tarsalis* Coquillett | Boulder | Boulder | | | University of Colorado Campus | | various | various | TDACockerell | 5 | UCM |
| *Culex tarsalis* Coquillett | Boulder | n/a | | | White Rocks | | 19-Jul-???? | TDA Cockerell | unknown | 1 | WRBU |
| *Culex tarsalis* Coquillett | Boulder | Boulder | | | | | October | TDACockerell | TDACockerell | 2 | UCM |
| *Culex tarsalis* Coquillett | Boulder | Boulder | | | | | 12-May-1944 | CCombs | MJWeissmann | 1 | UCM |
| *Culex tarsalis* Coquillett | Boulder | Boulder | | | | | 6-Jun-1944 | CCombs | MJWeissmann | 1 | UCM |
| *Culex tarsalis* Coquillett | Boulder | Boulder | | | | | Sept. 1951 | HGRodeck | MJWeissmann | 1 | UCM |

# *Culex tarsalis* cont.

| Species | County | City/Town | DecDeg N | DecDeg W | Location Notes | Altitude | Date | Collector | Determination | Series | Museum |
|---|---|---|---|---|---|---|---|---|---|---|---|
| *Culex tarsalis* Coquillett | Broomfield | Broomfield | 39.99860 | -105.03910 | Anthem | 5150 ft. | 15-Aug-2012 | CMC tech | MJWeissmann | 1 | CSU |
| *Culex tarsalis* Coquillett | Broomfield | Broomfield | 39.93480 | -105.07765 | Miramonte Park | 5400 ft. | 12-Jul-1985 | MJWeissmann | MJWeissmann | 78 | UCM |
| *Culex tarsalis* Coquillett | Broomfield | Broomfield | 39.93480 | -105.07765 | Miramonte Park | 5400 ft. | 5-Aug-1985 | MJWeissmann | MJWeissmann | 3 | UCM |
| *Culex tarsalis* Coquillett | Broomfield | Broomfield | 39.99860 | -105.03910 | n/a | 5150 ft. | 24-Aug-2010 | CMC tech | MJWeissmann | 1 | CSU |
| *Culex tarsalis* Coquillett | Delta | Hotchkiss | | | .25 N of Hotchkiss | | 28-Jun-1994 | FMagloire | FMagloire | 1 | CSU |
| *Culex tarsalis* Coquillett | Denver | Denver | | | Denver | | unknown | ES Tucker | unknown | 1 | WRBU |
| *Culex tarsalis* Coquillett | Eagle | n/a | | | Hwy 6 1 mi SE of Jct. w/ Hwy 131 | | 29-Jun-2014 | DARose & CLPeters | DARose | 2 | CSU |
| *Culex tarsalis* Coquillett | Eagle | Eagle | | | Hwy 6 mm 151 | | 29-Jun-2014 | DARose & CLPeters | DARose | 1 | CSU |
| *Culex tarsalis* Coquillett | El Paso | Ivywild | | | n/a | | 13-Aug-1942 | RWPortman | RWPortman | 3 | CSU |
| *Culex tarsalis* Coquillett | El Paso | Ivywild | | | n/a | | 21-Aug-1942 | RWPortman | RWPortman | 1 | CSU |
| *Culex tarsalis* Coquillett | El Paso | Colorado Spring | | | n/a | | 18-Aug-1942 | RWPortman | RWPortman | 8 | CSU |
| *Culex tarsalis* Coquillett | El Paso | Colorado Spring | | | n/a | | 19-Aug-1942 | RWPortman | RWPortman | 4 | CSU |
| *Culex tarsalis* Coquillett | El Paso | Colorado Spring | | | n/a | | 11-Aug-1942 | RWPortman | RWPortman | 8 | CSU |
| *Culex tarsalis* Coquillett | El Paso | Ivywild | | | n/a | | 22-Aug-1942 | RWPortman | RWPortman | 1 | CSU |
| *Culex tarsalis* Coquillett | El Paso | Ivywild | | | n/a | | 21-Aug-1942 | RWPortman | RWPortman | 2 | CSU |
| *Culex tarsalis* Coquillett | El Paso | Colorado Spring | | | n/a | | 21-Aug-1942 | RWPortman | RWPortman | 1 | CSU |
| *Culex tarsalis* Coquillett | El Paso | Colorado Spring | | | n/a | | 8-Aug-1942 | RWPortman | RWPortman | 6 | CSU |
| *Culex tarsalis* Coquillett | El Paso | Colorado Spring | | | n/a | | 17-Aug-1942 | RWPortman | RWPortman | 4 | CSU |
| *Culex tarsalis* Coquillett | El Paso | Colorado Spring | | | n/a | | 25-Jul-1942 | RWPortman | RWPortman | 1 | CSU |
| *Culex tarsalis* Coquillett | El Paso | Colorado Spring | | | n/a | | 16-Aug-1942 | RWPortman | RWPortman | 1 | CSU |
| *Culex tarsalis* Coquillett | Fremont | Canon City | | | Canon City | | 6-Aug-1973 | Gary F. Hevel | unknown | 17 | WRBU |
| *Culex tarsalis* Coquillett | Fremont | Canon City | | | Canon City | | 7-Aug-1973 | Gary F. Hevel | unknown | 4 | WRBU |
| *Culex tarsalis* Coquillett | Fremont | Canon City | | | Canon City | | 9-Sep-1975 | GF Hevel | unknown | 2 | WRBU |
| *Culex tarsalis* Coquillett | Garfield | n/a | 39.44375 | -108.04210 | Battlement Mesa Willow Creek | 5140 ft. | 22-Aug-2012 | CMC tech | MJWeissmann | 1 | CSU |
| *Culex tarsalis* Coquillett | Garfield | Carbondale | | | n/a | | 10-Jul-2013 | CMC tech | DARose | 1 | CSU |
| *Culex tarsalis* Coquillett | Gunnison | Gunnison | | | Gunnison Colorado | | 25-Jul-1968 | FCHarmston | DARose | 16 | CSU |
| *Culex tarsalis* Coquillett | Gunnison | Gunnison | | | Gunnison Colorado | | 7-Sep-1967 | FCHarmston | DARose | 1 | CSU |
| *Culex tarsalis* Coquillett | Gunnison | Gunnison | | | Gunnison Colorado | | 7-Aug-1968 | FCHarmston | DARose | 2 | CSU |
| *Culex tarsalis* Coquillett | Gunnison | n/a | | | Hwy 50 and CR 45 | | 27-Jul-2014 | DARose | DARose | 3 | CSU |
| *Culex tarsalis* Coquillett | Gunnison | Gunnison | | | Gunnison | | 28-Aug-68 | FCHarmston | FCHarmston | 20 | CDC |
| *Culex tarsalis* Coquillett | Huerfano | Walsenburg | | | Walsenburg Creek | | 9-May-1947 | LT Nielsen | Harmston 48 | 2 | WRBU |
| *Culex tarsalis* Coquillett | Jackson | n/a | | | County Road 11 A | | 14-Jun-2014 | DARose | DARose | 3 | CSU |
| *Culex tarsalis* Coquillett | Jackson | n/a | | | CR 24 before Coalmont | | 14-Jun-2014 | DARose & BCKondratieff | DARose | 2 | CSU |
| *Culex tarsalis* Coquillett | Jackson | n/a | | | Odd Fellows State Wildlife Area County Road 20 | | 14-Jun-2014 | DARose | DARose | 1 | CSU |
| *Culex tarsalis* Coquillett | Jefferson | n/a | | | Doudy Draw Open Space | | 27-Jul-1994 | VAScott | MJWeissmann | 1 | UCM |
| *Culex tarsalis* Coquillett | Jefferson | Arvada | 39.80385 | -105.10215 | n/a | 5345 ft. | 24-Aug-2010 | CMC tech | MJWeissmann | 1 | CSU |
| *Culex tarsalis* Coquillett | Larimer | Fort Collins | | | Applewood Estates | | 19-Jul-1966 | JHShaw | JHShaw | 1 | CSU |
| *Culex tarsalis* Coquillett | Larimer | Fort Collins | | | Applewood Estates | | 27-Jul-1966 | JHShaw | JHShaw | 1 | CSU |
| *Culex tarsalis* Coquillett | Larimer | Fort Collins | | | Applewood Estates | | 29-Jul-1966 | JHShaw | JHShaw | 4 | CSU |
| *Culex tarsalis* Coquillett | Larimer | Fort Collins | | | Applewood Estates | | 7-Aug-1966 | JHShaw | JHShaw | 1 | CSU |
| *Culex tarsalis* Coquillett | Larimer | Fort Collins | | | Applewood Estates | | 8-Aug-1966 | JHShaw | JHShaw | 1 | CSU |
| *Culex tarsalis* Coquillett | Larimer | Fort Collins | | | Applewood Estates | | 30-Jul-1966 | JHShaw | JHShaw | 1 | CSU |

## *Culex tarsalis* cont.

| Species | County | City/Town | DecDeg N | DecDeg W | Location Notes | Altitude | Date | Collector | Determination | Series | Museum |
|---|---|---|---|---|---|---|---|---|---|---|---|
| *Culex tarsalis* Coquillett | Larimer | Fort Collins | | | Applewood Estates | | 28-Jul-1966 | JHShaw | JHShaw | 1 | CSU |
| *Culex tarsalis* Coquillett | Larimer | Fort Collins | | | Applewood Estates | | 27-Jul-1966 | JHShaw | JHShaw | 2 | CSU |
| *Culex tarsalis* Coquillett | Larimer | Fort Collins | | | Applewood Estates | | 17-Aug-1966 | JHShaw | JHShaw | 1 | CSU |
| *Culex tarsalis* Coquillett | Larimer | Fort Collins | | | Applewood Estates | | 4-Jul-1966 | JHShaw | JHShaw | 1 | CSU |
| *Culex tarsalis* Coquillett | Larimer | Fort Collins | | | Applewood Estates | | 29-Jul-1966 | JHShaw | JHShaw | 2 | CSU |
| *Culex tarsalis* Coquillett | Larimer | Fort Collins | | | Applewood Estates | | 27-Jul-1966 | JHShaw | JHShaw | 6 | CSU |
| *Culex tarsalis* Coquillett | Larimer | Fort Collins | | | Applewood Estates | | 24-Jul-1966 | JHShaw | JHShaw | 1 | CSU |
| *Culex tarsalis* Coquillett | Larimer | Fort Collins | | | Applewood Estates | | 10-Aug-1966 | JHShaw | JHShaw | 1 | CSU |
| *Culex tarsalis* Coquillett | Larimer | Fort Collins | | | Applewood Estates | | 1-Aug-1966 | JHShaw | JHShaw | 1 | CSU |
| *Culex tarsalis* Coquillett | Larimer | Fort Collins | | | Applewood Estates | | 15-Aug-1966 | JHShaw | JHShaw | 1 | CSU |
| *Culex tarsalis* Coquillett | Larimer | Berthoud | | | Berthoud Park | | 11-Jun-2014 | DARose | DARose | 4 | CSU |
| *Culex tarsalis* Coquillett | Larimer | Fort Collins | | | Cattail Marsh | | 21-Jun-1966 | JHShaw | JHShaw | 2 | CSU |
| *Culex tarsalis* Coquillett | Larimer | Fort Collins | | | Cattail Marsh | | 26-Jun-1966 | JHShaw | JHShaw | 2 | CSU |
| *Culex tarsalis* Coquillett | Larimer | Fort Collins | | | Cattail Marsh | | 3-Jul-1966 | JHShaw | JHShaw | 1 | CSU |
| *Culex tarsalis* Coquillett | Larimer | Fort Collins | | | Cattail Marsh | | 28-Jun-1966 | JHShaw | JHShaw | 2 | CSU |
| *Culex tarsalis* Coquillett | Larimer | Fort Collins | | | Cattail Marsh | | 30-Jun-1966 | JHShaw | JHShaw | 1 | CSU |
| *Culex tarsalis* Coquillett | Larimer | Fort Collins | | | Cattail Marsh | | 29-Jun-1966 | JHShaw | JHShaw | 2 | CSU |
| *Culex tarsalis* Coquillett | Larimer | Fort Collins | | | Cattail Marsh | | 23-Jun-1966 | JHShaw | JHShaw | 1 | CSU |
| *Culex tarsalis* Coquillett | Larimer | Fort Collins | | | Cattail Marsh | | 1-Jul-1966 | JHShaw | JHShaw | 1 | CSU |
| *Culex tarsalis* Coquillett | Larimer | Fort Collins | | | Cattail Marsh | | 18-Jun-1966 | JHShaw | JHShaw | 2 | CSU |
| *Culex tarsalis* Coquillett | Larimer | Fort Collins | | | Cattail Marsh | | 22-Jun-1966 | JHShaw | JHShaw | 2 | CSU |
| *Culex tarsalis* Coquillett | Larimer | Fort Collins | | | Cattail Marsh | | 2-Jul-1966 | JHShaw | JHShaw | 1 | CSU |
| *Culex tarsalis* Coquillett | Larimer | Fort Collins | | | Cattail Marsh | | 6-Jul-1966 | JHShaw | JHShaw | 1 | CSU |
| *Culex tarsalis* Coquillett | Larimer | Fort Collins | | | Cattail Marsh | | 4-Jul-1966 | JHShaw | JHShaw | 1 | CSU |
| *Culex tarsalis* Coquillett | Larimer | Fort Collins | | | Cattail Marsh | | 8-Jul-1966 | JHShaw | JHShaw | 1 | CSU |
| *Culex tarsalis* Coquillett | Larimer | Fort Collins | | | Cattail Marsh | | 15-Jul-1966 | JHShaw | JHShaw | 1 | CSU |
| *Culex tarsalis* Coquillett | Larimer | Fort Collins | | | Colorado State University | | 29-Oct-2011 | PJFlorence | PJFlorence | 1 | CSU |
| *Culex tarsalis* Coquillett | Larimer | Fort Collins | | | Colorado State University | | 2-Nov-2011 | PJFlorence | PJFlorence | 1 | CSU |
| *Culex tarsalis* Coquillett | Larimer | Loveland | | | Derby Hill Road | | 10-Jun-2014 | DARose | DARose | 2 | CSU |
| *Culex tarsalis* Coquillett | Larimer | Loveland | | | End of City Limits North | | 8-Jun-2014 | DARose | DARose | 5 | CSU |
| *Culex tarsalis* Coquillett | Larimer | Fort Collins | | | Fort Collins | | 26-Jul-???? | CKU | unknown | 11 | WRBU |
| *Culex tarsalis* Coquillett | Larimer | Loveland | | | Jocelyn & Eagle Roads | | 4-Jun-2014 | DARose | DARose | 1 | CSU |
| *Culex tarsalis* Coquillett | Larimer | Fort Collins | | | Johnson Elementary School | | 13-Jul-1993 | DWest | Dwest | 2 | CSU |
| *Culex tarsalis* Coquillett | Larimer | n/a | | | Kremmer's Cave | | 8-Aug-1996 | SFitzgerald | SFitzgerald | 1 | CSU |
| *Culex tarsalis* Coquillett | Larimer | n/a | | | Kremmer's Cave | | 30-Sep-1996 | SFitzgerald | SFitzgerald | 3 | CSU |
| *Culex tarsalis* Coquillett | Larimer | n/a | | | Kremmer's Cave | | 27-Oct-1996 | SFitzgerald | SFitzgerald | 3 | CSU |
| *Culex tarsalis* Coquillett | Larimer | n/a | | | Kremmer's Cave | | 22-Aug-1996 | SFitzgerald | SFitzgerald | 2 | CSU |
| *Culex tarsalis* Coquillett | Larimer | Fort Collins | | | n/a | | 23-Jul-1993 | DWest | Dwest | 1 | CSU |
| *Culex tarsalis* Coquillett | Larimer | Fort Collins | | | n/a | | 17-Jun-1942 | MTJames | DARose | 5 | CSU |
| *Culex tarsalis* Coquillett | Larimer | Fort Collins | | | n/a | | 11-Jun-1941 | MTJames | DARose | 1 | CSU |
| *Culex tarsalis* Coquillett | Larimer | Fort Collins | | | n/a | | 29-Jul-1941 | MTJames | DARose | 10 | CSU |
| *Culex tarsalis* Coquillett | Larimer | Fort Collins | | | n/a | | 28-Aug-1941 | MAPalmer | DARose | 3 | CSU |
| *Culex tarsalis* Coquillett | Larimer | Fort Collins | | | n/a | | 23-Aug-1941 | MAPalmer | DARose | 2 | CSU |

# *Culex tarsalis* cont.

| Species | County | City/Town | DecDeg N | DecDeg W | Location Notes | Altitude | Date | Collector | Determination | Series | Museum |
|---|---|---|---|---|---|---|---|---|---|---|---|
| *Culex tarsalis* Coquillett | Larimer | Fort Collins | | | n/a | | 13-Aug-1941 | MAPalmer | DARose | 2 | CSU |
| *Culex tarsalis* Coquillett | Larimer | Fort Collins | | | n/a | | 11-Sep-1941 | MAPalmer | DARose | 1 | CSU |
| *Culex tarsalis* Coquillett | Larimer | Fort Collins | | | n/a | | 26-Aug-1941 | MAPalmer | DARose | 1 | CSU |
| *Culex tarsalis* Coquillett | Larimer | Fort Collins | | | n/a | | 15-Sep-1941 | MAPalmer | MTJames | 2 | CSU |
| *Culex tarsalis* Coquillett | Larimer | Fort Collins | | | n/a | | 31-Jul-1941 | MYRagan | MTJames | 2 | CSU |
| *Culex tarsalis* Coquillett | Larimer | Fort Collins | | | n/a | | 6-Sep-1941 | MAPalmer | MTJames | 3 | CSU |
| *Culex tarsalis* Coquillett | Larimer | Fort Collins | | | n/a | | 30-Jul-1941 | MTJames | MTJames | 1 | CSU |
| *Culex tarsalis* Coquillett | Larimer | Fort Collins | | | n/a | | 2-Sep-1941 | MTJames | MTJames | 2 | CSU |
| *Culex tarsalis* Coquillett | Larimer | Fort Collins | | | n/a | | 1-Jul-1938 | EHeiss | EHeiss | 6 | CSU |
| *Culex tarsalis* Coquillett | Larimer | Fort Collins | | | n/a | | 24-Jun-1941 | MTJames | MTJames | 1 | CSU |
| *Culex tarsalis* Coquillett | Larimer | Fort Collins | | | n/a | | 11-Jun-1941 | MTJames | MTJames | 1 | CSU |
| *Culex tarsalis* Coquillett | Larimer | Fort Collins | | | n/a | | 16-Sep-1941 | MAPalmer | MTJames | 1 | CSU |
| *Culex tarsalis* Coquillett | Larimer | Fort Collins | | | n/a | | 30-Aug-1941 | MAPalmer | MTJames | 1 | CSU |
| *Culex tarsalis* Coquillett | Larimer | Fort Collins | | | n/a | | 2-Aug-1941 | MYRagan | MTJames | 1 | CSU |
| *Culex tarsalis* Coquillett | Larimer | Fort Collins | | | n/a | | 23-Jul-1941 | MYRagan | MTJames | 1 | CSU |
| *Culex tarsalis* Coquillett | Larimer | Fort Collins | | | n/a | | 21-Jul-1941 | MYRagan | MTJames | 1 | CSU |
| *Culex tarsalis* Coquillett | Larimer | Fort Collins | | | n/a | | 29-Jul-1941 | MYRagan | MTJames | 1 | CSU |
| *Culex tarsalis* Coquillett | Larimer | Fort Collins | | | n/a | | 12-Aug-1941 | MTJames | MTJames | 1 | CSU |
| *Culex tarsalis* Coquillett | Larimer | Fort Collins | | | n/a | | 1-Oct-1937 | RFPortman | RFPortman | 2 | CSU |
| *Culex tarsalis* Coquillett | Larimer | Fort Collins | | | n/a | | 23-Aug-1941 | MAPalmer | MTJames | 1 | CSU |
| *Culex tarsalis* Coquillett | Larimer | Fort Collins | | | n/a | | 29-Nov-1946 | CHost | Chost | 1 | CSU |
| *Culex tarsalis* Coquillett | Larimer | Fort Collins | | | n/a | | 30-Aug-1924 | n/a | DARose | 1 | CSU |
| *Culex tarsalis* Coquillett | Larimer | Fort Collins | | | n/a | | 6-Aug-1935 | RSwain | RSwain | 1 | CSU |
| *Culex tarsalis* Coquillett | Larimer | Fort Collins | | | n/a | | 26-Jul-1935 | RSwain | RSwain | 1 | CSU |
| *Culex tarsalis* Coquillett | Larimer | Fort Collins | | | n/a | | 23-Oct-1954 | DParker | MMoore | 1 | CSU |
| *Culex tarsalis* Coquillett | Larimer | Massonville | | | n/a | | 4-Sep-1934 | MTJames | DARose | 1 | CSU |
| *Culex tarsalis* Coquillett | Larimer | Fort Collins | | | n/a | | 3-Sep-1924 | n/a | n/a | 1 | CSU |
| *Culex tarsalis* Coquillett | Larimer | Timanth | | | Summer Fields Residental | | 10-Jun-2014 | DARose | DARose | 1 | CSU |
| *Culex tarsalis* Coquillett | Larimer | Timanth | | | Walmart Poudre River Access | | 10-Jun-2014 | DARose | DARose | 1 | CSU |
| *Culex tarsalis* Coquillett | Larimer | Timanth | | | Wildwing Residental | | 10-Jun-2014 | DARose | DARose | 3 | CSU |
| *Culex tarsalis* Coquillett | Larimer | Windsor | 40.47445 | -104.94645 | Windsor River Ridge | 4795 ft. | 30-Aug-2012 | CMC tech | MJWeissmann | 1 | CSU |
| *Culex tarsalis* Coquillett | Logan | n/a | | | Hwy 14 & CR 17 | | 10-Aug-2014 | DARose & CLPeters | DARose | 8 | CSU |
| *Culex tarsalis* Coquillett | Logan | n/a | | | Hwy 14 and CR 25 | | 10-Aug-2014 | DARose | DARose | 23 | CSU |
| *Culex tarsalis* Coquillett | Logan | Sterling | | | Walmart in vegitation in SE part of parking lot | | 10-Aug-2014 | DARose | DARose | 9 | CSU |
| *Culex tarsalis* Coquillett | Mesa | Grand Junction | | | 6 km. W. of Grand Junction at UV light | 1434m | 1-Jun-1989 | RSPeigler & MJWeissmann | MJWeissmann | 1 | UCM |
| *Culex tarsalis* Coquillett | Mesa | Grand Junction | | | Grand Junction | | 23-Jul-1906 | unknown | unknown | 1 | WRBU |
| *Culex tarsalis* Coquillett | Mesa | Grand Junction | | | Grand Junction | | 28-Aug-1906 | EP Taylor | unknown | 10 | WRBU |
| *Culex tarsalis* Coquillett | Mesa | n/a | | | Hwy 65 at Big Wash Creek | | 16-Aug-2014 | DARose | DARose | 4 | CSU |
| *Culex tarsalis* Coquillett | Mesa | n/a | | | Hwy 65 mm 55.5 Near Plateau Creek | | 16-Aug-2014 | DARose | DARose | 1 | CSU |
| *Culex tarsalis* Coquillett | Moffat | n/a | | | CR 20, E of Wymore Gulch | | 21-Jun-2014 | DARose & CLPeters | DARose | 2 | CSU |
| *Culex tarsalis* Coquillett | Moffat | n/a | | | Dinosaur Nat. Mon. Castle Park | | 3-Jul-1948 | HGRodeck | MJames | 1 | UCM |
| *Culex tarsalis* Coquillett | Moffat | n/a | | | Grimes Bottom Browns Park NWR | | 14-Jun-1999 | MNelson | DARose | 1 | CSU |
| *Culex tarsalis* Coquillett | Moffat | n/a | | | Jct. Hwy 13 & CR 18 | | 21-Jun-2014 | DARose & CLPeters | DARose | 3 | CSU |

# *Culex tarsalis* cont.

| Species | County | City/Town | DecDeg N | DecDeg W | Location Notes | Altitude | Date | Collector | Determination | Series | Museum |
|---|---|---|---|---|---|---|---|---|---|---|---|
| *Culex tarsalis* Coquillett | Moffat | n/a | | | Yampa River Boat Launch South of Craig | | 21-Jun-2014 | DARose & CLPeters | DARose | 3 | CSU |
| *Culex tarsalis* Coquillett | Montrose | Nucla | | | Top end Nucla | | 21-Jul-2013 | DARose | DARose | 1 | CSU |
| *Culex tarsalis* Coquillett | Morgan | Snyder | | | Snyder Colorado | | 1-Jul-1972 | FCHarmston & LJOgden | DARose | 5 | CSU |
| *Culex tarsalis* Coquillett | Prowers | n/a | | | Highlee State Wildlife Area | | 1-Jun-2014 | DARose | DARose | 5 | CSU |
| *Culex tarsalis* Coquillett | Prowers | Lamar | | | Lamar | | 12-Sep-1951 | McHenry | Pratt | 1 | WRBU |
| *Culex tarsalis* Coquillett | Prowers | Lamar | | | n/a | | 14-Jul-2013 | DARose | DARose | 1 | CSU |
| *Culex tarsalis* Coquillett | Pueblo | Pueblo | | | n/a | | 5-Aug-1938 | UNLanham | THGAitken | 1 | CSU |
| *Culex tarsalis* Coquillett | Sedgwick | Julesburg | | | CR. 32.5 SW end of Rd. | | 27-Jul-2013 | DARose | DARose | 4 | CSU |
| *Culex tarsalis* Coquillett | Sedgwick | Julesburg | | | Julesburg Cemetery | | 27-Jul-2013 | DARose | DARose | 3 | CSU |
| *Culex tarsalis* Coquillett | Sedgwick | Julesburg | | | Wayside SWA | | 27-Jul-2013 | DARose | DARose | 1 | CSU |
| *Culex tarsalis* Coquillett | Weld | CPER | 40.81190 | -104.77230 | CPER 088 | | 13-Aug-2014 | T. Baldwin | MJWeissmann | 1 | CSU |
| *Culex tarsalis* Coquillett | Weld | n/a | | | Hwy 14 and CR 149 at Prairie Café | | 10-Aug-2014 | DARose | DARose | 3 | CSU |
| *Culex tarsalis* Coquillett | Weld | n/a | | | Hwy 14 and CR 57 | | 10-Aug-2014 | DARose | DARose | 7 | CSU |
| *Culex tarsalis* Coquillett | Weld | n/a | | | Hwy 14 and CR 63 | | 10-Aug-2014 | DARose | DARose | 4 | CSU |
| *Culex tarsalis* Coquillett | Weld | n/a | | | Hwy 14 Crow Valley National Campground | | 10-Aug-2014 | DARose | DARose | 2 | CSU |
| *Culex tarsalis* Coquillett | Weld | Johnstown | 40.33705 | -104.95970 | Johnstown Reservoir | 4980 ft. | 14-Aug-2012 | CMC tech | MJWeissmann | 1 | CSU |
| *Culex tarsalis* Coquillett | Weld | Greeley | | | n/a | | 4-Jun-2013 | CMC tech | DARose | 1 | CSU |
| *Culex tarsalis* Coquillett | Weld | Greeley | | | n/a | | 22-Jul-1946 | MTJames | DARose | 13 | CSU |
| *Culex tarsalis* Coquillett | Weld | Erie | 40.04935 | -105.04980 | n/a | 5025 ft. | 6-Aug-2012 | CMC tech | MJWeissmann | 1 | CSU |
| *Culex tarsalis* Coquillett | Weld | Ft. Lupton | 40.09495 | -104.81945 | n/a | 4890 ft. | 7-Aug-2012 | CMC tech | MJWeissmann | 2 | CSU |
| *Culex tarsalis* Coquillett | Weld | Greeley | 40.43750 | -104.76360 | n/a | 4735 ft. | 7-Aug-2012 | CMC tech | MJWeissmann | 4 | CSU |
| *Culex tarsalis* Coquillett | Weld | Ft. Lupton | 40.09495 | -104.81945 | n/a | 4890 ft. | 14-Aug-2012 | CMC tech | MJWeissmann | 3 | CSU |
| *Culex tarsalis* Coquillett | Weld | La Salle | 40.34940 | -104.70075 | n/a | 4680 ft. | 26-Aug-2008 | CMC tech | MJWeissmann | 1 | CSU |
| *Culex tarsalis* Coquillett | Weld | Evans | | | n/a | | 1-Oct-1955 | DParks | DARose | 1 | CSU |
| *Culex tarsalis* Coquillett | Weld | Windsor | 40.46980 | -104.91735 | Poudre River (WR-03) | 4775 ft. | 30-Aug-2012 | CMC tech | MJWeissmann | 1 | CSU |
| *Culex tarsalis* Coquillett | Weld | Windsor | 40.47445 | -104.94645 | River Ridge (WR-11) | 4795 ft. | 30-Aug-2012 | CMC tech | MJWeissmann | 1 | CSU |
| *Culex tarsalis* Coquillett | Weld | Johnstown | 40.30985 | -104.90840 | Stroh Farm | 4865 ft. | 21-Aug-2012 | CMC tech | MJWeissmann | 1 | CSU |
| *Culex tarsalis* Coquillett | Weld | n/a | | | T1NR68WB23 | | 10-Sep-1964 | LR Ertle | unknown | 1 | WRBU |
| *Culex tarsalis* Coquillett | Weld | n/a | | | T1NR68WB24 | | 18-Aug-1964 | LR Ertle | unknown | 1 | WRBU |
| *Culex tarsalis* Coquillett | Weld | n/a | | | T1NR68WB28 | | 27-Aug-1964 | LR Ertle | unknown | 1 | WRBU |
| *Culex tarsalis* Coquillett | Yuma | n/a | | | Hale Ponds East Enterance | | 31-May-2014 | DARose | DARose | 1 | CSU |
| *Culex tarsalis* Coquillett | Yuma | n/a | | | Hale Ponds West Enterance | | 31-May-2014 | DARose | DARose | 2 | CSU |
| *Culex tarsalis* Coquillett | Yuma | n/a | | | Hale Ponds West Enterance Ultra-violet trap | | 31-May-2014 | DARose | DARose | 1 | CSU |
| *Culex tarsalis* Coquillett | | n/a | | | Evan Marr Ranch | | 7-Aug-???? | Mary Marr | unknown | 1 | WRBU |
| *Culex tarsalis* Coquillett | | n/a | | | Evan Marr Ranch | | 8-Aug-???? | Mary Marr | unknown | 1 | WRBU |
| *Culex tarsalis* Coquillett | | n/a | | | Evan Marr Ranch | | 20-Aug-???? | Mary Marr | unknown | 1 | WRBU |

## *Culex territans*

| Species | County | City/Town | DecDeg N | DecDeg W | Location Notes | Altitude | Date | Collector | Determination | Series | Museum |
|---|---|---|---|---|---|---|---|---|---|---|---|
| *Culex territans* Walker | Adams | Welby | 39.83720 | -104.96860 | Thornton Area | 5150 ft. | 17-Aug-2010 | Mchapple | MJWeissmann | 1 | CSU |
| *Culex territans* Walker | Boulder | Boulder | 40.03055 | -105.21940 | Valmont Rd. At Boulder Creek | 5190 ft. | 24-Aug-2005 | MJWeissmann | MJWeissmann | 2 | CSU |
| *Culex territans* Walker | Larimer | n/a | | | Rocky Mountain National Park | | 24-Aug-1967 | FCHarmston | DARose | 4 | CSU |
| *Culex territans* Walker | Weld | Mead | 40.25385 | -104.98765 | Vale View (VV-01) | 5040 ft. | 21-Jul-2015 | CMC Tech | MJWeissmann | 1 | CSU |

## *Culiseta alaskaensis*

| Species | County | City/Town | DecDeg N | DecDeg W | Location Notes | Altitude | Date | Collector | Determination | Series | Museum |
|---|---|---|---|---|---|---|---|---|---|---|---|
| *Culiseta alaskaensis* (Ludlow) | Eagle | n/a | | | Hwy 6 mm 165 | | 28-Jun-2014 | DARose & CLPeters | DARose | 1 | CSU |
| *Culiseta alaskaensis* (Ludlow) | Grand | Grand Lake | | | Grand Lake | | 30-May-1923 | HGDyar | unknown | 1 | WRBU |
| *Culiseta alaskaensis* (Ludlow) | Grand | Grand Lake | | | Grand Lake | | 24-May-1923 | HGDyar | unknown | 1 | WRBU |
| *Culiseta alaskaensis* (Ludlow) | Gunnison | n/a | 38.54275 | -106.88415 | 2 mi. E. of Gunnison | 7710 ft. | 15-Jun-2005 | CMC tech | MJWeissmann | 1 | CSU |
| *Culiseta alaskaensis* (Ludlow) | Gunnison | n/a | | | Cold Springs Camp Ground | | 8-Jun-2013 | DARose | DARose | 1 | CSU |
| *Culiseta alaskaensis* (Ludlow) | Gunnison | Gunnison | | | Gunnison Colorado | | 27-Jun-1968 | FCHarmston | DARose | 5 | CSU |
| *Culiseta alaskaensis* (Ludlow) | Gunnison | Gunnison | 38.59485 | -106.92555 | North Elk Meadows | 7810 ft. | 11-Jul-2013 | CMC tech | DARose | 1 | CSU |
| *Culiseta alaskaensis* (Ludlow) | Gunnison | n/a | | | Taylor Park Reservoir | | 8-Jun-2013 | DARose | DARose | 1 | CSU |
| *Culiseta alaskaensis* (Ludlow) | Gunnison | Gunnison | 38.54275 | -106.88415 | Tomichi Creek | 7710 ft. | 19-Jul-2010 | CMC tech | MJWeissmann | 1 | CSU |
| *Culiseta alaskaensis* (Ludlow) | Gunnison | Gunnison | | | Gunnison Colorado | | 13-Jun-61 | FCHarmston | FCHarmston | 1 | CDC |
| *Culiseta alaskaensis* (Ludlow) | Gunnison | Gunnison | | | Gunnison Colorado | | 23-May-68 | FCHarmston | FCHarmston | 2 | CDC |
| *Culiseta alaskaensis* (Ludlow) | Lake | n/a | | | East Tennessee Pass at CR 18 on Hwy 9 | | 28-Jun-2014 | DARose & CLPeters | DARose | 1 | CSU |
| *Culiseta alaskaensis* (Ludlow) | Larimer | n/a | | | Cherokee Park | | 28-May-1972 | FCHarmston | DARose | 6 | CSU |
| *Culiseta alaskaensis* (Ludlow) | Saguache | n/a | | | Cochetopa Pass | | 9-Jun-2013 | DARose | DARose | 2 | CSU |

## *Culiseta impatiens*

| Species | County | City/Town | DecDeg N | DecDeg W | Location Notes | Altitude | Date | Collector | Determination | Series | Museum |
|---|---|---|---|---|---|---|---|---|---|---|---|
| *Culiseta impatiens* (Walker) | Boulder | Ward | | | Ward Colorado | | 25-Jun-1962 | FCHarmston | FCHarmston | 1 | CDC |
| *Culiseta impatiens* (Walker) | Clear Creek | n/a | | | Echo Lake Park | | 4-Aug-1941 | MTJames | DARose | 1 | CSU |
| *Culiseta impatiens* (Walker) | Conejos | n/a | | | Cumbres Pass | | 26-Jul-1963 | FCHarmston | FCHarmston | 1 | CDC |
| *Culiseta impatiens* (Walker) | Eagle | Minturn | | | Homestake Road at Campground | | 28-Jun-2014 | DARose & CLPeters | DARose | 2 | CSU |
| *Culiseta impatiens* (Walker) | Eagle | n/a | | | Point of Interest NW of Tennessee Pass on Hwy 24 | | 28-Jun-2014 | DARose & CLPeters | DARose | 1 | CSU |
| *Culiseta impatiens* (Walker) | Eagle | n/a | | | Tigwon Road | | 28-Jun-2014 | DARose & CLPeters | DARose | 1 | CSU |
| *Culiseta impatiens* (Walker) | El Paso | Colorado Springs | | | n/a | | 7-Aug-1942 | RWPortman | RWPortman | 1 | CSU |
| *Culiseta impatiens* (Walker) | Fremont | Canon City | | | Canon City | | 9-Sep-1975 | GF Hevel | unknown | 1 | WRBU |
| *Culiseta impatiens* (Walker) | Grand | Grand Lake | | | Grand Lake | | 22May - 22Jun1923 | HG Dyar | unknown | 62 | WRBU |
| *Culiseta impatiens* (Walker) | Gunnison | Gunnison | | | Gunnison Colorado | | 27-Jun-1968 | FCHarmston | DARose | 1 | CDC |
| *Culiseta impatiens* (Walker) | Jackson | n/a | | | Lake Agnes Trail | | 15-Jul-1995 | SFitzgerald | SFitzgerald | 1 | CSU |
| *Culiseta impatiens* (Walker) | Jefferson | Evergreen | | | n/a | | 4-Jul-1941 | MTJames | DARose | 1 | CSU |
| *Culiseta impatiens* (Walker) | Lake | n/a | | | East Tennessee Pass at CR 18 on Hwy 9 | | 28-Jun-2014 | DARose & CLPeters | DARose | 1 | CSU |

## *Culiseta impatiens* cont.

| Species | County | City/Town | DecDeg N | DecDeg W | Location Notes | Altitude | Date | Collector | Determination | Series | Museum |
|---|---|---|---|---|---|---|---|---|---|---|---|
| *Culiseta impatiens* (Walker) | Larimer | n/a | | | Big Thompson Canyon | | 14-May-1938 | MTJames | DARose | 1 | CSU |
| *Culiseta impatiens* (Walker) | Larimer | n/a | | | Pingree Park | | 21-Jun-1992 | WCBlack | WCBlack | 1 | CSU |
| *Culiseta impatiens* (Walker) | Larimer | Estes Park | | | RMNP Alluvial Fan Park | | 15-Jun-1994 | DWest | DWest | 2 | CSU |
| *Culiseta impatiens* (Walker) | Pitkin | Aspen | 39.16235 | -106.84685 | Castle Creek | 8240 ft. | 1-Jun-2006 | CMC tech | MJWeissmann | 3 | CSU |
| *Culiseta impatiens* (Walker) | Prowers | Lamar | | | n/a | | 25-Mar-2004 | DLeatherman | DLeatherman | 1 | CSU |
| *Culiseta impatiens* (Walker) | Saguache | Cochetopa | | | Cochetopa | | 9-Jul-1911 | AK Fisher | unknown | 1 | WRBU |
| *Culiseta impatiens* (Walker) | Saguache | n/a | | | Hwy. 114 mm 40 | | 9-Jun-2013 | DARose | DARose | 1 | CSU |

## *Culiseta incidens*

| Species | County | City/Town | DecDeg N | DecDeg W | Location Notes | Altitude | Date | Collector | Determination | Series | Museum |
|---|---|---|---|---|---|---|---|---|---|---|---|
| *Culiseta incidens* (Thomson) | Adams | Northglenn | 39.88855 | -104.97990 | Grant Park | 5290 ft. | 6-Jul-2011 | CMC tech | MJWeissmann | 9 | CSU |
| *Culiseta incidens* (Thomson) | Boulder | | | | LT-9 Westview | | 20-Jun-1983 | Boulder Co. Health Dept. | MJWeissmann | 1 | UCM |
| *Culiseta incidens* (Thomson) | Boulder | Boulder | 39.98625 | -105.31930 | Mt. Flagstaff at UV light trap | 7460 ft. | 7-Jul-1989 | RSPeigler & MJWeissmann | MJWeissmann | 1 | UCM |
| *Culiseta incidens* (Thomson) | Boulder | | | | Sunshine Canyon, at UV light | 5600 ft. | 22-Jun-1990 | MDBowers | MJWeissmann | 2 | UCM |
| *Culiseta incidens* (Thomson) | Boulder | Boulder | | | | | Aug. 1944 | CCombs | MJWeissmann | 1 | UCM |
| *Culiseta incidens* (Thomson) | Broomfield | Broomfield | 39.93695 | -105.01710 | Zuni Reservoir | 5205 ft. | 29-Aug-2012 | CMC tech | MJWeissmann | 1 | CSU |
| *Culiseta incidens* (Thomson) | Chaffee | Buena Vista | | | South Cottonwood Canyon | 8500 ft. | 4-Jul-1917 | Henderson & Andrews | TDACockrell | 1 | UCM |
| *Culiseta incidens* (Thomson) | El Paso | Ivywild | | | n/a | | 29-Jul-1942 | RWPortman | RWPortman | 2 | CSU |
| *Culiseta incidens* (Thomson) | El Paso | Colorado Springs | | | n/a | | 4-Aug-1942 | RWPortman | RWPortman | 3 | CSU |
| *Culiseta incidens* (Thomson) | El Paso | Colorado Springs | | | n/a | | 26-Jul-1942 | RWPortman | RWPortman | 3 | CSU |
| *Culiseta incidens* (Thomson) | El Paso | Colorado Springs | | | n/a | | 7-Aug-1942 | RWPortman | RWPortman | 3 | CSU |
| *Culiseta incidens* (Thomson) | El Paso | Colorado Springs | | | n/a | | 25-Jul-1942 | RWPortman | RWPortman | 2 | CSU |
| *Culiseta incidens* (Thomson) | El Paso | Colorado Springs | | | n/a | | 8-Aug-1942 | RWPortman | RWPortman | 5 | CSU |
| *Culiseta incidens* (Thomson) | El Paso | Ivywild | | | n/a | | 16-Aug-1942 | RWPortman | RWPortman | 2 | CSU |
| *Culiseta incidens* (Thomson) | El Paso | Ivywild | | | n/a | | 19-Aug-1942 | RWPortman | RWPortman | 1 | CSU |
| *Culiseta incidens* (Thomson) | El Paso | Colorado Springs | | | n/a | | 17-Aug-1942 | RWPortman | RWPortman | 3 | CSU |
| *Culiseta incidens* (Thomson) | El Paso | Colorado Springs | | | n/a | | 13-Aug-1942 | RWPortman | RWPortman | 2 | CSU |
| *Culiseta incidens* (Thomson) | El Paso | Colorado Springs | | | n/a | | 18-Aug-1942 | RWPortman | RWPortman | 3 | CSU |
| *Culiseta incidens* (Thomson) | El Paso | Ivywild | | | n/a | | 21-Jul-1942 | RWPortman | RWPortman | 2 | CSU |
| *Culiseta incidens* (Thomson) | Garfield | Glenwood Springs | 39.54030 | -107.31860 | Glenwood Springs Cemetery | 6030 ft. | 22-Jul-2010 | CMC tech | MJWeissmann | 1 | CSU |
| *Culiseta incidens* (Thomson) | Gunnison | Gunnison | | | Gunnison Colorado | | 27-Jun-1968 | FCHarmston | DARose | 5 | CDC |
| *Culiseta incidens* (Thomson) | Hinsdale | Lake City | | | n/a | | 6-Jul-1995 | AREllingson | DARose | 1 | CSU |
| *Culiseta incidens* (Thomson) | Jackson | Gould | | | Gould | | 9-Sep-65 | FCHarmston | FCHamrston | 7 | CDC |
| *Culiseta incidens* (Thomson) | Jefferson | Evergreen | | | n/a | | 6-Aug-1941 | MTJames | MTJames | 6 | CSU |
| *Culiseta incidens* (Thomson) | Larimer | n/a | | | Cherokee Park | | 28-May-1972 | FCHarmston | DARose | 19 | CSU |
| *Culiseta incidens* (Thomson) | Larimer | n/a | | | Hwy 14 Poudre Canyon mm 96 | | 20-Jul-2014 | DARose & CLPeters | DARose | 1 | CSU |
| *Culiseta incidens* (Thomson) | Larimer | Fort Collins | | | n/a | | 30-Jul-1941 | MTJames | MTJames | 1 | CSU |
| *Culiseta incidens* (Thomson) | Mesa | n/a | 39.10500 | -108.73110 | Colorado Nat. Mon. Campground | 5700 ft. | 6-May-1987 | MJWeissmann | MJWeissmann | 2 | UCM |
| *Culiseta incidens* (Thomson) | Mesa | n/a | 39.10500 | -108.73110 | Colorado Nat. Mon. Campground | 5700 ft. | 9-May-1988 | MJWeissmann | MJWeissmann | 2 | UCM |
| *Culiseta incidens* (Thomson) | Mesa | n/a | 39.02915 | -108.62915 | Colorado Nat. Mon., No Thoroughfare Cyn. | 4990 ft. | 15-May-1985 | MJWeissmann | MJWeissmann | 8 | UCM |
| *Culiseta incidens* (Thomson) | Mesa | n/a | | | Hwy 65 @ mm 55.5 near Plateau Creek | | 16-Aug-2014 | DARose | DARose | 1 | CSU |
| *Culiseta incidens* (Thomson) | Mesa | n/a | | | Hwy 65 at mm 55.5 Near Plateau Creek | | 16-Aug-2014 | DARose & CLPeters | DARose | 1 | CSU |
| *Culiseta incidens* (Thomson) | Park | n/a | | | Lost Creek Wilderness, end of Forest Rd. 56 | | 23-Jul-2012 | BCKondratieff & Dleatherman | DARose | 1 | CSU |
| *Culiseta incidens* (Thomson) | Saguache | n/a | | | Hwy. 114 mm 8 | | 9-Jun-2013 | DARose | DARose | 1 | CSU |

# *Culex inornata*

| Species | County | City/Town | DecDeg N | DecDeg W | Location Notes | Altitude | Date | Collector | Determination | Series | Museum |
|---|---|---|---|---|---|---|---|---|---|---|---|
| *Culiseta inornata* (Williston) | Adams | Brighton | 39.93715 | -104.75310 | Barr Lake State Park | 5100 ft. | 16-Jun-1985 | MJWeissmann | MJWeissmann | 2 | UCM |
| *Culiseta inornata* (Williston) | Adams | Brighton | 39.93715 | -104.75310 | Barr Lake State Park | 5100 ft. | 23-May-1985 | CSeidman & MJWeissmann | MJWeissmann | 1 | UCM |
| *Culiseta inornata* (Williston) | Adams | Brighton | 39.93715 | -104.75310 | Barr Lake State Park | 5100 ft. | 20-Jun-1985 | MJWeissmann | MJWeissmann | 1 | UCM |
| *Culiseta inornata* (Williston) | Adams | Brighton | 39.93715 | -104.75310 | Barr Lake State Park | 5100 ft. | 27-May-1987 | MJWeissmann | MJWeissmann | 5 | UCM |
| *Culiseta inornata* (Williston) | Alamosa | n/a | 37.73430 | -105.50765 | Great Sand Dunes Nat. Mon., Montville Trail Area | 8300 ft. | 6-Jun-1991 | Clement, Darrow, Weissmann | MJWeissmann | 1 | UCM |
| *Culiseta inornata* (Williston) | Arapahoe | n/a | 39.59505 | -105.03035 | Columbine Valley Golf Course | 5340 ft. | 6-Jul-2005 | CMC tech | JKBennett | 1 | CSU |
| *Culiseta inornata* (Williston) | Arapahoe | Aurora | | | n/a | | 1-Oct-1945 | WRLasky | WRLasky | 1 | CSU |
| *Culiseta inornata* (Williston) | Arapahoe | n/a | 39.57785 | -104.82390 | n/a (Dove Valley Park) | 5735 ft. | 31-Jul-2013 | DARose | DARose | 1 | CSU |
| *Culiseta inornata* (Williston) | Bent | Las Animas | | | Las Animas | | 27-Jun-1948 | LD Beadle | unknown | 11 | WRBU |
| *Culiseta inornata* (Williston) | Boulder | n/a | 40.03485 | -105.18325 | 2 mi. E. of Boulder | 5150 ft. | 15-Aug-2005 | JKBennett | JKBennett | 1 | CSU |
| *Culiseta inornata* (Williston) | Boulder | Boulder | | | Campus of University of Colorado | | ??-Sep-???? | TDACockerell | unknown | 1 | WRBU |
| *Culiseta inornata* (Williston) | Boulder | Boulder | 40.05970 | -105.18175 | Gunbarrel Area, in house | 5190 ft. | 16-Nov-1986 | MJWeissmann | MJWeissmann | 1 | UCM |
| *Culiseta inornata* (Williston) | Boulder | | | | LT-1 Hovings | | 16-Jul-1984 | Boulder Co. Health Dept. | MJWeissmann | 3 | UCM |
| *Culiseta inornata* (Williston) | Boulder | | | | LT-1 Hovings | | 29-Jun-1984 | Boulder Co. Health Dept. | MJWeissmann | 3 | UCM |
| *Culiseta inornata* (Williston) | Boulder | | | | LT-1 Hovings | | 20-Jul-1983 | Boulder Co. Health Dept. | MJWeissmann | 2 | UCM |
| *Culiseta inornata* (Williston) | Boulder | | | | LT-1 Hovings | | 21-Jun-1983 | Boulder Co. Health Dept. | MJWeissmann | 1 | UCM |
| *Culiseta inornata* (Williston) | Boulder | | | | LT-12 Omaha Pl. | | 18-Jul-1984 | Boulder Co. Health Dept. | MJWeissmann | 6 | UCM |
| *Culiseta inornata* (Williston) | Boulder | | | | LT-2 Stanley | | 15-Jun-1984 | Boulder Co. Health Dept. | MJWeissmann | 1 | UCM |
| *Culiseta inornata* (Williston) | Boulder | | | | LT-2 Stanley | | 16-Aug-1983 | Boulder Co. Health Dept. | MJWeissmann | 1 | UCM |
| *Culiseta inornata* (Williston) | Boulder | | | | LT-6 Mazal | | 20-Jul-1983 | Boulder Co. Health Dept. | MJWeissmann | 1 | UCM |
| *Culiseta inornata* (Williston) | Boulder | | | | LT-9 Westview | | 20-Jun-1983 | Boulder Co. Health Dept. | MJWeissmann | 2 | UCM |
| *Culiseta inornata* (Williston) | Boulder | Longmont | | | n/a | | 3-Jun-2013 | DARose | DARose | 1 | CSU |
| *Culiseta inornata* (Williston) | Boulder | Longmont | 40.15475 | -105.09685 | n/a | 4935 ft. | 12-Aug-2013 | DARose | DARose | 1 | CSU |
| *Culiseta inornata* (Williston) | Boulder | Longmont | | | n/a | | 25-Jul-2005 | JKBennett | JKBennett | 1 | CSU |
| *Culiseta inornata* (Williston) | Boulder | Longmont | | | n/a | | 5-Oct-1999 | LNadeau | n/a | 1 | CSU |
| *Culiseta inornata* (Williston) | Boulder | Boulder | | | Univ. of Colorado Campus | | | TDACockerell | TDACockerell | 1 | UCM |
| *Culiseta inornata* (Williston) | Boulder | Boulder | | | Univ. of Colorado Campus | | 13-Sep-1917 | Aekerman | HGDyer | 1 | UCM |
| *Culiseta inornata* (Williston) | Boulder | Boulder | | | | | 21-Sep-1951 | LESwenson | MJWeissmann | 1 | UCM |
| *Culiseta inornata* (Williston) | Boulder | Boulder | | | | | 7-Jun-1944 | CCombs | DARose | 1 | UCM |
| *Culiseta inornata* (Williston) | Broomfield | Broomfield | | | n/a | | 4-Jun-2013 | DARose | DARose | 1 | CSU |
| *Culiseta inornata* (Williston) | Chaffee | n/a | | | Hwy 50 mm 200.10 | | 27-Jul-2014 | DARose | DARose | 1 | CSU |
| *Culiseta inornata* (Williston) | Chaffee | n/a | | | Monarch Park Campground | | 27-Jul-2014 | DARose | DARose | 3 | CSU |
| *Culiseta inornata* (Williston) | Chaffee | Salida | | | n/a | | 3-Aug-1938 | MTJames | MTJames | 1 | CSU |
| *Culiseta inornata* (Williston) | Clear Creek | n/a | | | Echo Lake | | 4-Aug-1941 | MTJames | MTJames | 6 | CSU |
| *Culiseta inornata* (Williston) | Eagle | Minturn | | | 2 mi. above Minturn @mouth of Cross Creek | | 4-Jul-1917 | Phil Andrews | TDACockerell | 1 | UCM |
| *Culiseta inornata* (Williston) | Eagle | n/a | | | Hwy 6 mm 165 | | 28-Jun-2014 | DARose & CLPeters | DARose | 1 | CSU |
| *Culiseta inornata* (Williston) | Fremont | Canon City | | | Canon City | | 6-Aug-1973 | GF Hevel | unknown | 1 | WRBU |
| *Culiseta inornata* (Williston) | Fremont | Canon City | | | Canon City | | 9-Sep-1975 | GF Hevel | unknown | 1 | WRBU |
| *Culiseta inornata* (Williston) | Fremont | n/a | | | Hayden Creek Campground | | 7-Jun-1966 | GF Hevel | unknown | 1 | WRBU |
| *Culiseta inornata* (Williston) | Gunnison | n/a | | | CR 45 and Hwy 50 | | 27-Jul-2014 | DARose | DARose | 4 | CSU |
| *Culiseta inornata* (Williston) | Gunnison | Gunnison | | | Gunnison Colorado | | 27-Jun-1968 | FCHarmston | DARose | 20 | CSU |
| *Culiseta inornata* (Williston) | Gunnison | Gunnison | | | Gunnison Colorado | | 25-Jul-1968 | FCHarmston | DARose | 10 | CSU |
| *Culiseta inornata* (Williston) | Gunnison | Gunnison | | | Gunnison Colorado | | 7-Sep-1967 | FCHarmston | DARose | 1 | CSU |
| *Culiseta inornata* (Williston) | Gunnison | n/a | | | Hwy 50 mm 192.50 | | 27-Jul-2014 | DARose & CLPeters | DARose | 2 | CSU |
| *Culiseta inornata* (Williston) | Jackson | n/a | | | County Road 7 at Indipendence Mountain | | 14-Jun-2014 | DARose | DARose | 1 | CSU |
| *Culiseta inornata* (Williston) | Jackson | n/a | | | Odd Fellows State Wildife Area | | 14-Jun-2014 | DARose | DARose | 1 | CSU |
| *Culiseta inornata* (Williston) | Jefferson | n/a | | | n/a | | 1-Aug-1938 | MTJames | MTJames | 1 | CSU |
| *Culiseta inornata* (Williston) | Kiowa | n/a | | | Sand Creek Massacre Nat. Hist. Site of Colorado CR 54 | | 21-May-2009 | BCKondratieff & JMercado | BCKondratieff | 9 | CSU |
| *Culiseta inornata* (Williston) | Lake | n/a | | | E Tennessee Pass at CR 18 on Hwy 9 | | 28-Jun-2014 | DARose & CLPeters | DARose | 2 | CSU |
| *Culiseta inornata* (Williston) | Lake | n/a | | | Hwy 24 & CR 19, 0.60 mi in on CR 19 | | 28-Jun-2014 | DARose & CLPeters | DARose | 1 | CSU |
| *Culiseta inornata* (Williston) | Larimer | n/a | | | Dixon Reservoir | | 29-Sep-1995 | RCorloran | n/a | 1 | CSU |
| *Culiseta inornata* (Williston) | Larimer | Loveland | | | End of City Limits North | | 8-Jun-2014 | DARose | DARose | 1 | CSU |
| *Culiseta inornata* (Williston) | Larimer | Fort Collins | | | Fern Lake Trail RMNP | | 25-Jul-1993 | DWest | DWest | 13 | CSU |
| *Culiseta inornata* (Williston) | Larimer | Fort Collins | | | Fern Lake Trail RMNP | | 16-Jun-1993 | DWest | DWest | 11 | CSU |

# *Culiseta inornata* cont.

| Species | County | City/Town | DecDeg N | DecDeg W | Location Notes | Altitude | Date | Collector | Determination | Series | Museum |
|---|---|---|---|---|---|---|---|---|---|---|---|
| *Culiseta inornata* (Williston) | Larimer | Fort Collins | | | Johnson Elementary School | | 4-Aug-1993 | DWest | DWest | 5 | CSU |
| *Culiseta inornata* (Williston) | Larimer | Fort Collins | | | Johnson Elementary School | | 23-Jul-1993 | DWest | DWest | 6 | CSU |
| *Culiseta inornata* (Williston) | Larimer | Fort Collins | | | Johnson Elementary School | | 4-Aug-1994 | DWest | DWest | 12 | CSU |
| *Culiseta inornata* (Williston) | Larimer | Fort Collins | | | n/a | | 31-Oct-2006 | MKondratieff | BCKondratieff | 1 | CSU |
| *Culiseta inornata* (Williston) | Larimer | Fort Collins | | | n/a | | 20-Oct-2005 | MKondratieff | BCKondratieff | 1 | CSU |
| *Culiseta inornata* (Williston) | Larimer | Fort Collins | | | n/a | | 10-Jun-1937 | EHeiss | EHeiss | 4 | CSU |
| *Culiseta inornata* (Williston) | Larimer | Fort Collins | | | n/a | | 18-Aug-1942 | MAPlamer | MAPlamer | 1 | CSU |
| *Culiseta inornata* (Williston) | Larimer | Fort Collins | | | n/a | | 15-Jul-1938 | EHeiss | EHeiss | 4 | CSU |
| *Culiseta inornata* (Williston) | Larimer | Fort Collins | | | n/a | | 2-Jun-1941 | MTJames | MTJames | 5 | CSU |
| *Culiseta inornata* (Williston) | Larimer | Fort Collins | | | n/a | | 1-Nov-1937 | RFPortman | RFPortman | 4 | CSU |
| *Culiseta inornata* (Williston) | Larimer | Fort Collins | | | n/a | | 1-Aug-1941 | MTJames | BCKondratieff | 1 | CSU |
| *Culiseta inornata* (Williston) | Larimer | Fort Collins | | | n/a | | 23-Jun-1941 | MAPlamer | MTJames | 1 | CSU |
| *Culiseta inornata* (Williston) | Larimer | Fort Collins | | | n/a | | 11-Jun-1941 | MTJames | MTJames | 2 | CSU |
| *Culiseta inornata* (Williston) | Larimer | Fort Collins | | | n/a | | 25-Jul-1941 | MYRagan | MTJames | 1 | CSU |
| *Culiseta inornata* (Williston) | Larimer | Fort Collins | | | n/a | | 17-Jun-1938 | EHeiss | EHeiss | 1 | CSU |
| *Culiseta inornata* (Williston) | Larimer | n/a | | | RF Transfer Station | | 8-Jun-2014 | DARose | DARose | 2 | CSU |
| *Culiseta inornata* (Williston) | Larimer | Windsor | | | Windsor | | 1-Jun-1962 | FCHarmston | DARose | 12 | CSU |
| *Culiseta inornata* (Williston) | Logan | Crook | | | Crook Colorado | | 22-May-1973 | FCHarmston & LJOgden | DARose | 6 | CSU |
| *Culiseta inornata* (Williston) | Mesa | n/a | | | Colorado Nat. Mon. Ute Canyon | | 29-Jul-1988 | BCKondratieff | BCKondratieff | 1 | CSU |
| *Culiseta inornata* (Williston) | Mesa | n/a | | | Colorado Nat. Mon. Ute Canyon | | 26-May-1988 | BCKondratieff | BCKondratieff | 1 | CSU |
| *Culiseta inornata* (Williston) | Mesa | Grand Junction | | | Grand Junction | | unknown | RH Jones | unknown | 2 | WRBU |
| *Culiseta inornata* (Williston) | Mesa | n/a | | | Hwy 65 at Big Wash Creek | | 16-Aug-2014 | DARose | DARose | 1 | CSU |
| *Culiseta inornata* (Williston) | Moffat | n/a | | | CR 20, E of Wymore Gulch | | 21-Jun-2014 | DARose & CLPeters | DARose | 1 | CSU |
| *Culiseta inornata* (Williston) | Moffat | n/a | | | Yampa River Boat Launch | | 21-Jun-2014 | DARose & CLPeters | DARose | 1 | CSU |
| *Culiseta inornata* (Williston) | Montrose | Nucla | | | CR. CC & 2900 | | 21-Jul-2013 | DARose | DARose | 1 | CSU |
| *Culiseta inornata* (Williston) | Morgan | Snyder | | | Snyder Colorado | | 19-Jul-1972 | FCHarmston & LJOgden | DARose | 4 | CSU |
| *Culiseta inornata* (Williston) | Morgan | Snyder | | | Snyder Colorado | | 19-Jul-72 | FCHarmton & LJOgden | FCHarmston & LJOgden | 2 | CDC |
| *Culiseta inornata* (Williston) | Park | n/a | | | Hwy 9 & CR 6 | | 12-Jul-2014 | DARose | DARose | 2 | CSU |
| *Culiseta inornata* (Williston) | Park | n/a | | | Hwy 9 mm 73.50 | | 12-Jul-2014 | DARose | DARose | 1 | CSU |
| *Culiseta inornata* (Williston) | Prowers | Bristol | | | Center of town in Bristol | | 1-Jun-2014 | DARose | DARose | 1 | CSU |
| *Culiseta inornata* (Williston) | Saguache | n/a | | | Cochetopa, Nat. Forest [Rio Grande] | 7,000 ft. | 13-Jul-1911 | AK Fisher | unknown | 2 | WRBU |
| *Culiseta inornata* (Williston) | Sedgwick | n/a | | | Julesburg Reservoir | | 22-May-1973 | FCHarmston & LJOgden | DARose | 8 | CSU |
| *Culiseta inornata* (Williston) | Summit | n/a | | | Hwy 9 mm 83.25, N of Fairplay | | 12-Jul-2014 | DARose | DARose | 2 | CSU |
| *Culiseta inornata* (Williston) | Teller | Florrisant | | | Florrisant | | 29-Jun-1907 | SA Rohwer | unknown | 1 | WRBU |
| *Culiseta inornata* (Williston) | Teller | Florrisant | | | Florrisant | | 20-Jun-1907 | SA Rohwer | unknown | 1 | WRBU |
| *Culiseta inornata* (Williston) | Teller | Florrisant | | | Florrisant | | ??-Jun-1907 | TDACockerell | unknown | 1 | WRBU |
| *Culiseta inornata* (Williston) | Weld | Erie | 40.04935 | -105.04980 | n/a | 5025 ft. | 6-Aug-2012 | CMC tech | MJWeissmann | 1 | CSU |
| *Culiseta inornata* (Williston) | Weld | Greeley | | | n/a | | 22-Jul-1946 | MTJames | MTJames | 1 | CSU |
| *Culiseta inornata* (Williston) | Weld | Roggen | | | n/a | | 10-May-1941 | MTJames | MTJames | 2 | CSU |
| *Culiseta inornata* (Williston) | Weld | Platteville | | | Platteville | | 1-Jun-1962 | FCHarmston | DARose | 11 | CSU |
| *Culiseta inornata* (Williston) | Weld | n/a | | | T1NR68WB23 | | 12-Sep-1964 | LR Ertle | unknown | 1 | WRBU |
| *Culiseta inornata* (Williston) | Weld | n/a | | | T1NR69WB22 | | 12-Sep-1964 | LR Ertle | unknown | 1 | WRBU |
| *Culiseta inornata* (Williston) | Weld | n/a | | | T1NR69WB23 | | 12-Sep-1964 | LR Ertle | unknown | 1 | WRBU |
| *Culiseta inornata* (Williston) | Weld | Platteville | | | Platteville | | 1-Jun-62 | FCHamrston | FCHarmston | 1 | CDC |
| *Culiseta inornata* (Williston) | Yuma | n/a | | | Bonny State Wildlife Area | | 31-May-2014 | DARose | DARose | 10 | CSU |
| *Culiseta inornata* (Williston) | Yuma | n/a | | | Hale Ponds West Enterance | | 31-May-2014 | DARose | DARose | 9 | CSU |
| *Culiseta inornata* (Williston) | Yuma | n/a | | | Hale Ponds West Enterance Ultra-violet trap | | 31-May-2014 | DARose | DARose | 4 | CSU |
| *Culiseta inornata* (Williston) | | | | | Evan Marr Ranch | | 8-Aug-???? | Mary Marr | unknown | 1 | WRBU |
| *Culiseta inornata* (Williston) | | | | | Evan Marr Ranch | | 11-Aug-???? | Mary Marr | unknown | 1 | WRBU |

## *Culiseta morsitans*

| Species | County | City/Town | DecDeg N | DecDeg W | Location Notes | Altitude | Date | Collector | Determination | Series | Museum |
|---|---|---|---|---|---|---|---|---|---|---|---|
| *Culiseta morsitans* (Theobald) | Larimer | n/a | | | Alluvial Fan Park RMNP | | 15-Jun-1994 | DWest | DWest | 1 | CSU |
| *Culiseta morsitans* (Theobald) | Larimer | n/a | | | Pingree Park | | 16-Jun-1994 | DWest | DWest | 1 | CSU |
| *Culiseta morsitans* (Theobald) | Larimer | n/a | | | Pingree Park | | 1-Jun-1993 | CBosio | CBosio | 1 | CSU |
| *Culiseta morsitans* (Theobald) | Routt | Steamboat Springs | | | n/a | | 2-Jul-2004 | NOBray | AHickman | 2 | CSU |

## *Psorophora columbiae*—NO RECORDS

## *Psorophora discolor*

| Species | County | City/Town | DecDeg N | DecDeg W | Location Notes | Altitude | Date | Collector | Determination | Series | Museum |
|---|---|---|---|---|---|---|---|---|---|---|---|
| *Psorophora discolor* (Coquillett) | Weld | | 40.78582634 | -104.7077239 | Central Plains Experimental Station | | 6-Jul-2011 | NEON | MJWeissmann | 20 | NEON |
| *Psorophora discolor* (Coquillett) | Weld | | 40.78582634 | -104.7077239 | Central Plains Experimental Station | | 12-Jul-2011 | NEON | MJWeissmann | 2 | NEON |

## *Psorophora signipennis*

| Species | County | City/Town | DecDeg N | DecDeg W | Location Notes | Altitude | Date | Collector | Determination | Series | Museum |
|---|---|---|---|---|---|---|---|---|---|---|---|
| *Psorophora signipennis* (Coquillett) | Adams | Commerce City | | | n/a | | 5-Aug-2004 | CMC tech | SBlunt | 1 | CSU |
| *Psorophora signipennis* (Coquillett) | Adams | Bennett | | | n/a | | 27-Jul-2004 | TCHD tech | SBlunt | 1 | CSU |
| *Psorophora signipennis* (Coquillett) | Arapahoe | Aurora | 39.63805 | -104.69730 | Arapahoe County Fairgrounds (AC-01) | 5780 ft. | 14-Aug-2014 | CMC tech | MJWeissmann | 1 | CSU |
| *Psorophora signipennis* (Coquillett) | Baca | n/a | | | Carrizo Creek Rd. M | | 13-Jul-2013 | DARose | DARose | 1 | CSU |
| *Psorophora signipennis* (Coquillett) | Douglas | Parker | | | n/a | | 20-Jun-2012 | CMC tech | MJWeissmann | 2 | CSU |
| *Psorophora signipennis* (Coquillett) | Larimer | Fort Collins | | | n/a | | 2-Aug-2011 | MYRagan | WBOwen | 1 | CSU |
| *Psorophora signipennis* (Coquillett) | Logan | n/a | | | Hwy 14 and CR 17 | | 10-Aug-2014 | DARose | DARose | 1 | CSU |
| *Psorophora signipennis* (Coquillett) | Mesa | nr. Glade Park | 39.037343 | -108.772852 | B1/4 Rd., 3.5 mi. NW of Glade Park | 6750 ft. | 3-Aug-2015 | HThompson | MJWeissmann | 10 | CSU |
| *Psorophora signipennis* (Coquillett) | Mesa | Clifton | 39.08720 | -108.42645 | Clifton, 33-3/4 Rd. | 4695 ft. | 11-Jul-2011 | | MJWeissmann | 1 | CSU |
| *Psorophora signipennis* (Coquillett) | Mesa | nr. Glade Park | 39.018931 | -108.764506 | So. Trail Canyon Dr. | 6790 ft. | 3-Aug-2015 | Hanna Thompson | MJWeissmann | 1 | CSU |
| *Psorophora signipennis* (Coquillett) | Morgan | Ft. Morgan | 40.23960 | -103.79365 | n/a | 4325 ft. | 28-Jun-2006 | CMC tech | MJWeissmann | 1 | CSU |
| *Psorophora signipennis* (Coquillett) | Pueblo | Boone | 38.24790 | -104.25245 | Main St. east of Boone Ave. (PU-17) | 4460 ft. | 24-Jun-2014 | CRodosevich | ADvanGulik | 1 | CSU |
| *Psorophora signipennis* (Coquillett) | Pueblo | Boone | 38.24790 | -104.25245 | Main St. east of Boone Ave. (PU-17) | 4460 ft. | 29-Jul-2014 | CRodosevich | ADvanGulik | 1 | CSU |
| *Psorophora signipennis* (Coquillett) | Pueblo | Pueblo | | | n/a | | 25-Jun-2013 | CMC tech | DARose | 1 | CSU |
| *Psorophora signipennis* (Coquillett) | Pueblo | Pueblo | | | n/a | | 30-Jul-2013 | CMC tech | DARose | 1 | CSU |
| *Psorophora signipennis* (Coquillett) | Pueblo | Boone | 38.24790 | -104.25245 | n/a | 4460 ft. | 7-Aug-2012 | CMC tech | MJWeissmann | 1 | CSU |
| *Psorophora signipennis* (Coquillett) | Pueblo | Boone | 38.24790 | -104.25245 | n/a | 4460 ft. | 28-Jun-2011 | CMC tech | MJWeissmann | 7 | CSU |
| *Psorophora signipennis* (Coquillett) | Pueblo | Pueblo | 38.27745 | -104.48355 | Pueblo Airport (PB-23) | 4600 ft. | 29-Jul-2014 | CRodosevich | MJWeissmann | 1 | CSU |
| *Psorophora signipennis* (Coquillett) | Weld | n/a | | | Hwy 14 and CR 155 | | 10-Aug-2014 | DARose | DARose | 1 | CSU |
| *Psorophora signipennis* (Coquillett) | Weld | n/a | | | Hwy 14 and CR 63 | | 10-Aug-2014 | DARose | DARose | 31 | CSU |
| *Psorophora signipennis* (Coquillett) | Weld | n/a | | | Hwy 14 Crow Valley National Campground | | 10-Aug-2014 | DARose | DARose | 1 | CSU |
| *Psorophora signipennis* (Coquillett) | Weld | Keenesburg | 40.11025 | -104.51950 | n/a | 4950 ft. | 13-Sep-2006 | CMC tech | MJWeissmann | 1 | CSU |
| *Psorophora signipennis* (Coquillett) | Weld | Lochbuie | 40.00650 | -104.72200 | n/a | 5030 ft. | 16-Aug-2006 | CMC tech | MJWeissmann | 2 | CSU |

## *Uranotaenia anhydor syntheta*

| Species | County | City/Town | DecDeg N | DecDeg W | Location Notes | Altitude | Date | Collector | Determination | Series | Museum |
|---|---|---|---|---|---|---|---|---|---|---|---|
| *Uranotaenia anhydor syntheta* Dyar & Shannon | Pueblo | Pueblo | 38.25655 | -104.43580 | 760 38th Lane | 4610 ft. | 25-Aug-2009 | MJWeissmann | MJWeissmann | 7 | CSU |

## *Uranotaenia sapphirina*

| Species | County | City/Town | DecDeg N | DecDeg W | Location Notes | Altitude | Date | Collector | Determination | Series | Museum |
|---|---|---|---|---|---|---|---|---|---|---|---|
| *Uranotaenia sapphirina* (Osten Sacken) | Pueblo | n/a | 38.27360 | -104.34140 | Pueblo Army Depot | 4690 ft. | 25-Sep-1979 | Rshrove | ELPeyton | 1 | WRBU |