

Mosquito Genera Identification Key



United States and Alaska

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Introduction

How to use this key:

Identifying local mosquito genera is essential when establishing and carrying out control measures. This key uses characteristics, or characters, to differentiate between the mosquito genera found in the United States and Alaska and insects that are not mosquitoes. Begin at step 1 on page 7 and select the choice that matches your insect specimen. Each selection will lead you to a specific mosquito genus or will send you to a new set of choices. Each step is followed by a number in parentheses (see pages 8 through 15). This is the step number that sent you to your current choice. Continue through the key until you have identified your specimen.

Limitations

Characteristics in this key must be viewed with a dissecting microscope. This key is intended for field use; it separates mosquito specimens into genera but does not identify mosquitoes to the species level. Mosquito genera contain both medically important species and species that do not transmit disease. Additional keys are required to identify the species within each genera. Photos of characteristics used in this key have been selected for clarity of the character and may not be images of the actual genus. Images of all mosquitoes are not readily available. Where photos of characteristics are not available for a specific genera, photos of other genera have been substituted. Substituted images may not be representative of the actual genera or of a genera found in the United States and Alaska.



Identifying local mosquito genera is essential when establishing and carrying out control measures.

Map of the United States and Alaska

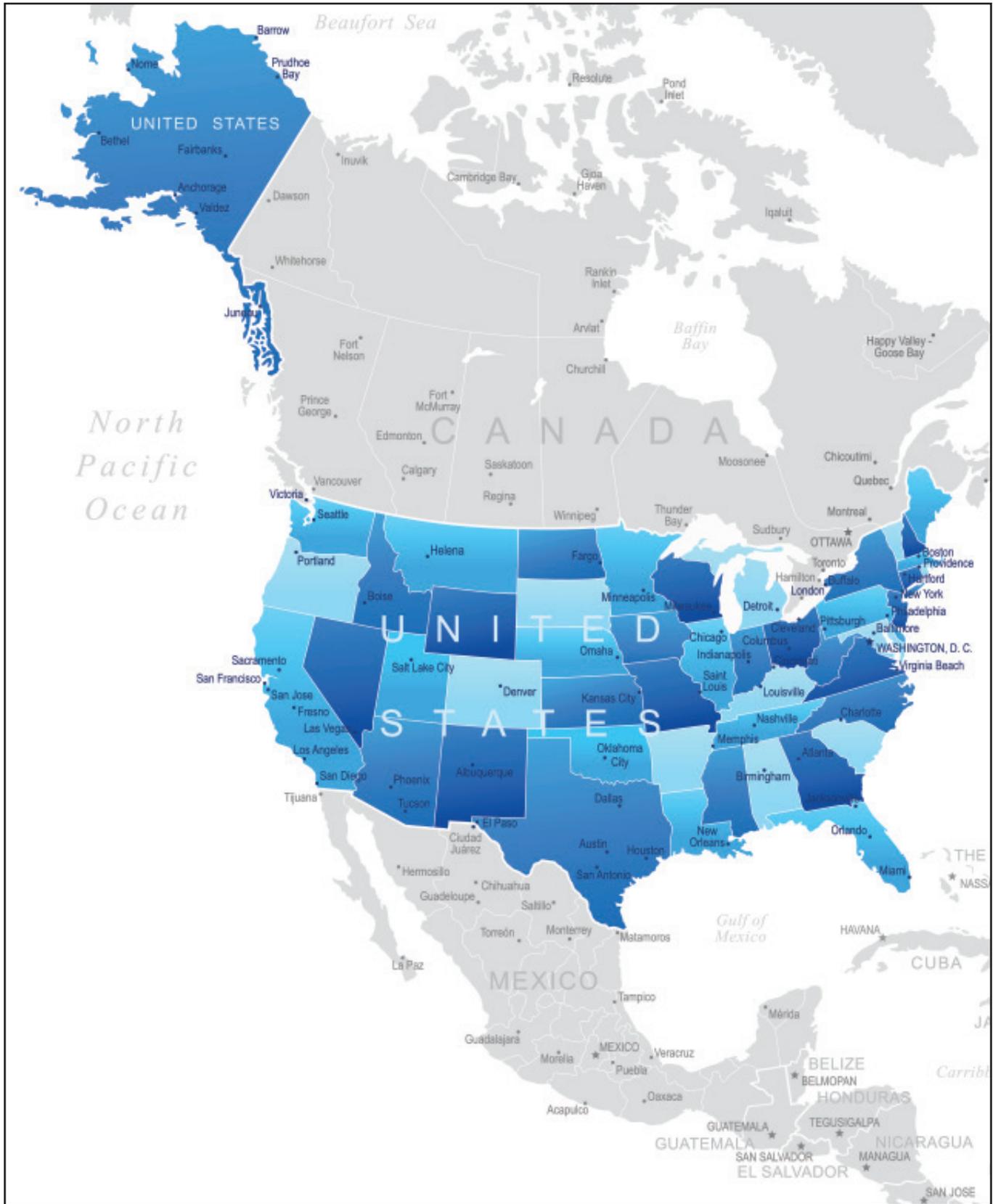


Fig. 1. Map of the United States including Alaska

Mosquito Morphological Structures

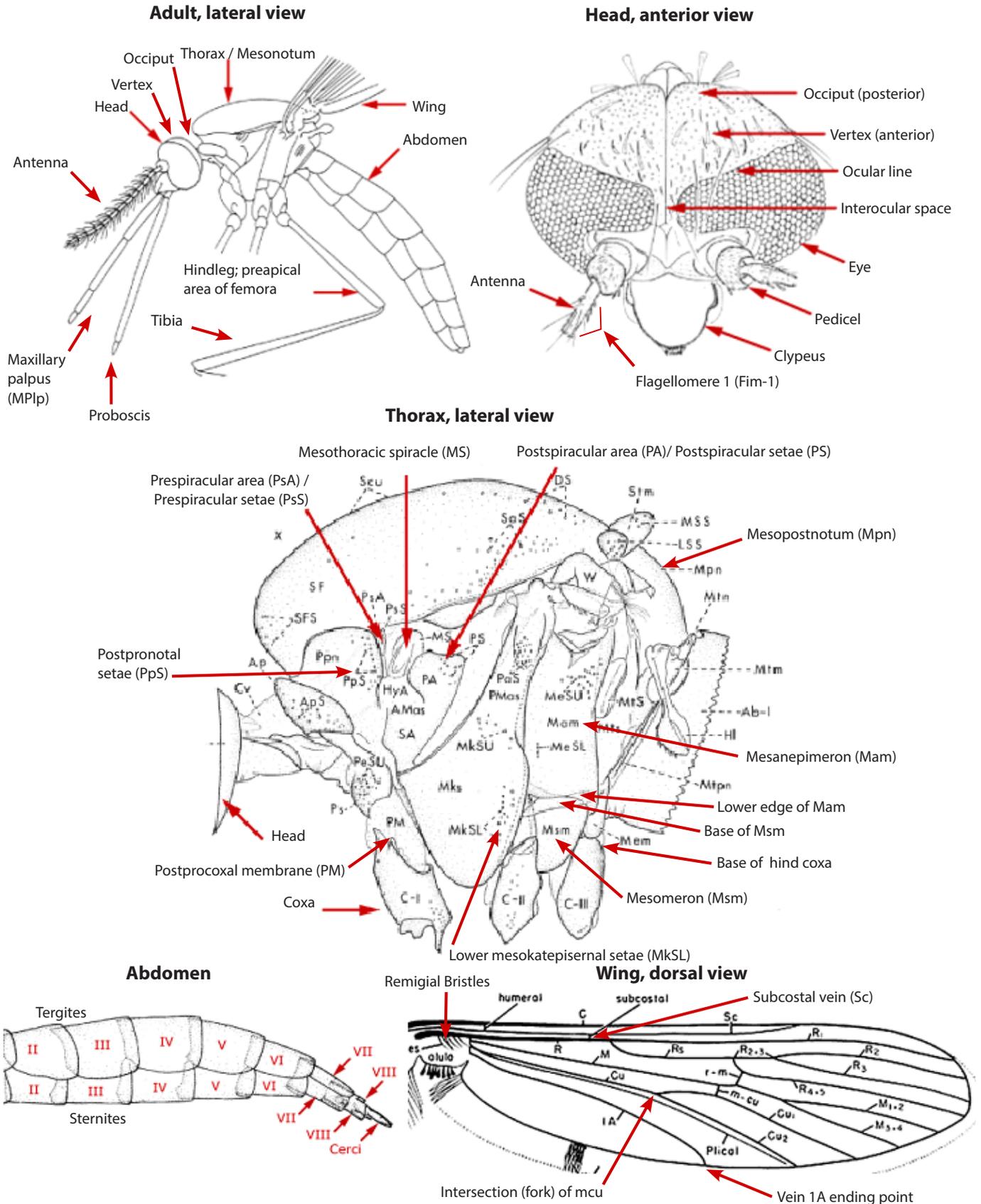


Fig. 2. Diagrams of Mosquito Morphological Structures

List of the Mosquito Genera Covered in this Key and their Related Figures

Genera:	Related figures:
<i>Aedes</i>	4, 10,* 16, 19, 29, 39, 40, 57, 59, (60), (61), (62)
<i>Anopheles</i>	11,* 13,* 14, 15,* (63)
<i>Coquillettidia</i>	3, 37, 38, 46, 51, 53, 55, (64)
<i>Culex</i>	12, 22, 26, 30, 32, 35, 36, 45,* 48, (65), (66), (67)
<i>Culiseta</i>	24, 28, 31, (68)
<i>Deinocerites</i>	49, (69)
<i>Haemagogus</i>	43,* 44,* 56,* 58,* (70*)
<i>Mansonia</i>	17, 33, 34, 47,* 52, 54, (71)
<i>Orthopodomyia</i>	50,* (72*)
<i>Psorophora</i>	18, 27, 41, 42, (73), (74)
<i>Toxorhynchites</i>	20, (75)
<i>Uranotaenia</i>	25, (76)
<i>Wyeomyia</i>	21, 23,* (77*)

*The genera pictured may not be found in the US, or a photo of another genera has been substituted to represent the feature.

Illustrated Key to Female Mosquito Genera in the US and Alaska

Step: 01

A fly with needle-like mouthparts (**fig. 3**); scales covering the body (**fig. 4**); and scales on the wings (**fig. 5**) **Mosquito — go to step 2**

No needle-like mouthparts (**figs. 7 and 8**); body without scales (**fig. 9**); wings usually without scales (**fig. 6**) **Not a Mosquito**



Fig. 3. Needle-like mouthparts: *Coquillettia perturbans*



Fig. 4. Lateral view of thorax: *Aedes tormentor*



Fig. 5. Wing with scales



Fig. 6. Wing usually without scales



Fig. 7. No needle-like mouthparts: sand fly



Fig. 8. No needle-like mouthparts: sand fly



Fig. 9. Body without scales

Step: 02 (1)

Antennae bushy or feather-like, palpi (MP1p) as long as proboscis and bushy or with paddles (figs. 10–12)	Male
Antennae not bushy or feather-like, palpi (MP1p) as long as proboscis, not bushy and without paddles. Proboscis with apical half not strongly recurved and not more slender than basal half (not tapering to a point) (figs. 13–15)	Female <i>Anopheles</i>
Antennae not bushy or feather-like, palpi (MP1p) shorter than proboscis, proboscis with apical half not strongly recurved and not tapering to a point (figs. 16–19)	Female Subfamily <i>Culicinae</i> – 3
Antennae not bushy or feather-like, proboscis (P) with apical half strongly recurved and more slender than basal half (tapering to a point) (fig. 20)	Female <i>Toxorhynchites</i>



Fig. 10. Palpi as long as proboscis: Male *Ae. caspius**



Fig. 11. Palpi with paddles: Male *An. dthali**



Fig. 12. Antennae feather-like: Male *Culex quinquefasciatus*



Fig. 13. Palpi as long as proboscis: *An. aquasalis**

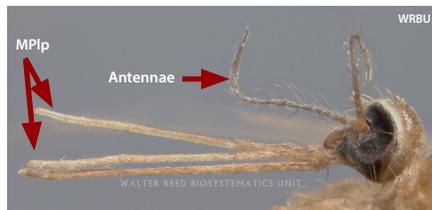


Fig. 14. Palpi without paddles: *An. aztecus*



Fig. 15. Antennae not bushy or feather-like: *An. dirus**

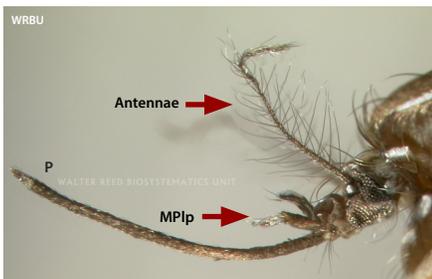


Fig. 16. Palpi shorter than proboscis: *Ae. aegypti*

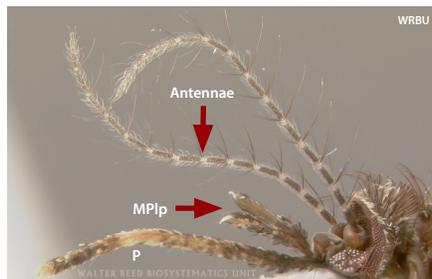


Fig. 17. Antennae not bushy or feather-like: *Mansonia titillans*



Fig. 18. Antennae not bushy or feather-like: *Psorophora* spp.



Fig. 19. Proboscis with apical half not more slender than basal half (not tapering to a point): *Aedes albopictus*

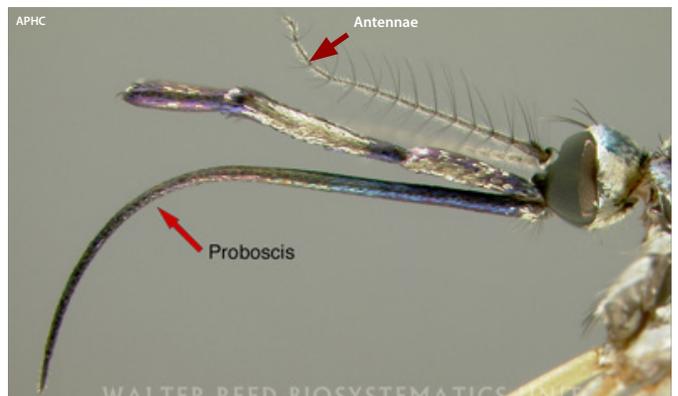


Fig. 20. Proboscis strongly recurved and tapering to a point: *Toxorhynchites rutilus*

Step: 03 (2)

Abdominal scales dark dorsally (tergites) and pale ventrally (sternites)(fig. 21); mesopostnotum (Mpn) with setae (fig. 23)	Wyeomyia
Abdominal scales on tergites with pale bands or lateral spots (fig. 22); mesopostnotum (Mpn) without setae (fig. 24)	4

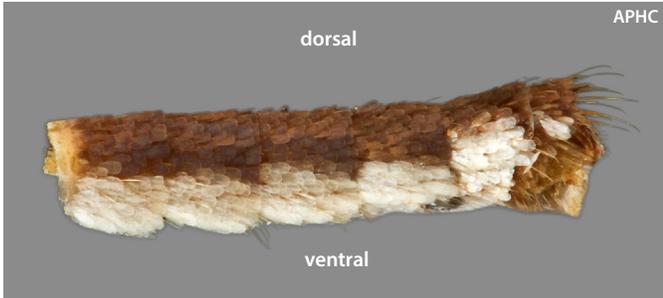


Fig. 21. Abdominal scales dark dorsally (tergites) and pale ventrally (sternites): *Wyeomyia smithii*



Fig. 22. Abdominal scales on tergites with pale bands or lateral spots: *Culex pipiens*

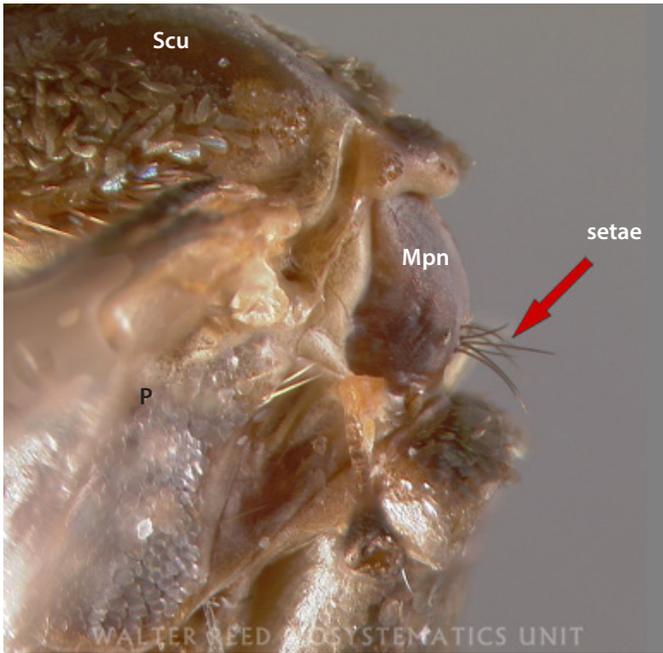


Fig. 23. Mesopostnotum (Mpn) with setae: *Johnbelkinia ulopus**

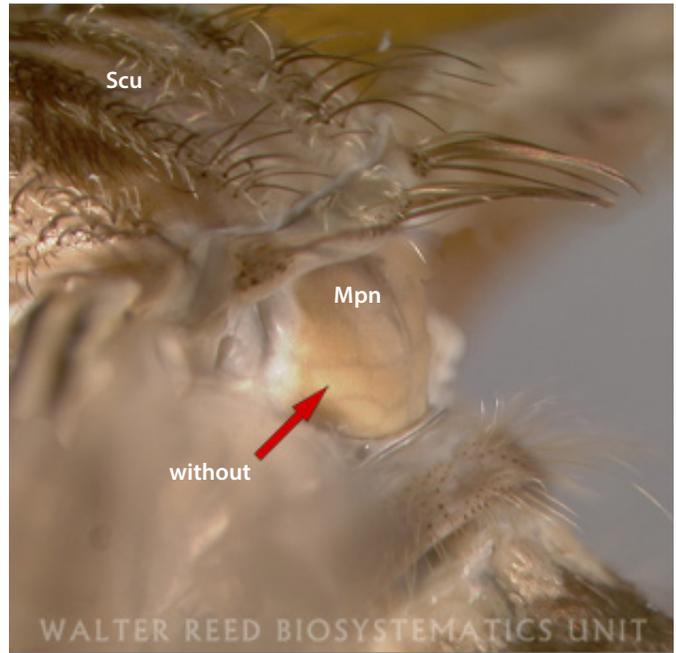


Fig. 24. Mesopostnotum (Mpn) without setae: *Culiseta morsitans*

Step: 04 (3)

Vein 1A ending before or at level with intersection (fork) of mcu (fig. 25), thorax with lines of iridescent blue scales	Uranotaenia
Vein 1A ending beyond intersection (fork) of mcu (fig. 26), iridescent blue scales absent on thorax	5

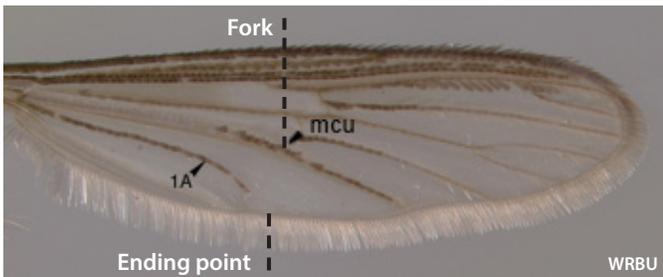


Fig. 25. Vein 1A ending before intersection (fork) of mcu: *Uranotaenia* spp.

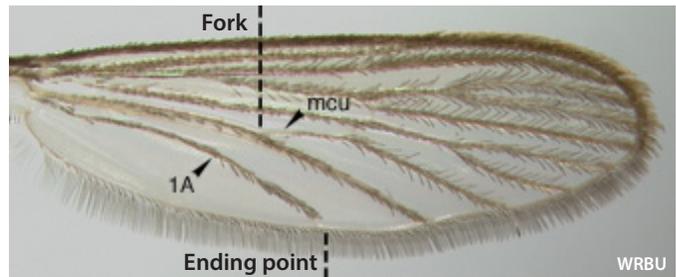


Fig. 26. Vein 1A ending beyond intersection (fork) of mcu: *Culex* spp.

Step: 05 (4)

Prespiracular setae (PsS) present AND postspiracular setae (PS) present (fig. 27)	Psorophora
Prespiracular setae (PsS) present AND postspiracular setae absent [No setae in the postspiracular area (PA)] (fig. 28), underside of wing, base of subcostal vein with a row of bristles (fig. 31)	Culiseta
Prespiracular setae absent [No setae in the prespiracular area (PsA)], postspiracular setae (PS) may or may not be present (figs. 29 & 30), underside of wing, base of subcostal vein without a row of bristles (fig. 32)	6

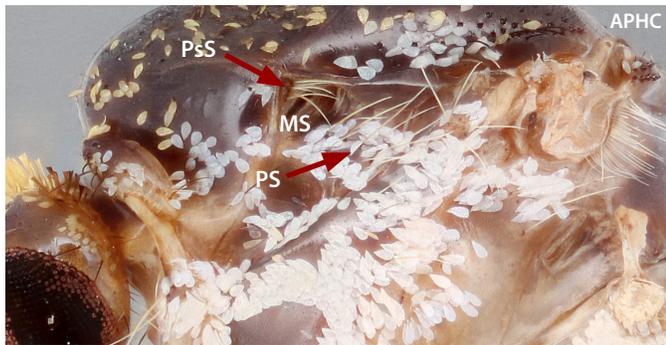


Fig. 27. Prespiracular setae (PsS) present AND postspiracular setae (PS) present: *Psorophora ferox*

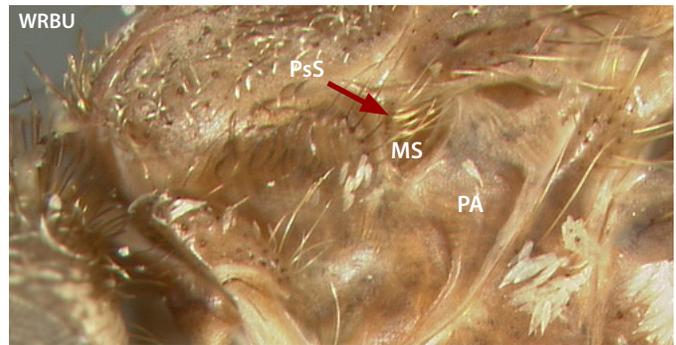


Fig. 28. Prespiracular setae (PsS) present AND postspiracular setae absent: *Culiseta morsitans*

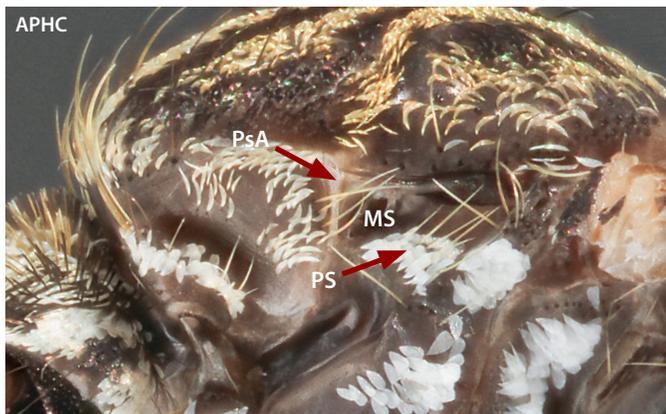


Fig. 29. Prespiracular setae absent AND postspiracular setae (PS) present: *Aedes japonicas*

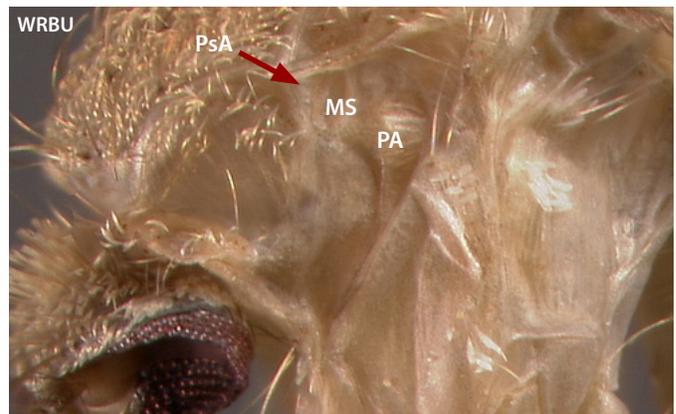


Fig. 30. Prespiracular and postspiracular setae absent: *Culex quinquefasciatus*

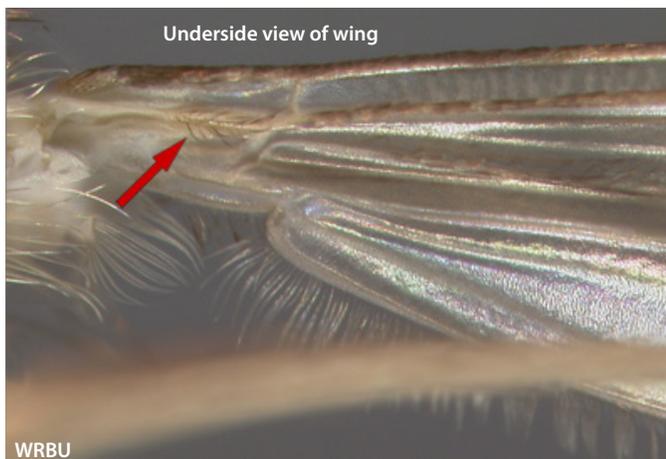


Fig. 31. Base of subcostal with a row of bristles on the underside: *Culiseta morsitans*

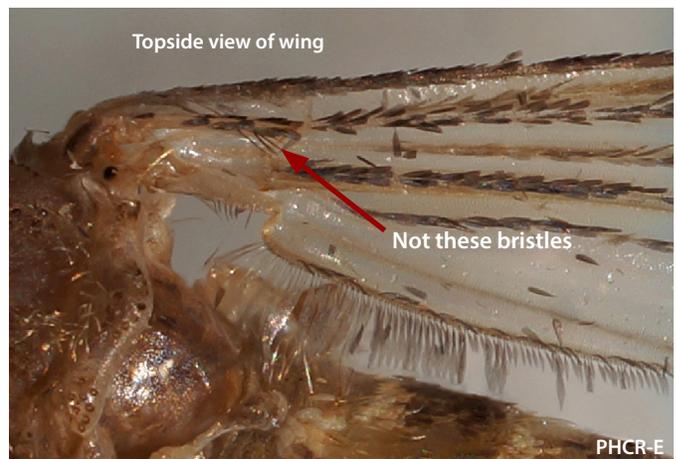


Fig. 32. Base of subcostal without a row of bristles on the underside. Do not mistake bristles found on the top side of the wing for this feature: *Culex quinquefasciatus*

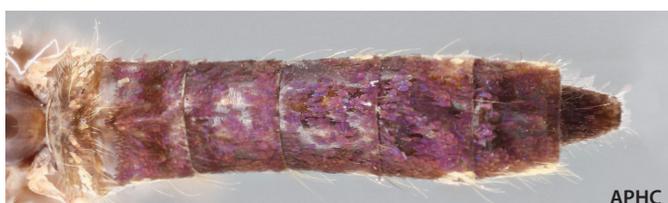
Step: 06 (5)

Abdomen blunt in dorsal view, last segment wider than it is long (figs. 33–38)

7

Abdomen pointed in dorsal view, last segment longer than it is wide (figs. 39–44)

11

**Fig. 33.** Abdomen blunt, dorsal view: *Mansonia titillans***Fig. 34.** Abdomen blunt, lateral view: *Mansonia titillans***Fig. 35.** Abdomen blunt, dorsal view: *Culex quinquefasciatus***Fig. 36.** Abdomen blunt, lateral view: *Culex quinquefasciatus***Fig. 37.** Abdomen blunt, dorsal view: *Coquillettidia perturbans***Fig. 38.** Abdomen blunt, lateral view: *Coquillettidia perturbans***Fig. 39.** Abdomen pointed, dorsal view: *Aedes japonicus***Fig. 40.** Abdomen pointed, lateral view: *Aedes japonicus***Fig. 41.** Abdomen pointed, dorsal view: *Psorophora ferox***Fig. 42.** Abdomen pointed, lateral view: *Psorophora ferox***Fig. 43.** Abdomen pointed, dorsal view: *Haemagogus mesodentatus****Fig. 44.** Abdomen pointed, lateral view: *Haemagogus mesodentatus**

Step: 07 (6)

Wing scales on dorsal surface narrow (**fig. 45**)

8

Wing scales on dorsal surface broad, mixed brown and white (**figs. 46 & 47**)

9



Fig. 45. Wing scales on dorsal surface narrow: *Culex tritaeniorhynchus**



Fig. 46. Wing scales on dorsal surface broad, mixed brown and white: *Coquillettia perturbans*



Fig. 47. Wing scales on dorsal surface broad, mixed brown and white: *Mansonia uniformis**

Step: 08 (7)

Antennae not longer than proboscis, antennal flagellomere 1 (Flm-1) about the same length as flagellomere 2 (**fig. 48**)

Culex

Antennae longer than proboscis, antennal flagellomere 1 (Flm-1) elongate, twice as long as flagellomere 2 (Flm-2)(**fig. 49**) **Deinocerites**



Fig. 48. Antennae not longer than proboscis, antennal flagellomere 1 (Flm-1) about the same length as flagellomere 2: *Culex pipiens*



Fig. 49. Antennae longer than proboscis, antennal flagellomere 1 (Flm-1) elongated, twice as long as flagellomere 2 (Flm-2): *Deinocerites pseudes*

Step: 09 (7)

Mesonotum (thorax) with fine longitudinal lines of white scales (**fig. 50**)

Orthopodomyia

Mesonotum (thorax) without fine longitudinal lines of white scales (**fig. 51**)

10



Fig. 50. Mesonotum with fine longitudinal lines of white scales: *Orthopodomyia albicosta**



Fig. 51. Mesonotum without fine longitudinal lines of white scales: *Coquillettia perturbans*

Step: 10 (9)

Postspiracular setae (PS) present (**fig. 52**), tarsomere 1 (Ta1) without a pale ring (**fig. 54**)

Mansonia

Postspiracular setae absent [no setae in the postspiracular area (PA)] (**fig. 53**), tarsomere 1 (Ta1) with a pale ring in the middle (**fig. 55**)

Coquillettia

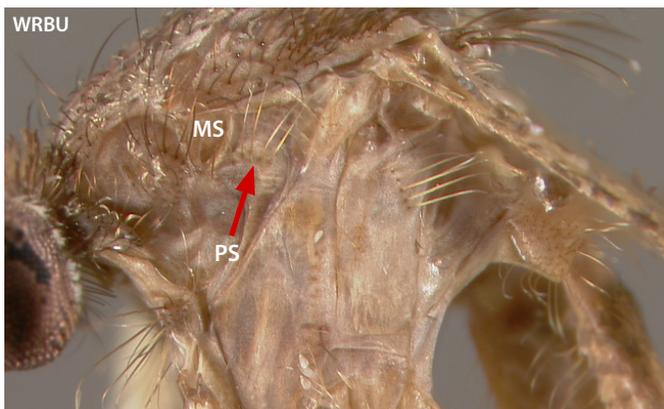


Fig. 52. Postspiracular setae (PS) present: *Mansonia titillans*

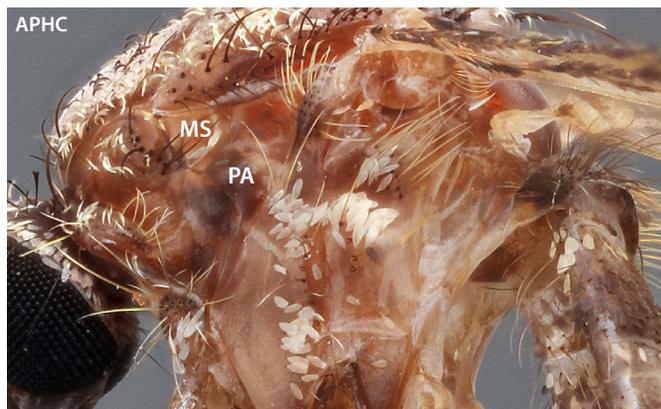


Fig. 53. Postspiracular setae absent: *Coquillettia perturbans*



Fig. 54. Tarsomere 1 (Ta1) without a pale ring: *Mansonia titillans*



Fig. 55. Tarsomere 1 (Ta1) with a pale ring in the middle: *Coquillettia perturbans*

Step: 11 (6)

Abdominal scales bright metallic violet and silver (**fig. 56**), scutum (Scu) with broad flat metallic scales, arrangement of silvery scales extending from scutum to coxae in a single broad, vertical band (**fig. 58**)

Haemagogus

Abdomen without bright metallic scales (**fig. 57**), scutum (Scu) without broad flat metallic scales, without broad band of scales as described above (**fig. 59**)

Aedes

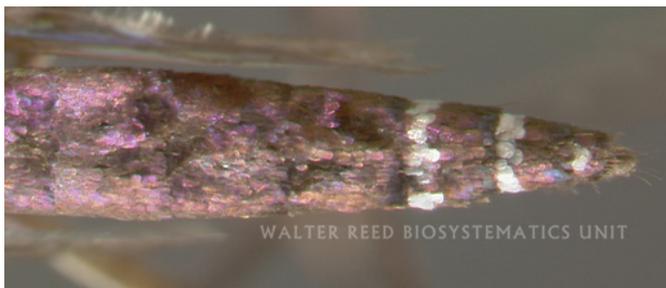


Fig. 56. Abdomen with bright metallic violet and silver scales: *Haemagogus spegazzinii**



Fig. 57. Dorsal segments of abdomen with pale scales basally: *Aedes trivittatus*

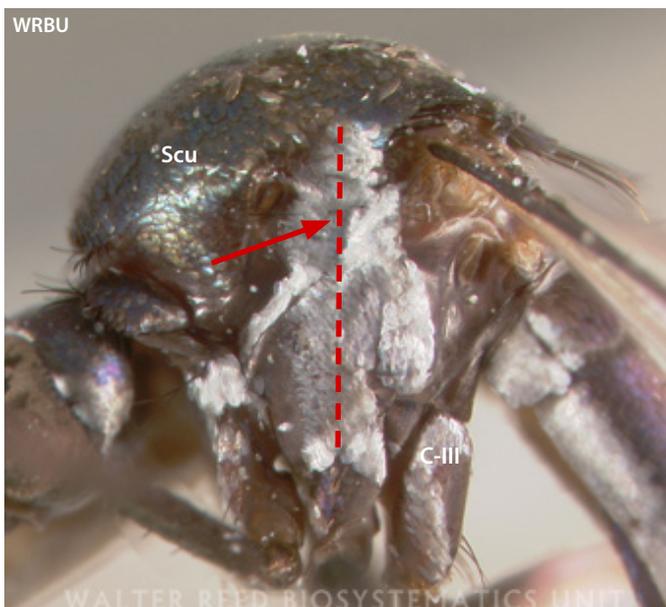


Fig. 58. Arrangement of silvery scales extending from scutum (Scu) to coxae in a single broad, vertical band: *Haemagogus spegazzinii**



Fig. 59. Arrangement of silvery scales not extending from scutum (Scu) to coxae in a single broad, vertical band: *Aedes sollicitans*

KEY: **APHC** - Army Public Health Center **PHCR-E** - Public Health Command Region Europe **WRBU** - Walter Reed Biosystematics Unit

Key to Female Mosquito Genera in the US and Alaska, without Figures

1.	A fly with needle-like mouthparts (fig. 3); scales covering the body (fig. 4); and scales on the wings (fig. 5)	Mosquito - 2
	No needle-like mouthparts (figs. 7 & 8); body without scales (fig. 9); wings usually without scales (fig. 6)	Not a Mosquito
2 (1).	Antennae bushy or feather-like, palpi (MPlp) as long as proboscis and bushy or with paddles (figs. 10-12)	Male
	Antennae not bushy or feather-like, palpi (MPlp) as long as proboscis, not bushy and without paddles. Proboscis with apical half not strongly recurved and not more slender than basal half (not tapering to a point) (figs. 13-15).	Female Anopheles
	Antennae not bushy or feather-like, palpi (MPlp) shorter than proboscis, proboscis with apical half not strongly recurved and not tapering to a point (figs. 16-19)	Female (<i>Culicinae</i>) - 3
	Antennae not bushy or feather-like, proboscis (P) with apical half strongly recurved and more slender than basal half (tapering to a point) (fig. 20)	Toxorhynchites
3 (2).	Abdominal scales dark dorsally (tergites) and pale ventrally (sternites)(fig. 21); mesopostnotum (Mpn) with setae (fig. 23)	Wyeomyia
	Abdominal scales on tergites with pale bands or lateral spots (fig. 22); mesopostnotum (Mpn) without setae (fig. 24)	4
4 (3).	Vein 1A ending before or at level with intersection (fork) of mcv (fig. 25), thorax with lines of iridescent blue scales	Uranotaenia
	Vein 1A ending beyond intersection (fork) of mcv (fig. 26), iridescent blue scales absent on thorax	5
5 (4).	Prespiracular setae (PsS) present AND postspiracular setae (PS) present (fig. 27)	Psorophora
	Prespiracular setae (PsS) present AND postspiracular setae absent [No setae in the postspiracular area (PA)](fig. 28), underside of wing, base of subcostal vein with a row of bristles (fig. 31)	Culiseta
	Prespiracular setae absent [No setae in the prespiracular area (PsA)], postspiracular setae may or may not be present (figs. 29 & 30), underside of wing, base of subcostal vein without a row of bristles (fig. 32)	6
6 (5).	Abdomen blunt in dorsal view, last segment wider than it is long (figs. 33-38)	7
	Abdomen pointed in dorsal view, last segment longer than it is wide (figs. 39-44)	11
7(6).	Wing scales on dorsal surface narrow (fig. 45)	8
	Wing scales on dorsal surface broad, mixed brown and white (figs. 46 & 47)	9
8 (7).	Antennae not longer than proboscis, antennal flagellomere 1 (Flm-1) about the same length as flagellomere 2 (fig. 48)	Culex
	Antennae longer than proboscis, antennal flagellomere 1 (Flm-1) elongate, twice as long as flagellomere 2 (Flm-2)(fig. 49)	Deinocerites
9 (7).	Mesonotum (thorax) with fine longitudinal lines of white scales (fig. 50)	Orthopodomyia
	Mesonotum (thorax) without fine longitudinal lines of white scales (fig. 51)	10
10 (9).	Postspiracular setae (PS) present (fig. 52), tarsomere 1 (Ta1) without a pale ring (fig. 54)	Mansonia
	Postspiracular setae absent [no setae in the postspiracular area (PA)] (fig. 53), tarsomere 1 (Ta1) with a pale ring in the middle (fig. 55)	Coquillettidia
11 (6).	Abdominal scales bright metallic violet and silver (Fig. 56), scutum (Scu) with broad flat metallic scales, arrangement of silvery scales extending from scutum to coxae in a single broad, vertical band (fig. 58)	Haemagogus
	Abdomen without bright metallic scales (fig. 57), scutum (Scu) without broad flat metallic scales, without broad band of scales as described above (fig. 59)	Aedes

Pictorial Comparison of the Mosquito Genera



Fig. 60. *Aedes (Stegomyia) aegypti*



Fig. 61. *Aedes (Ochlerotatus) canadensis*



Fig. 62. *Aedes (Aedimorphus) vexans*



Fig. 63. *Anopheles (Anopheles) quadrimaculatus*
Feature(s) unique to *Anopheles*:

- MPlp as long as proboscis
- Abdomen largely absent of scales



Fig. 64. *Coquillettidia (Coquillettidia) perturbans*
Feature(s) unique to *Coquillettidia*:

- *Coquillettidia perturbans* is the only species found in the US.



Fig. 65. *Culex (Culex) quinquefasciatus*

All pictorial comparison photos are courtesy of WRBU unless otherwise noted.

United States and Alaska Mosquito Genera Key

Pictorial Comparison of the Mosquito Genera



Fig. 66. *Culex (Culex) restuans*



Fig. 67. *Culex (Culex) tarsalis*



Fig. 68. *Culiseta (Culicella) morsitans*



Fig. 69. *Deinocerites pseudes*
Feature(s) unique to *Deinocerites*:
• Flm-1 twice the length of flm-2



Fig. 70. *Haemagogus (Haemagogus) mesodentatus**
Feature(s) unique to *Haemagogus*:
• *Haemagogus equinus* is the only species in the US and is found only in the southern tip of Texas
• Scutum covered in broad metallic scales
• Silver scales in a single broad vertical band extending from Scu to coxae



Fig. 71. *Mansonia (Mansonia) titillans*
Features unique to *Mansonia*:
• Dorsal wing scales broad and strongly asymmetrical

Pictorial Comparison of the Mosquito Genera



Fig. 72. *Orthopodomyia albicosta**

Features unique to *Orthopodomyia*:

- Distinctive fine longitudinal lines of white scales
- Ta1 of fore and midlegs longer than Ta2-5 combined
- Ta4 shorter than Ta5



Fig. 73. *Psorophora (Psorophora) ciliata*

Features unique to *Psorophora*:

- Both prespiracular and postspiracular setae are present



Fig. 74. *Psorophora (Grabhamia) columbiae*



Fig. 75. *Toxorhynchites (Lynchiella) rutilus*

Features unique to *Toxorhynchites*:

- Proboscis strongly recurved and tapering to a point
- Wing emarginated



Fig. 76. *Uranotaenia (Uranotaenia) sapphirina*

Features unique to *Uranotaenia*:

- Irridescent blue scale patches on thorax
- Wing vein 1A ends before mcu fork

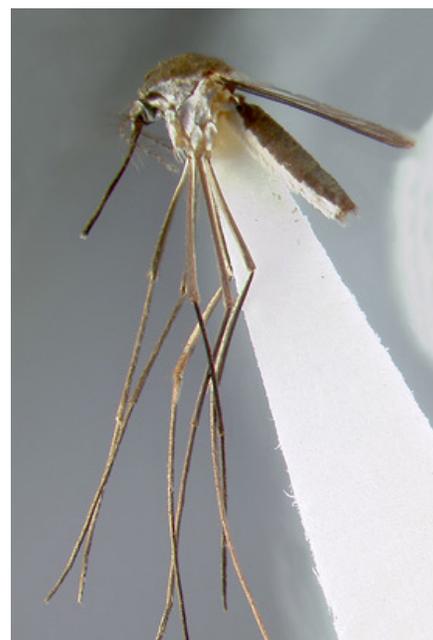


Fig. 77. *Wyeomyia (Wyeomyia) arthrostigma**

Features unique to *Wyeomyia*:

- Abdomen scales distinctly dark on dorsal side and light on ventral side

Descriptions of the Mosquito Genera Covered in this Key

Adapted from the Mosquito Taxonomic Inventory

Aedes—Certain members of the tribe are of great importance in the transmission of viruses and helminths to humans and other animals. Eggs are normally resistant to desiccation and hatch when the habitat is filled with water. The immature stages of subgenera *Stegomyia* are found in natural and artificial containers. Typical habitats are tree holes, but many species inhabit small amounts of water contained in dead and fallen plant parts. Females are typically diurnal, and many species (approximately 50) are known to bite humans. They also feed on a variety of domestic and wild animals, including mammals, birds, reptiles and amphibians.

Anopheles—Mosquitoes of genus *Anopheles* are the sole vectors of human malarial parasites. Some species are effective vectors of microfilariae, and some may be involved in the transmission of encephalitis viruses. *Anopheles* are vectors of numerous animal pathogens, including species of malaria protozoa that do not affect humans. *Anopheles* larvae are adapted to a variety of aquatic habitats but occur predominantly in ground waters. The larvae generally rest with the end of the abdomen against objects and are therefore found in greatest numbers in areas with emergent vegetation at the margins of the habitats. The adults of most *Anopheles* are active at night or during twilight periods and rest in cool, damp places during the day.

Coquillettia—The larvae of *Coquillettia* attach to aquatic plants to obtain oxygen from air cells for respiration. A variety of plants are used, particularly grasses. Larvae detach and re-attach to host plants quite readily. Some species are notorious pests of humans and domestic animals in Africa, Europe and North America. Several species of subgenera *Coquillettia* and *Rhynchoaenia* are natural vectors of various arboviruses; most importantly, *Cq. perturbans* is a vector of the Eastern equine encephalitis virus in North America. The females of several species readily attack humans. Both nocturnal and diurnal biters are known.

Culex—Several species of subgenera *Culex* and *Melanoconion* are of medical importance. *Melanoconion* mainly occurs in the Neotropical Region, with some species reaching northward into the US. Several species of the subgenus are important vectors of encephalitis and other arboviruses. Subgenus *Culex* has species in all zoogeographic regions, and contains most of the medically important and pest species of the genus. *Culex* larvae occur primarily in semi-permanent or permanent bodies of ground water. Some utilize artificial containers. A few species, including the filarial vector *Cx. quinquefasciatus*, are found in organically polluted waters. Females bite at night.

Culiseta—Three species, *Cs. inornata*, *Cs. melanura* and *Cs. dyari*, are vectors of both the Eastern and Western equine encephalitis virus in North America. Little is known about the blood-feeding habits of females. Most species feed on birds and mammals, but a few feed on reptiles. Several species attack domestic animals and, occasionally, humans.

Deinocerites—Venezuelan and St. Louis equine encephalitis viruses have been isolated from *Deinocerites pseudus*, and laboratory studies have shown that this species is capable of transmitting these viruses. Nevertheless, species of *Deinocerites* are not important pests of humans and probably play little—if any—role in the transmission of pathogens. The feeding preferences of females are not well known, but some species feed on a variety of hosts, including humans and other mammals; birds, lizards, frogs and toads.

Haemagogus—Several species, including *Hg. janthinomys*, *Hg. equinus*, *Hg. lucifer*, *Hg. leucocelaenus*, *Hg. mesodentatus*, *Hg. spegazzinii* and *Hg. capricornii* are vectors of the sylvatic yellow fever virus. The *Ilheus* virus has been isolated from *Hg. janthinomys* and *Hg. spegazzinii* in Panama and from *Hg. leucocelaenus* in Brazil. Many species readily attack humans in forest clearings, open secondary growth, and littoral situations associated with mangroves. *Haemagogus* species are distributed from Argentina through Central America and into North America as far as the southern tip of Texas (*Hg. equinus*), but they are most abundant in forests in the central region of South America.

Mansonia—*Mansonia titillans* of the subgenus *Mansonia* is an important pest in South and Central America, and in the southern US. It is known to transmit various arboviruses, including Venezuelan equine encephalitis. *Mansonia* larvae occur in permanent waters and attach their siphons to the roots of aquatic plants to obtain oxygen. Larvae of some species burrow into debris on the bottom whereas others cling to the roots of plants in floating masses. Water lettuce (*Pistia*) is commonly used as a host plant, particularly by species of subgenus *Mansonioides*. Larvae detach and re-attach to host plants quite readily. The females of several species are vicious nocturnal biters.

Orthopodomyia—None of the species are of medical or economic importance to humans. Larvae are filter feeders that principally inhabit tree holes. Adults inhabit forests and are active only after dark. Adult females feed principally on birds. Only two species in the Oriental Region, *Or. albipes* and *Or. andamanensis*, are known to feed on humans, but neither is known to vector pathogens of human disease.

Psorophora—Several species of *Psorophora* are vectors of arboviruses. *Ilheus* virus is transmitted by *Ps. ferox*, and Venezuelan equine encephalitis virus is transmitted by *Ps. ferox* and *Ps. confinnis*. See subgenera *Grabhamia*, *Janthinosoma* and *Psorophora* for viruses isolated from other species of *Psorophora*. *Psorophora* are called flood-water mosquitoes because females lay their eggs on damp or dry mud and debris in fields and wooded plains where they may withstand long periods (months or years) of desiccation and hatch when the habitat is inundated by rain or flood waters. Larvae of the subgenus *Psorophora* are predacious. The adults are diurnal, and the females of many species avidly bite humans.

Toxorhynchites—Species of *Toxorhynchites* are not involved in the transmission of human or animal pathogens. The larvae of a few species have been used with some success to control economically important mosquitoes whose larvae inhabit plant cavities and artificial containers. Males and females both feed exclusively on nectar and other sugary substances. The adults are active during the day.

Uranotaenia—A few species bite humans, but none are involved in the transmission of pathogens. Many species are attracted to light and are occasionally found resting inside houses. The immature stages of *Uranotaenia* utilize a range of habitats. The larvae of most species inhabit ground waters, including swamps, marshes, stream margins and temporary pools with vegetation, but many also utilize rock holes, crab holes, tree holes, bamboo, plant parts on the ground, leaf axils, flower bracts, pitcher plants and artificial containers.

Wyeomyia—*Wyeomyia* are not known to vector disease agents and have little—if any—economic importance to humans; however, the *Ilheus* and Venezuelan encephalitis viruses have been isolated from *Wy. medioalbipes* in Trinidad. The larvae inhabit small collections of water in bromeliads and aroids, flower bracts, broken bamboo and bamboo stumps, tree holes, pitcher plants and, occasionally, artificial and other containers. Adults are active during the day. They are usually found in damp forests near larval habitats. Various species are found at all elevations in forest canopy, but some seem to be restricted to ground level. Most of the species take blood meals, and females readily feed on humans that enter their realm.

Terms and Abbreviations of Adult Mosquitoes

Anterior—Nearer the front or nearer to the head.

Apical—Concerning the tip or furthest part from the thorax.

Asymmetrical wing scale—Unlike on either side of a dividing line from the stem of the scale to the tip.

Basal—Region close to the point of attachment to the thorax.

C-III—Hind coxa. The basal segment of the hind pair of legs; coxa are referred to as fore-(C-I), mid-(C-II) or hindcoxa (C-III).

Dorsal—Of, on, or relating to the upper side or back.

Emarginated wing—V-shaped thickening or cut-out place in hindmargin of wing.

Femur—In arthropods, the third segment of the leg, generally the largest leg segment; referred to as fore-, mid- or hindfemur as appropriate.

FIm—Flagellomere. An individual unit of the antennal flagellum. FIm-1 is the first segment.

Mam—Mesanepimeron. The large, upper area of the mesepimeron. Contains scales and setae. The group of setae on the lower portion of this structure (MeSL) are often used in keys. Their grouping pattern varies between mosquitoes.

MeSL—Lower mesepimeral seta. The setae occurring in groups on the anterior, middle, and/or posterior area of the mesanepimeron below the level of the metathoracic spiracle.

Mks—Mesokatepisternum. Lower area of the mesepisternum.

MkSL—Lower mesokatepisternal setae. The setae occurring in a more-or-less vertical line along the posterior margin of the mesokatepisternum.

MPIp—Maxillary palpus. Varies in length according to genus and sex. Male MPIp are usually longer than the proboscis, have paddle-like structures, and can be very hairy. Female *Anopheles* MPIp are as long as the proboscis but lack the paddles. MPIp that are shorter than the proboscis indicate a non-*Anopheles* female mosquito.

Mpn—Mesopostnotum. Located between the scutellum and abdomen; may contain setae.

MS—The spiracle of the mesothorax. In mosquitoes, it is located just below the scutal margin between the postpronotum and prespiracular area.

Msm—Mesomeron. A triangular structure located above and between the mid- and hindcoxa. The base of the Msm is located between the Mam and the Msm.

Mts—Metepisternum. In mosquitoes, the area immediately behind and below the metathoracic spiracle.

MtSc—Metepisternal scales. The scales occurring in a small group on the Mts just below the metathoracic spiracle.

Occ—Occiput. Posterior dorsal part of the cranium; its boundaries with the vertex are not delimited; usually with erect scales.

P—Proboscis.

Pa—Paratergite. Narrow lateral part of the mesonotum just before the wing root; separated from the scutum by the paranotal suture. Scales on this structure are called PaSc.

PA—Postspiracular area. The sclerotized area of the anterior anepisternum lying posterior to the mesothoracic spiracle; connected or continuous with the subspiracular area ventrally; scales (PoSc) and setae (PS) are borne on this area.

PaSc—Paratergal scales. The scales occurring in a group on the paratergite (Pa).

PM—Postprocoxal membrane. The membrane between the forecoxa and the mesokatepisternum; sometimes bearing scales (PpSc).

PoSc—Postspiracular scales. The scales occurring in a group on the postspiracular (PA) area.

Ppn—Postpronotum. The posterior division of the pronotum generally lying between the anteprotum and the scutum anterior of the scutal angle. In mosquitoes, usually not clearly demarcated ventrally from the proepimeron.

PpSc—Postprocoxal scales. The scales occurring in a small group on the postprocoxal membrane (PM).

PpS—Postpronotal setae. The setae occurring in an arcuate line on the upper posterior margin of the postpronotum (Ppn).

PS—Postspiracular setae. The setae occurring in a group on the postspiracular (PA) area.

PsA—Prespiracular area. A small triangular area above and forward of the mesothoracic spiracle. When setae are present, they are referred to as PsS and, with scales, as PsSc.

PsS—Prespiracular setae. The setae occurring in the small triangular prespiracular area (PsA).

PsSc—Prespiracular scales. The scales occurring on the prespiracular area (PsA).

Pv—Pulvillus. Pad-like lobes on the tips of the legs between the tarsal claws. Only *Culex*, *Deinocerites*, *Galindomyia*, and *Lutzia* genera have this structure.

Sc—Subcosta. The usual second principal longitudinal vein of the wing. In mosquitoes, these are two-branched, with Sc-1 ending at the costa and Sc-2 connected to the radius.

Scales—Flat in cross-section, widening from base to apex, with longitudinal ridges, attached to a minute socket, called an alveolus (pl. alveoli) on the integument (alveoli not visible when scales have fallen off). Scales occur in three basic forms: broad and flat, narrow and curved, and erect and apically forked.

Setae—Hairs, hair tufts and bristles; round in cross-section, tapering from base to apex; arise from a relatively large moveable socket, the alveolus (pl. alveoli). This socket is visible even when the setae have fallen off.

Scu—Scutum. The dorsal area of the thorax.

Stm—Scutellum. In Culicinae mosquitoes, except *Toxorhynchites*, it is trilobed. *Anopheles* have an evenly rounded shape except for *Chagasia*, which is trilobed.

Ta—Tarsus. The part of the leg that comes after the tibia. In mosquitoes, it consists of five tarsomeres (Ta1-5); referred to as fore-, mid- or hindtarsus as appropriate.

Ta1—Tarsomere one. An individual sub-segment of a tarsus. In mosquitoes, five tarsomeres comprise each tarsus; referred to as the first through the fifth tarsomeres of the appropriate tarsus and denoted by adding numerical subscripts (1-5) to the abbreviation of the tarsus.

Tibia—In arthropods, the usual fourth segment of the leg distal to the femur; referred to as fore-, mid- or hindtibia as appropriate.

Ventral—Of, on, or relating to the underside of an animal.

Appendix A.

References

Genera classification follows the “traditional” (as of 2000) mosquito classification from the WRBU Web site (2013).

The key and the genera list are derived from the WRBU NORTHCOM Lucid Key (2016) at http://wrbu.si.edu/northcom_MQkeys.html and the Centers for Disease Control and Prevention (CDC) pictorial key, Mosquitoes: Pictorial Key to United States Genera of Adults (Female), in Pictorial Keys to Arthropods, Reptiles, Birds, and Mammals of Public Health Significance (2014) at http://www.cdc.gov/nceh/ehs/Publications/Pictorial_Keys.htm

The genera descriptions were adapted from the Mosquito Taxonomic Inventory (Harbach, R.; 2014) at <http://mosquito-taxonomic-inventory.info/simpletaxonomy/term/6231>. License link: <http://creativecommons.org/licenses/by/3.0/>

The medically important species list was derived from the WRBU Medically Important Species List and from the Mosquito Taxonomic Inventory Web site (2016).

Character abbreviations of adult female morphology follow the Darsie and Ward (2005) format.

Other resources used to develop this key:

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