Key to the Genera of Adult Female Mosquitoes

1. Scutellum rounded with setae evenly distributed (Fig. 1); palpi about as long as proboscis (Fig. 2) ……..2

Fig. 1

Fig. 2

Scutellum trilobed with setae confined to three groups (Fig. 3); palpi shorter than proboscis (Fig. 4) …… 3

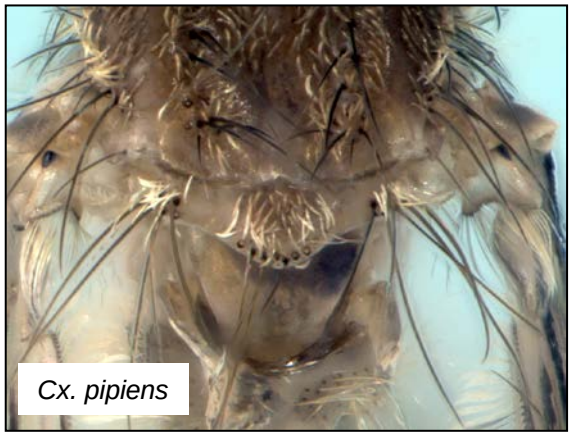


Fig. 3

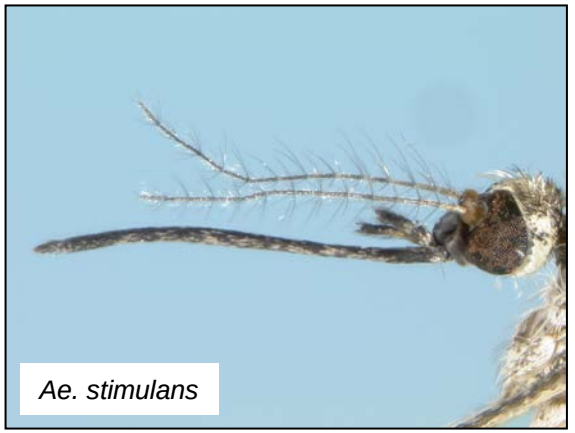


Fig. 4

2. Proboscis relatively straight (Fig. 5); abdomen with many setae but almost completely lacking scales and tarsi covered with dark scales (Fig. 6) ……***Anopheles***

Fig. 5

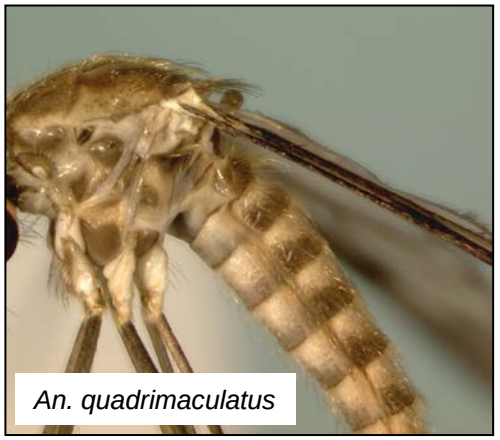


Fig. 6

Proboscis strongly bent downward beyond midpoint (Fig. 7); abdomen and tarsi covered with blue-green or purple metallic scales (Fig. 8) ……***Toxorhynchites***

Fig. 7

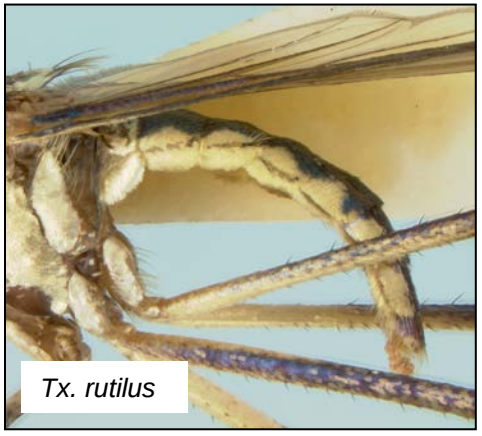


Fig. 8

3. Postspiracular setae present (Fig. 9); abdomen tapered with cerci exserted (Fig. 10) ……4

Fig. 9

Fig. 10

Postspiracular setae absent (Fig. 11); apex of abdomen rounded with cerci inserted (Fig. 12) …… 5

Fig. 11

Fig. 12

4. Spiracular setae present, sometimes only 1 or 2 (Fig. 13a); paratergite without scales (Fig. 13b); subspiracular area bare or with few scattered scales ……***Psorophora***

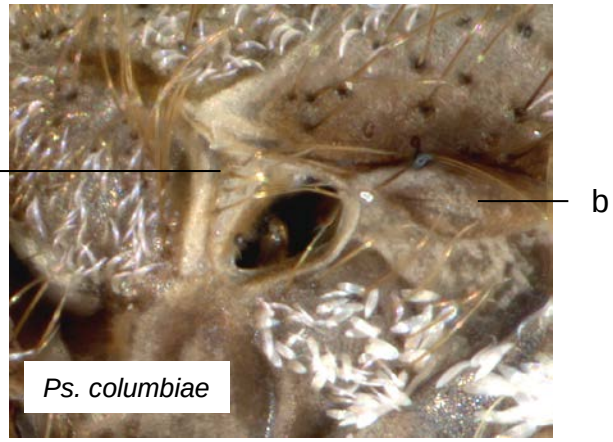


Fig. 13

Spiracular setae absent (Fig. 14a); paratergite (Fig 14b) and subspiracular area usually with scales (except in *Ae. cinereus, Ae. japonicus, Ae. atropalpus,* and *Ae. trivittatus)* …… ***Aedes***

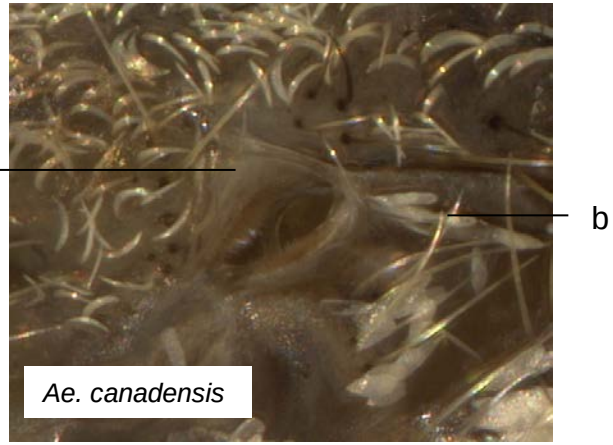


Fig. 14

Note: Spiracular setae are easily confused with the setae present on the hind margin of the postpronotum. Make sure the setae originate from the small triangular-shaped area immediately anterior to the spiracle and not the larger rounded area of the postpronotum.

5. Spiracular setae present (Fig. 15) …….. 6

Fig. 15

Spiracular setae absent (Fig. 16) …….. 8

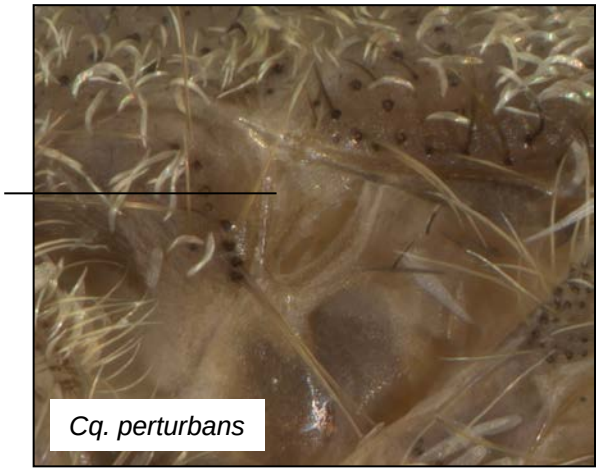


Fig. 16

Note: Spiracular setae are easily confused with setae on the hind margin of the postpronotum. Make sure the setae originate from the small triangular-shaped area immediately anterior to the spiracle and not the larger, rounded area of the postpronotum. Also, some spiracular setae are very small and difficult to see, particularly those of *Uranotaenia sapphirina* and *Wyeomyia smithii*. However, these species are easily recognized by other characteristics.

6. Upper calypter with a fringe of setae (Fig. 17); abdominal scales without metallic reflections (Fig. 18); base of ventral surface of subcosta with row of setae …….. ***Culiseta***

Fig. 17

Fig. 18

Upper calypter without setae (Fig. 19); abdominal tergites dark brown-scaled with metallic reflections, sometimes with white-scaled patches on tergites 3 and 5 (Fig. 20); ventral surface of base of subcosta without setae …….. 7

Fig. 19

Fig. 20

7. Scutum covered with broad, flattened brown scales (Fig. 21); postpronotum and most of pleuron (Fig. 22), as well as ventral surface of abdomen covered in silvery white scales
   Note: found only in the pitchers of the plant, *Sarracenia purpurea* ……..... ***Wyeomyia***

Fig. 21

Fig. 22

Scutum with a middorsal stripe of rounded, flat metallic blue-green scales amidst scattered narrow brown scales (Fig. 23); similar scales also present above paratergite and on uppermost part of head, antepronotum, and katepisternum (Fig. 24) ……..…… ***Uranotaenia***

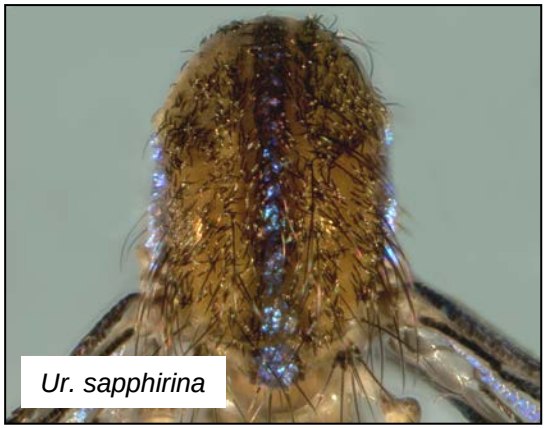


Fig. 23

Fig. 24

8. Hind tibia and first hind tarsomere with band of pale scales near middle (Fig. 25); all remaining tarsomeres with broad, pale-scaled basal bands (Fig. 26) …… ***Coquillettidia***

Note: There have recently been findings of *Coquillettidia perturbans* having entirely pale-scaled tarsi
See Appendix

Fig. 25

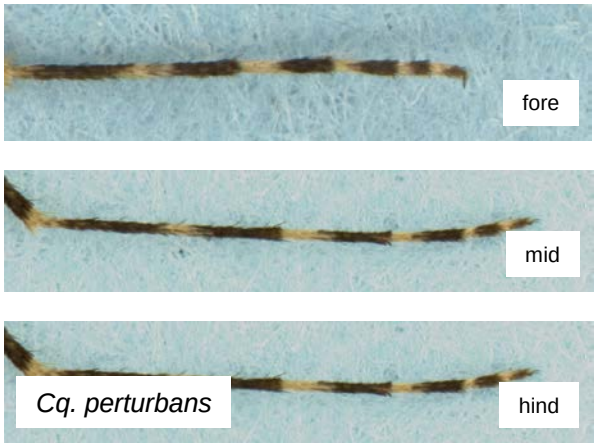


Fig. 26

Hind tibia and first tarsomeres dark-scaled with scattered pale scales but without a distinct band in middle (Fig. 27); mid and hind tarsal segments either with bases and apices white-scaled (Fig. 28) or entirely dark-scaled …….. 9

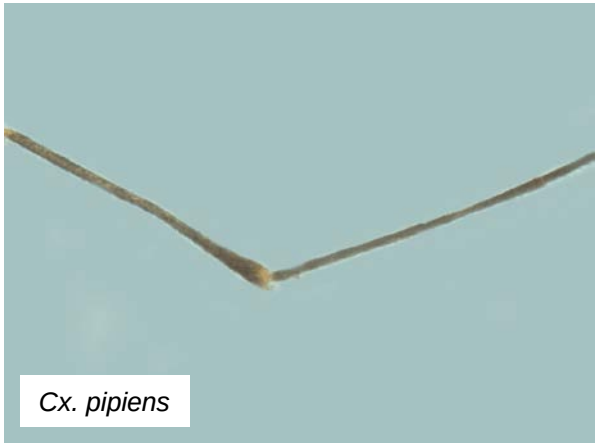


Fig. 27

Fig. 28

9. Distinct white tarsal rings on hind tarsi but rarely present on fore and mid tarsi (Fig. 29); scutum with narrow submedian, lateral and sublateral (posterior half) lines of white scales, contrasting with dark brown integument (Fig. 30) …… ***Orthopodomyia***

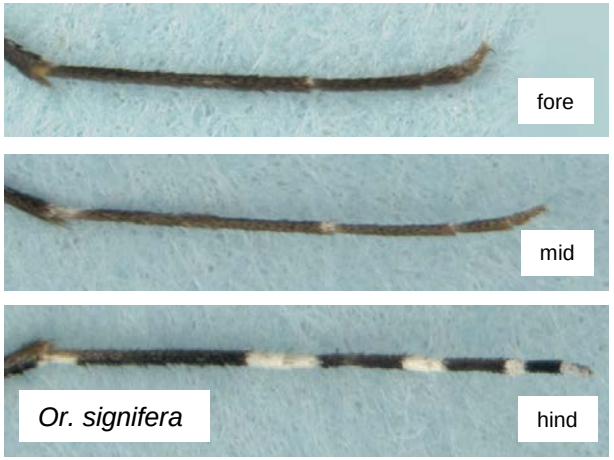


Fig. 29

Fig. 30

All tarsi (Fig. 31), or none, with bands; scutum uniformly covered with golden, pale brown or reddish brown scales, sometimes with pair of small, pale median spots (Fig. 32) …… ***Culex***

Fig. 31

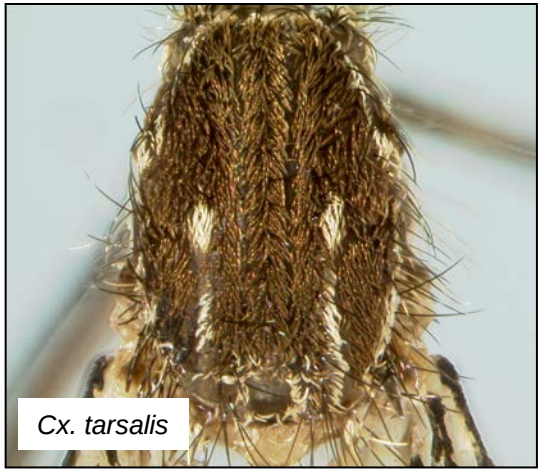


Fig. 32

Key to the Species of *Anopheles*

***Anopheles* are relatively large mosquitoes with long tarsi and palpi about as long as their proboscis.**

1. Scutal setae long and erect, organized into irregular acrostichal and dorsocentral rows (Fig. 33); wing scales dark and evenly distributed, not forming a pattern of spots (Fig. 34) ..... ***barberi***

Fig. 33

Fig. 34

Scutal setae long and curved, arising somewhat randomly in acrostichal and dorsocentral regions (Fig. 35); wing scales aggregated in some areas, forming a pattern of darkened spots (Fig. 36) … 2

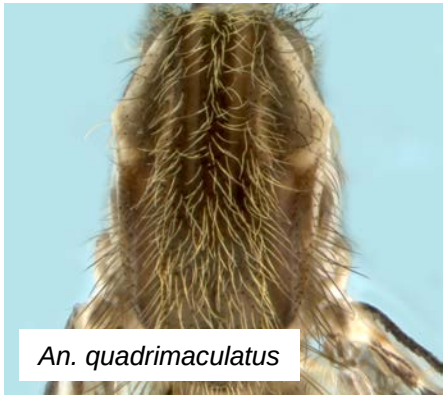


Fig. 35

Fig. 36

Note: When scales of *Anopheles* wings are rubbed, the wings may appear to lack spots.
***An. barberi* larvae occur mainly in tree holes and the adults are rarely collected in light traps.**

2. Wing either with creamy yellow scales forming a pattern of light spots (Fig. 37) or with golden fringe scales at wing apex and aggregations of dark wing scales very pronounced (Fig. 38) ……3

Fig. 37

Fig. 38

Wing scales entirely dark and aggregations of dark wing scales less pronounced (Figs. 39 and 40) ……..... 6

Fig. 39

Fig. 40

3. Wing with golden fringe scales at wing apex and aggregations of dark wing scales very pronounced (Fig. 41) …….. ***earlei***

Fig. 41

Wing with several cream coloured spots and dark-scaled wing spots less dense (Fig. 42) ……. 4

Fig. 42

4. Wing with several cream coloured spots, the largest of which is situated approximately two-thirds the distance from base of wing but does not include the costa (Fig. 43); palpi with pale scales at apices of palpomeres 3 and 4 and palpomere 5 entirely pale-scaled (Fig. 44) …… ***crucians***

Note: *An. crucians* is a recently introduced species, known only from Southern Ontario.

See Recently Introduced Species

Fig. 43

Fig. 44

Wing with cream coloured spots, including the costa, with wing veins R_{4+5} and CuA entirely dark-scaled (Fig. 45); palpi entirely dark-scaled (Fig. 46) 5

Fig. 45

Fig. 46

5. Subcostal pale spot of scales at least half or more length of dark-scaled area between subcostal and apical pale spots (Fig. 47); very common …….. ***punctipennis***

Fig. 47

Subcostal pale spot much smaller, usually less than one-third length dark-scaled area between subcostal and apical pale spots (Fig. 48) …….. ***perplexens***

Note: It is possible that these specimens are variants of *An. punctipennis.* The only reliable methods of separating these species to date are based on egg morphology and differences in the polytene chromosomes.

Fig. 48

6. Palpi with bands of whitish scales (Fig. 49); scutum dull, reddish to dark brown……. ***walkeri***

Fig. 49

Palpi with dark scales (Fig. 50); scutum paler, medium sandy brown …… 7

Fig. 50

Scutum with acrostichal and dorsocentral gray pollinose bands that coalesce on posterior half (Fig. 51); scales on base of wing vein Cu linear with truncate apices (Fig. 52); British Columbia ……. ***freeborni***

Fig. 51

Fig. 52

Scutum dull or reddish brown, usually without any pollinose pattern (Fig. 53); scales on base of wing vein Cu obovate with rounded apices (Fig. 54); east of Alberta …….… ***quadrimaculatus***

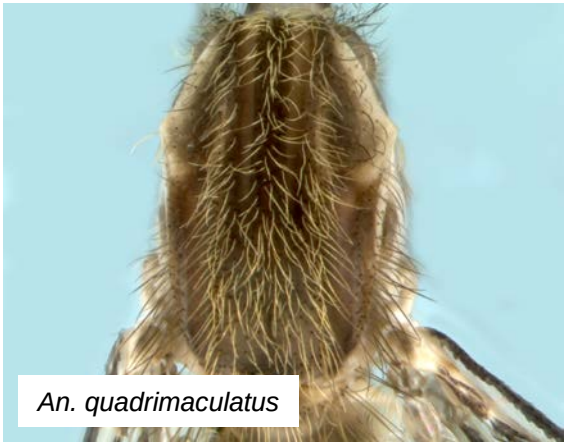


Fig. 53

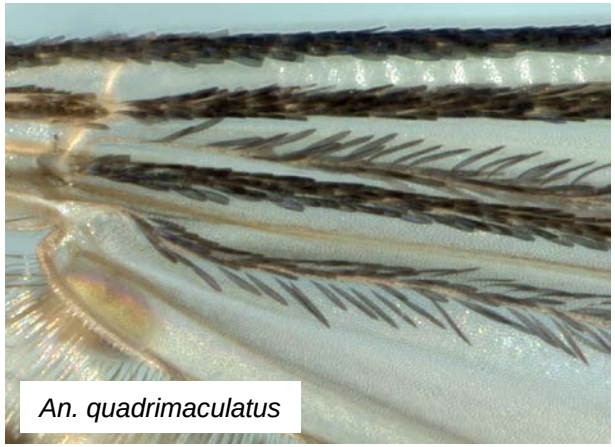


Fig. 54

Key to the Species of *Culex*

***Culex* mosquitoes are moderate in size, except *Cx. territans* which are often smaller. *Cx. pipiens* and *Cx. restuans* are often difficult to distinguish and should be referred to as *Culex pipiens/restuans* in doubtful specimens.**

1. Proboscis (Fig. 55), palpi and hind tarsi with bands of pale scales; scutum with stripes of white scales (Fig. 56) …… ***tarsalis***

Note: while present throughout most of Canada, *Cx. tarsalis* is rare in Ontario relative to other *Culex* species

Fig. 55

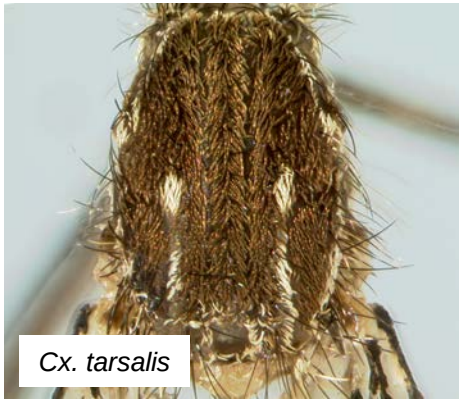


Fig. 56

Proboscis (Fig. 57), palpi, and hind tarsi entirely dark-scaled; scutum without stripes (Fig. 58) although middorsal spots of white scales may be present …….…….. 2

Fig. 57

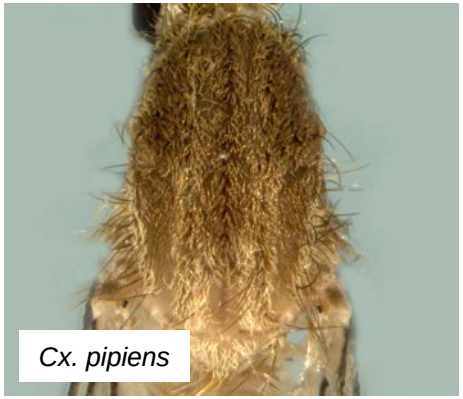


Fig. 58

2. Abdominal tergites with white-scaled apical bands (Fig. 59) and/or apicolateral patches … ***territans***

Fig. 59

Abdominal tergites with pale basal bands (Fig. 60) and/or basolateral patches …… 3

Fig. 60

3. Vertex integument completely obscured with dark, appressed metallic scales (Fig. 61); abdominal sternites with broad, whitish basal bands (Fig. 62); scutum without middorsal acrostichal setae ..... ***erraticus***

Note: *Cx. erraticus* is a recently introduced species and extremely rare in Canada

See Recently Introduced Species

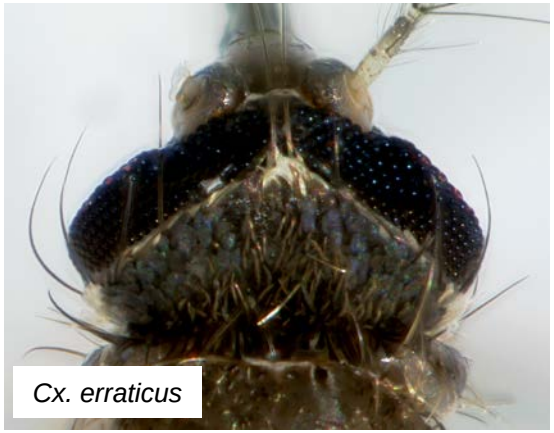


Fig. 61

Fig. 62

Vertex integument visible through the narrow, pale scales (Fig. 63); abdominal sternites either uniformly pale-scaled, with scattered dark scales, or sometimes with dark scales forming a longitudinal center line (Fig. 64); scutum with middorsal acrostichal setae 4

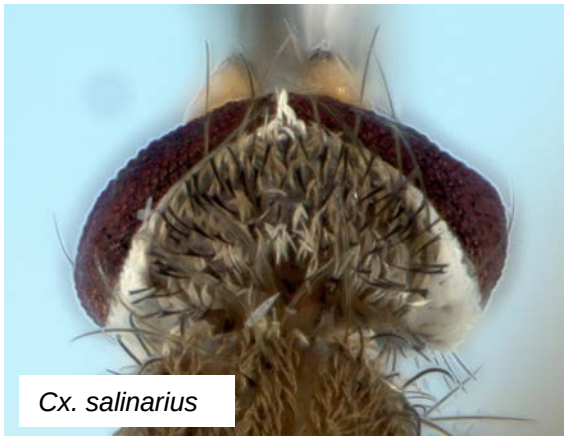


Fig. 63

Fig. 64

4. Abdominal tergites with narrow, dingy yellow or copper-coloured basal bands and dark scales with metallic reflections (Fig. 65); tergites VII and VIII usually entirely pale-scaled and/or with narrow, pale-scaled apical bands; scutellum usually with dark setae (Fig. 66) and small dark scales …..... ***salinarius***
See Appendix

Fig. 65

Fig. 66

Abdominal tergites with distinct pale basal bands and/or basolateral patches (whitish to golden yellow) (Fig. 67); scutellum with thick golden scales and golden setae (Fig. 68) …….. 5
Note: bands may be reduced to small, middorsal spots

Fig. 67

Fig. 68

5. Scutum with fine scales, usually with some white scales that form a pair of spots near middle (Fig. 69); abdominal tergites with pale basal bands (either golden yellow or whitish), generally fairly broad and straight across, and broadly joining the white-scaled lateral patches (Fig. 70); tergite 8 usually dark-scaled with a pale basal band …….. ***restuans***

Fig. 69

Fig. 70

Scutum with coarser scales, without pale spots near middle (Fig. 71); abdominal tergites with either moderate basal bands that are rounded posteriorly and narrowly joined to yellowish lateral patches (Fig. 72), or with bands reduced to small, middorsal spots not joined to lateral patches ……. ***pipiens***

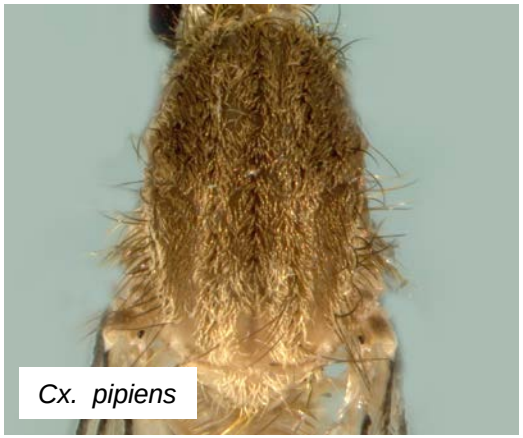


Fig. 71

Fig. 72

Key to the Species of *Culiseta*

Mosquitoes of the genus *Culiseta* are relatively large, except for *Culiseta melanura* which can be much smaller than its congeners. *Culiseta melanura* may be mistaken for *Culex* species because of their smaller size, difficulty in seeing spiracular setae, and lack of other distinguishing characteristics.

1. Scale patches present on the underside of paratergite (a), postspiracular area (b), ventral margin of anepisternum (c), and anterodorsal corner of katepisternum (d) (Fig. 73) …… 2

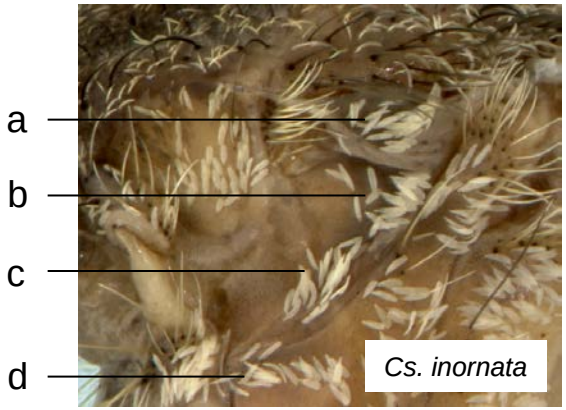


Fig. 73

Scales patches absent from these four pleural areas (Fig. 74), except for *Cs. minnesotae* which has some scales on postspiracular area and *Cs. melanura* which has setae arising from the underside of the paratergite ……..…..…... 5

Fig. 74

2. Tarsi with at least some tarsomeres (usually 2 and 3) having pale-scaled basal bands (Fig. 75) … 3

Fig. 75

Tarsomeres entirely dark-scaled or with scattered pale scales (Fig. 76) …….…… 4

Fig. 76

3. Pale-scaled rings of tarsomeres 2 and 3 at least a quarter the length of their respective segments (Fig. 77); aggregations of dark scales forming a pattern of spots on wings (Fig. 78); costa, subcosta, and radius with scattered white scales (Fig. 78) …… ***alaskensis***

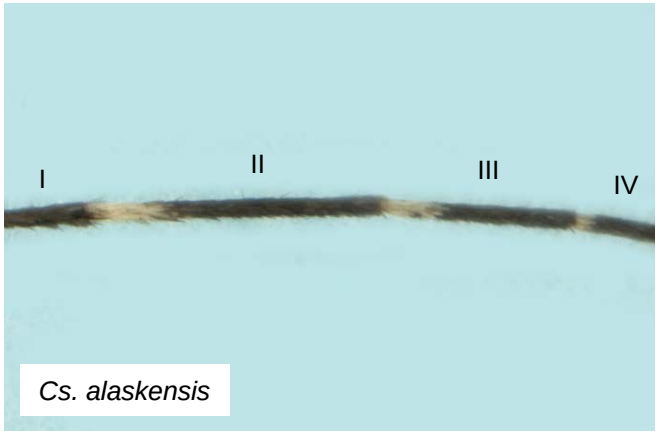


Fig. 77

Fig. 78

Pale-scaled rings of tarsomeres 2 and 3 one-tenth the length of their respective segments or less (Fig. 79); wing spots broad and very pronounced and wing scales mostly dark (Fig. 80) (pale scales, when present, confined to apex of costa) …… ***incidens***

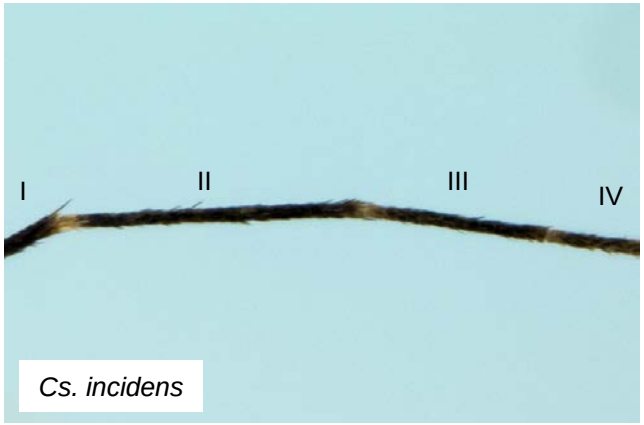


Fig. 79

Fig. 80

4. Scattered pale scales present on costa, subcosta, and radius (Fig. 81); scutal scales uniformly yellow (Fig. 82); tarsi with many, scattered pale scales …….. ***inornata***

Fig. 81

Fig. 82

Wing veins entirely dark-scaled (may have bluish iridescence under certain lighting) with scales denser in some areas, forming a pattern of spots (Fig. 83); scutum mostly reddish-brown scaled with two narrow bands of pale scales extending posteriorly from pair of middorsal spots (Fig. 84); tarsi mostly dark-scaled …….. ***impatiens***

Fig. 83

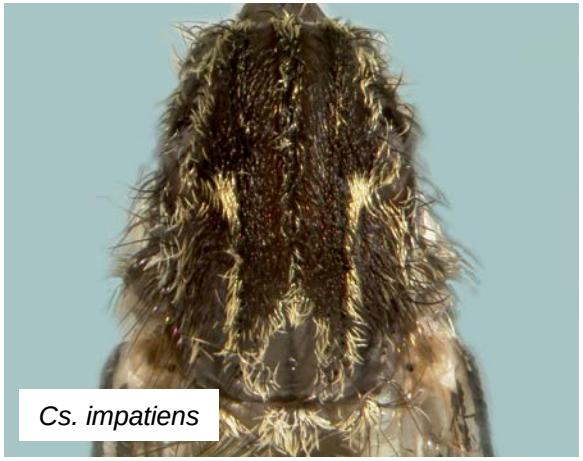


Fig. 84

5. Two or three spiracular setae typically present, these similar in colour to those arising from the adjacent postpronotum (Fig. 85); yellowish setae present on underside of paratergite; abdomen usually entirely dark-scaled but may have basal bands (Fig. 86) …….. ***melanura***

Fig. 85

Fig. 86

Five or more spiracular setae present, these pale yellow in colour, contrasting with darker ones on postpronotum (Fig. 87); abdominal tergites with transverse bands of pale scales (Fig. 88) (sometimes scattered pale scales present in addition to or instead of bands) …….. 6

Fig. 87

Fig. 88

6. Postspiracular area without scales (Fig. 89); abdominal tergites with basal bands of pale scales only (Fig. 90); scutal integument dark brown …….. ***morsitans***

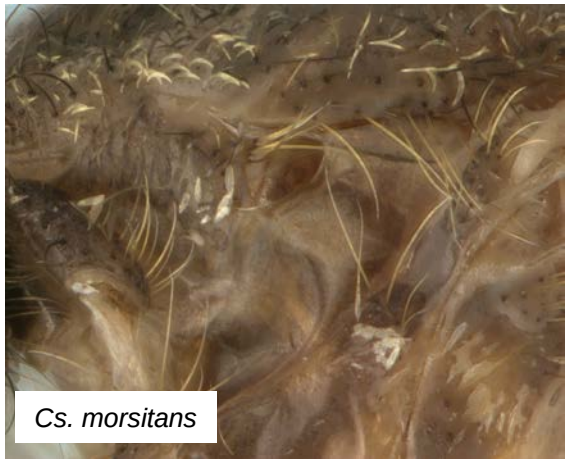


Fig. 89

Fig. 90

Postspiracular area typically with a small patch of scales (Fig. 91); abdominal tergites with irregular basal and apical bands of pale scales (Fig. 92); scutal integument reddish brown …… ***minnesotae***

Note: some *Cs. minnesotae* have scattered pale scales on abdominal tergites not organized into discrete basal and apical bands or in addition to the bands

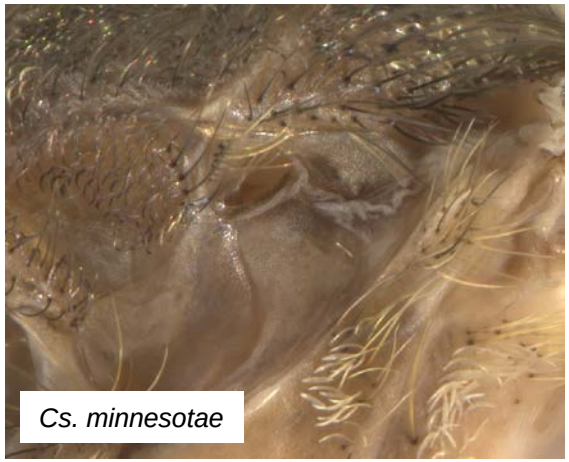


Fig. 91

Fig. 92

Key to the Species of *Aedes*

Traditionally, the species of this were group were said to belong to the genus *Aedes,* including subgenera *Aedes* and *Ochlerotatus*. However, it was recently suggested to elevate the subgenus *Ochlerotatus* to the rank of genus (Reinert 2000) - a controversial arrangement that was not entirely accepted (Weaver 2005). Species names in this key include the subgeneric name to allow either method of nomenclature to be used.

1. Tarsomeres banded with pale scales (Fig. 93)……2

Fig. 93

Tarsomeres mostly dark-scaled (Fig. 94), sometimes with scattered pale scales not organized into bands…… 25

Fig. 94

Note: bands, when present, more conspicuous on hind legs - fore and mid legs have less consistent banding patterns

2. Pale-scaled bands present on both the base and apex of at least some tarsomeres, most conspicuous on the hind legs (Fig. 95) ……..……..3

Fig. 95

Pale-scaled bands present only on base of tarsomeres (Fig. 96) ……..……..9

Fig. 96

3. Postprocoxal membrane without scales (Fig. 97); wing veins entirely dark-scaled (Fig.98) except for the base of costa in some species …… 4

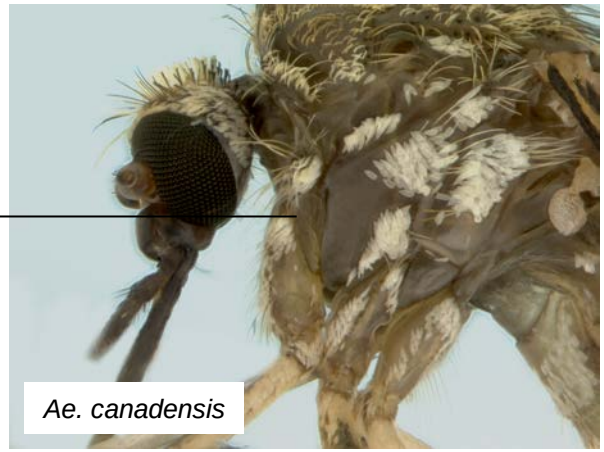


Fig. 97

Fig. 98

Postprocoxal membrane with a patch of pale scales (Fig. 99); wing veins with both dark and pale scales or with mostly pale scales (Fig. 100) …… 7

Fig. 99

Fig. 100

Note: Do not confuse the scales of the proepisternum with those of the postprocoxal membrane. The postprocoxal membrane can be difficult to see if specimen is desiccated.

4. Scutum with golden scales on a reddish brown integument (Fig. 101); costa entirely dark-scaled (Fig. 102)…… ***Aedes (Ochlerotatus) canadensis***

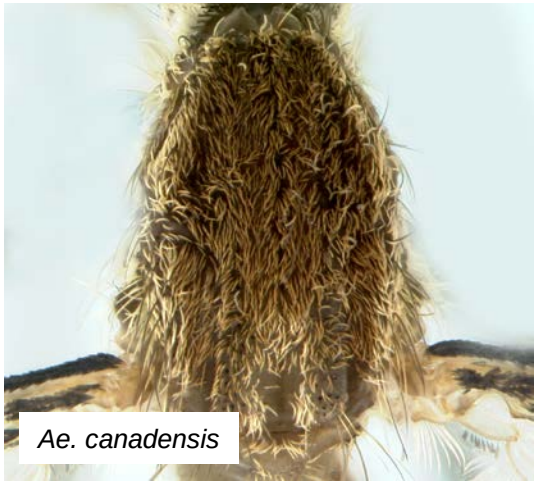


Fig. 101

Fig. 102

Scutum dark-scaled medially and pale-scaled laterally (Fig. 103); costa usually pale-scaled at base (Fig. 104) …… 5

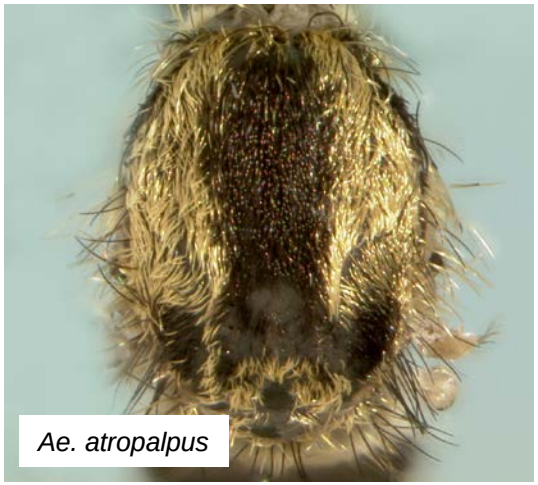


Fig. 103

Fig. 104

5. Apical and basal bands of pale scales on first tarsomere of equal length but apical band on second and third tarsomeres is at least three times as long as basal band (Fig. 105); scale patches of upper and lower katepisternum (Fig. 106a) and upper and lower mesepimeron (Fig. 106b) clearly separated…… ***Aedes (Ochlerotatus) sierrensis***

Fig. 105

Fig. 106

Most tarsomeres with basal and apical bands of about equal length or basal band slightly longer (Fig. 107); scale patches of upper and lower katepisternum (Fig. 108a) and upper and lower mesepimeron (Fig. 108b) narrowly separated or forming one group …….... 6

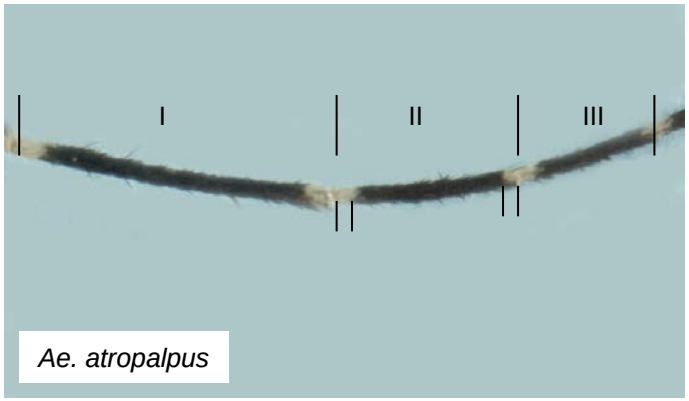


Fig. 107

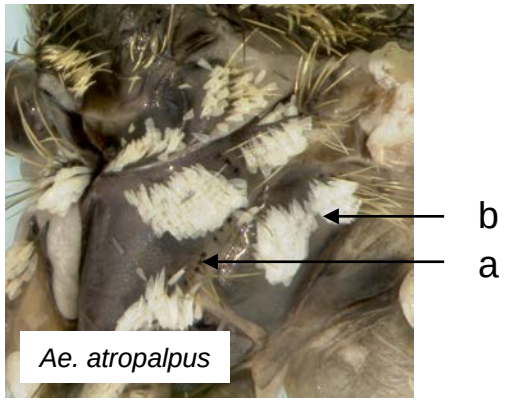


Fig. 108

6. Hind tarsomere 5 pale-scaled (Fig. 109); palpi entirely dark-scaled (Fig.110); Eastern Canada ……. ***Aedes (Ochlerotatus) atropalpus***

Fig. 109

Fig. 110

Hind tarsomere 5 dark-scaled (Fig. 111); palpi with white scales at apices (Fig. 112); Pacific Coast …….……..…… ***Aedes (Ochlerotatus) togoi***

Fig. 111

Fig. 112

7. Foreclaw moderately and evenly curved with a short subbasal tooth, the length (x) of which is one third or less the distance between the tips of the tarsal claw and the subbasal tooth (y) (Fig. 113)…….…… ***Aedes (Ochlerotatus) dorsalis***

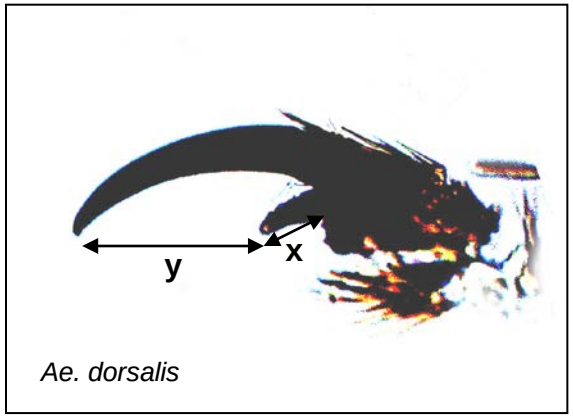


Fig. 113

Foreclaw strongly bent with long subbasal tooth, the length (x) of which is half or more the distance between tips of tarsal claw and subbasal tooth (y) (Fig. 114)…….. 8

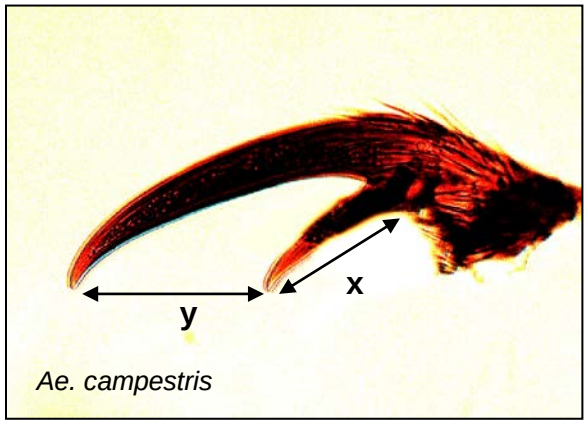


Fig. 114

Note: Care should be taken when examining the tarsal claws - the angle at which they are held under the microscope can affect how the curvature appears

8. Wings veins usually with more pale scales than dark scales (Fig. 115); scutal scale colours dull, the darker middorsal scales brownish and the pale lateral scales yellowish (Fig. 116) …… ***Aedes (Ochlerotatus) campestris***

Fig. 115

Fig. 116

Wing veins with predominantly dark scales, particularly on costa (Fig. 117); scutal scales more contrasting in colour, the darker middorsal scales reddish brown and the pale lateral scales whitish (Fig. 118) …… ***Aedes (Ochlerotatus) melanimon***

Fig. 117

Fig. 118

9. Pale-scaled bands on hind tarsomeres narrow, each occupying one-quarter or less the length of tarsomere (Fig. 119) …….. 10

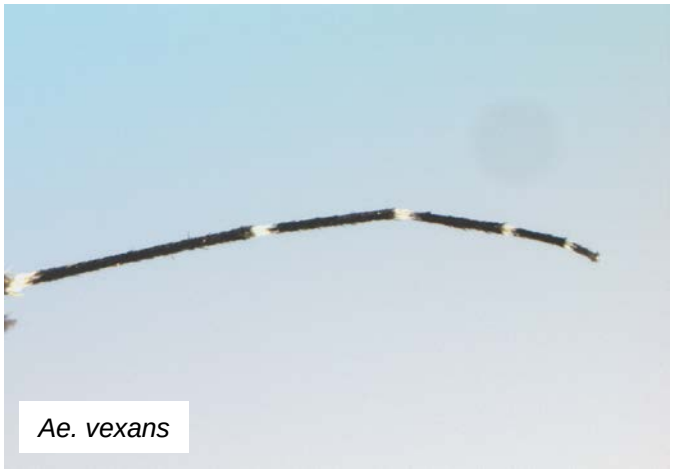


Fig. 119

Pale-scaled bands on hind tarsomeres each about one-third the length of tarsomere (Fig. 120) 11

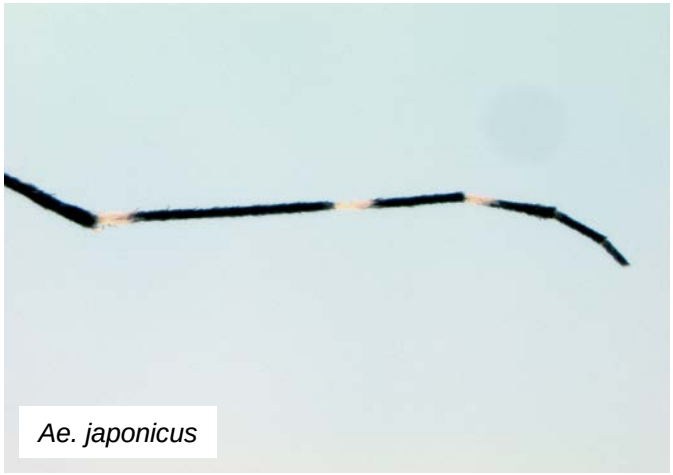


Fig. 120

Note: This character is best seen on tarsomere 2

10. Abdominal tergites with distinct bilobed bands (Fig. 121) narrowly joined to or entirely disconnected from lateral patches; tergite VII mostly dark-scaled (Fig. 121); hindclaw usually with subbasal tooth (Fig. 122) …… ***Aedes (Aedes) vexans***

Note: a median longitudinal stripe of pale scales may also be present in addition to the basal transverse bands.

See Appendix

Fig. 121

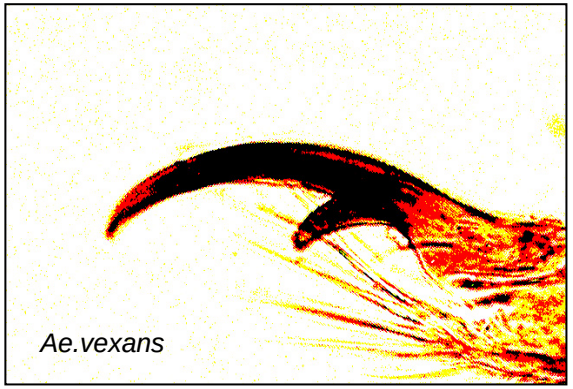


Fig. 122

Abdominal tergites with indistinct bands broadly joined to lateral patches (Fig. 123); tergite VII mostly pale-scaled (Fig. 123); hindclaw lacking subbasal tooth (Fig. 124) ……..... …….…… ***Aedes (Ochlerotatus) cantator***

Fig. 123

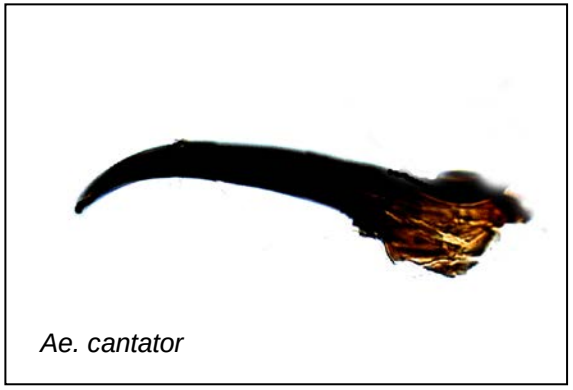


Fig. 124

Note: these two can be difficult to distinguish - the absence of a subbasal tooth alone should not be used for identification.

11. Hind tarsomeres 1 to 3 with distinct, broad, white-scaled basal bands, 4 and 5 entirely dark-scaled (Fig. 125) *or* hind tarsomeres 1 to 4 with distinct broad, white-scaled basal bands and hind tarsomere 5 entirely white-scaled (Fig. 126); hind tarsomere 1 without scattered pale scales or an additional band at midlength …… 12

Note: *Ae. fitchii* may have hind tarsomere 5 entirely dark-scaled and the band on hind tarsomere 1 distinct but specimens will not have any of the remaining characteristics

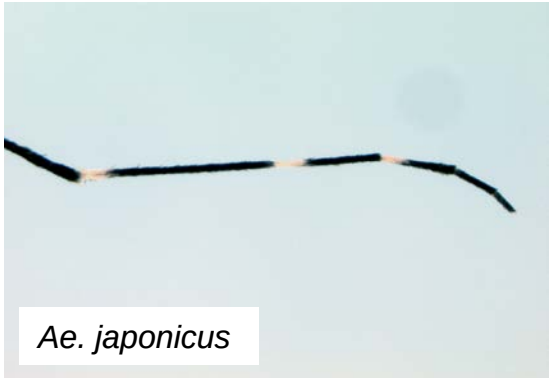


Fig. 125

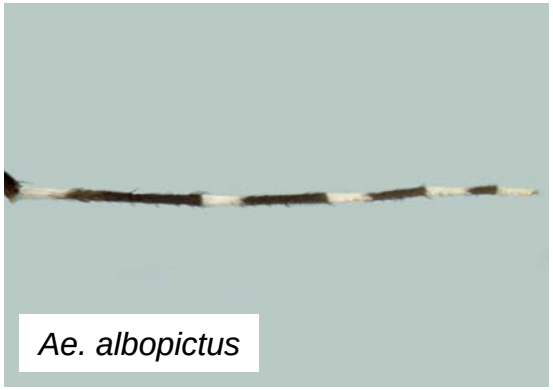


Fig. 126

Hind tarsomeres 1 to 5 with broad, pale-scaled basal bands (Fig. 127) *or* hind tarsomeres 1 to 4 with broad, pale-scaled basal bands and tarsomere 1 with scattered pale scales in addition to basal band (Fig. 128) or with an additional band at midlength …… 13

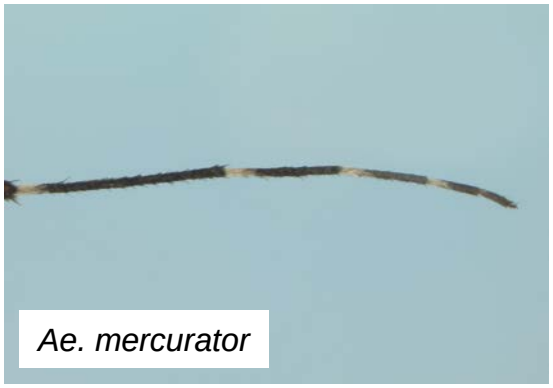


Fig. 127

Fig. 128

12. Scutum with five gold-scaled longitudinal bands (Fig. 129); abdominal tergites mostly dark-scaled (Fig. 130) …… ***Aedes (Ochlerotatus) japonicus***

Fig. 129

Fig. 130

Scutum with distinct median band of white scales (Fig. 131); abdominal tergites with white-scaled basal bands (Fig. 132) …… ***Aedes (Aedes) albopictus***

Fig. 131

Fig. 132

Note: These species are both recently introduced to Canada. For more information, see Recently Introduced Species

13. Abdominal tergites with pale-scaled basal bands and pale scales concentrated middorsally forming a distinct median, longitudinal stripe (Fig. 133) or tergites almost completely pale-scaled (Fig.134) …….. 14

Fig.133

Fig. 134

Abdominal tergites with pale-scaled basal bands (Fig. 135) or with bands and scattered pale scales not organized into a median, longitudinal stripe (Fig. 136) …….. 16

Fig. 135

Fig. 136

14. Abdominal tergites almost completely covered in yellowish scales (Fig. 137); proboscis dark-scaled with scattered pale scales not organized into a distinct band (Fig. 139) …….. ……..…… ***Aedes (Ochlerotatus) flavescens***

Fig. 137

Fig. 138

Abdominal tergites with a pale-scaled longitudinal median stripe in addition to basal bands (Fig. 139); proboscis with a well-defined ring of pale scales near middle (Fig. 140) ……. 15

Fig. 139

Fig. 140

15. Pale scales of abdominal basal bands and median longitudinal stripe yellowish and those of lateral patches whitish (Fig. 141); first hind tarsomere with a distinct wide median band of yellow scales in addition to the basal band (Fig. 142); Maritime provinces and southwestern Ontario …… ***Aedes (Ochlerotatus) sollicitans***

Fig. 141

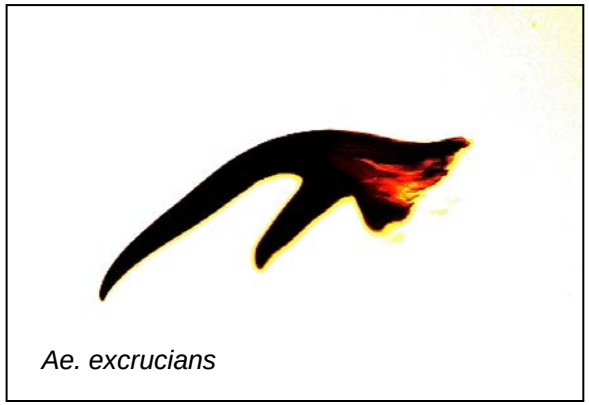
Fig. 142

Pale scales of abdominal tergites (basal bands, the median longitudinal stripe, and the lateral patches) all uniformly yellowish (Fig. 143); yellowish scales in middle of first hind tarsomere not distinctly separated from the basal pale-scaled band (Fig. 144); Prairie provinces …… …… ***Aedes (Ochlerotatus) nigromaculis***

Fig. 143

Fig. 144

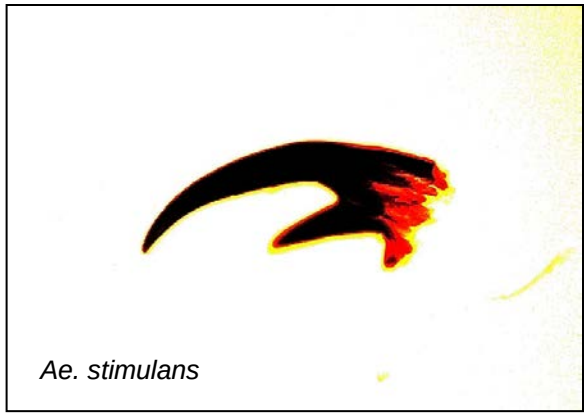
16. Foreclaw strongly bent and nearly parallel to subbasal tooth, which is about half the length of claw beyond fork (Fig. 145) ……..…….. ***Aedes (Ochlerotatus) excrucians***



Ae. excrucians

Fig. 145

Foreclaw more evenly curved and not nearly parallel to subbasal tooth, which is about a third the length of claw beyond fork (Fig. 146) ……..…….. 17



Ae. stimulans

Fig. 146

Note: the appearance of the shape of tarsal claw changes when held at different angles, making them difficult to evaluate. The remaining species of this couplet are very similar in appearance and often difficult to identify. They are sometimes referred to as "broad-banded *Aedes*".

17. Lower mesepimeral setae present (Fig. 147); mesomeron usually with scales on posterodorsal corner (Fig. 148) …….. 18

Note: lower mesepimeral setae often fall out and the black pits where they once were may be obscured by scales (as in Fig. 147). Absence of lower mesepimeral setae can be misleading. It is recommended that the area be carefully cleaned of scales using forceps tips to confirm the presence or absence of pits.

Fig. 147

Fig. 148

Lower mesepimeral setae absent (Fig. 149); mesomeron bare (Fig. 150) …….. 22

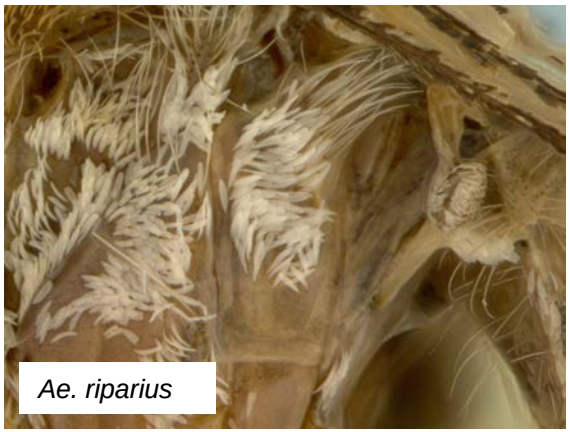


Fig. 149

Fig. 150

18. Scales of pedicel few and all or mostly dark (Fig. 151); scutal scales mostly reddish brown with narrow dorsocentral and lateral rows of pale scales (Fig. 152) …….…. 19

Fig. 151

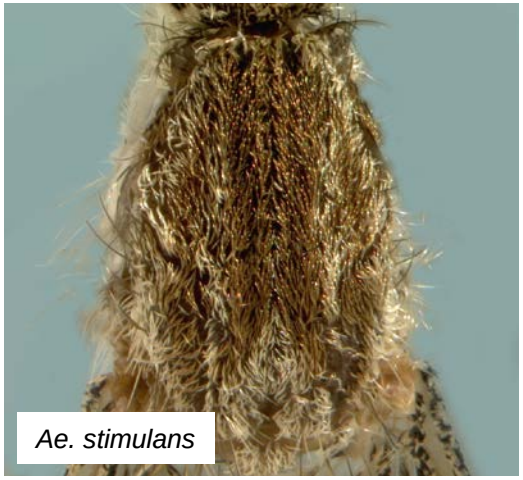


Fig. 152

Scales of pedicel numerous and all or mostly pale (Fig. 153); dark-scaled median and submedian bands on the scutum brown and lateral and sublateral areas pale-scaled (Fig. 154) …….…. 20

Fig. 153

Fig. 154

19. First abdominal sternite with pale scales and setae (Fig. 155); proboscis dark-scaled (Fig. 156); palpi with bands of pale scales; Saskatchewan westward .... ***Aedes (Ochlerotatus) increpitus***

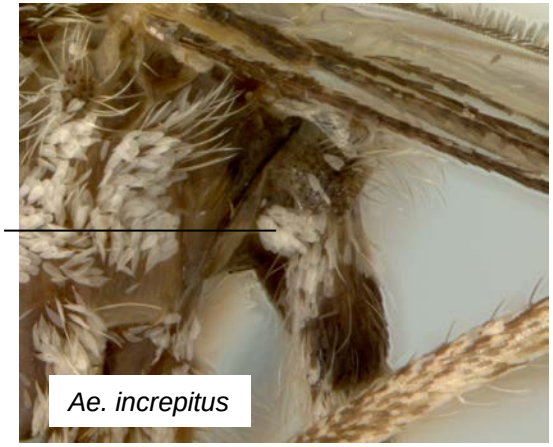


Fig. 155

Fig. 156

First abdominal sternite bare (Fig. 157); proboscis and palpi with scattered pale scales (Fig. 158); Manitoba (possibly Saskatchewan) eastward …….. ***Aedes (Ochlerotatus) stimulans***

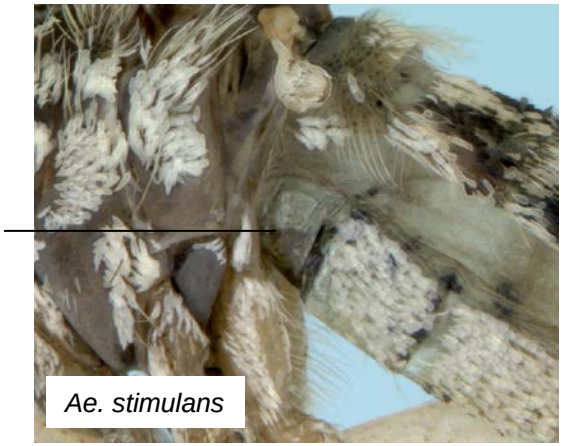


Fig. 157

Fig. 158

20. Wing veins dark-scaled (Fig. 159); scutum with dark brown median and submedian bands and lateral and sublateral areas yellowish (Fig. 160); third fore tarsomere with an incomplete pale basal band …… ***Aedes (Ochlerotatus) mercurator***

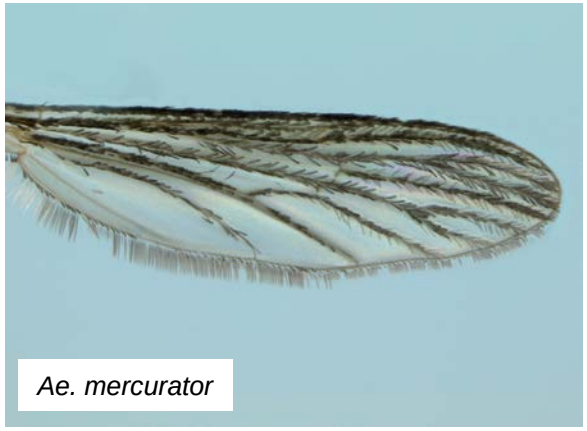


Fig. 159

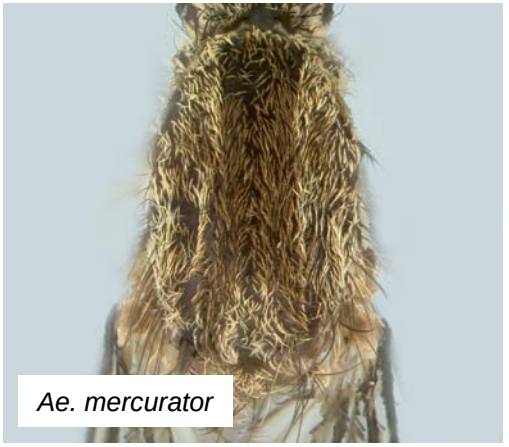


Fig. 160

Wing usually with scattered pale scales intermixed with predominantly dark scales (Fig. 161); scutum with reddish brown median and submedian bands, and lateral and sublateral areas whitish (Fig. 162); third fore tarsomere with a complete pale basal band …… 21

Fig. 161

Fig. 162

21. Wing veins with broad triangular-shaped scales, with pale and dark scales evenly scattered (Fig. 163) …… ***Aedes (Ochlerotatus) grossbecki***

Fig. 163

Wing veins with narrow scales, mostly dark with pale scales more numerous on veins C, Sc, and R_1 (Fig. 164) ……***Aedes (Ochlerotatus) fitchii***

Fig. 164

22. Foreclaw long, not strongly curved, with a short subbasal tooth one-fifth or less length of claw (Fig. 165) ……. 23

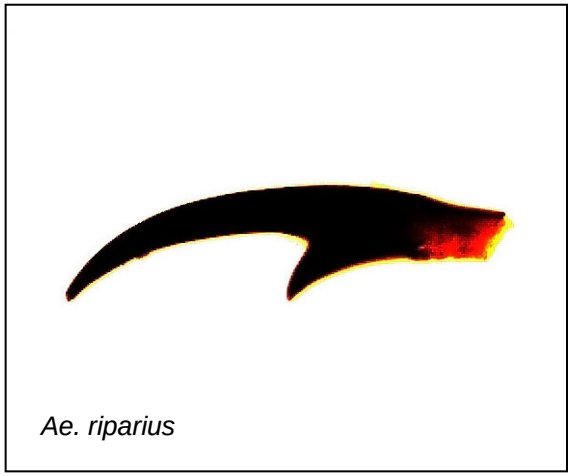


Fig. 165

Foreclaw more strongly curved, with subbasal tooth at least one-quarter length of claw (Fig. 166)…….. 24

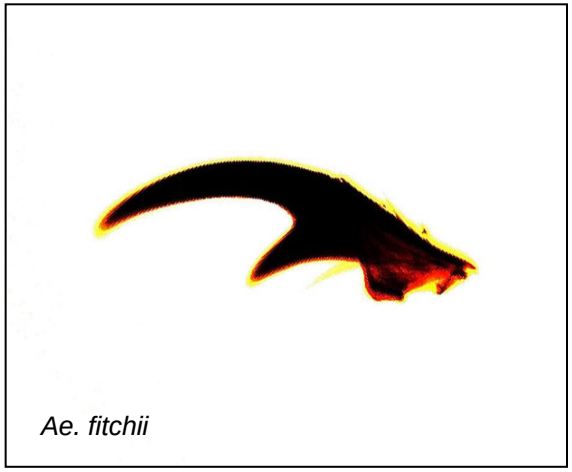


Fig. 166

23. Hypostigmal area with patch of scales (Fig. 167); scutal scales mostly orange (Fig. 168); abdominal tergites with many pale scattered scales in addition to the basal bands ……..
…… ***Aedes (Ochlerotatus) riparius***

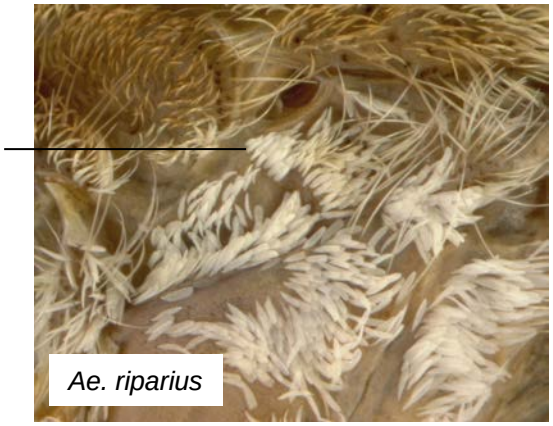


Fig. 167

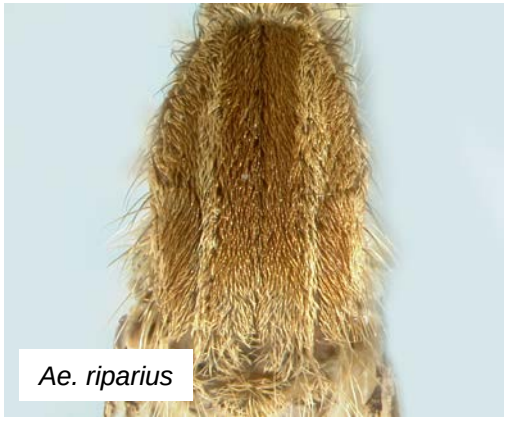


Fig. 168

Hypostigmal area without scales (Fig. 169); scutal scales mostly yellowish brown (Fig. 170); abdominal tergites with few or no pale scales in addition to the basal bands ……
…… ***Aedes (Ochlerotatus) aloponotum***

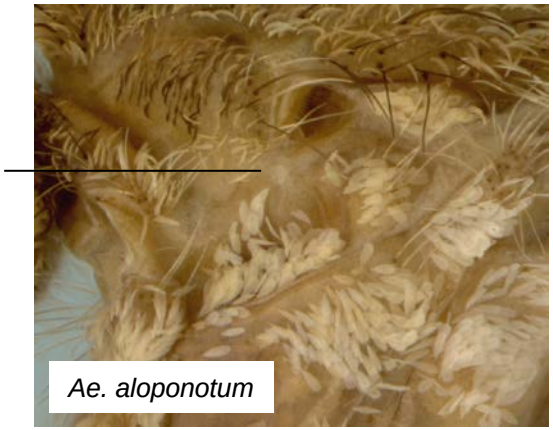


Fig. 169

Fig. 170

24. Proboscis (Fig. 171), cercus, and first tarsomeres usually with scattered pale scales; foreclaw long and not strongly curved beyond tooth (Fig. 172) .....…***Aedes (Ochlerotatus) euedes***

Fig. 171

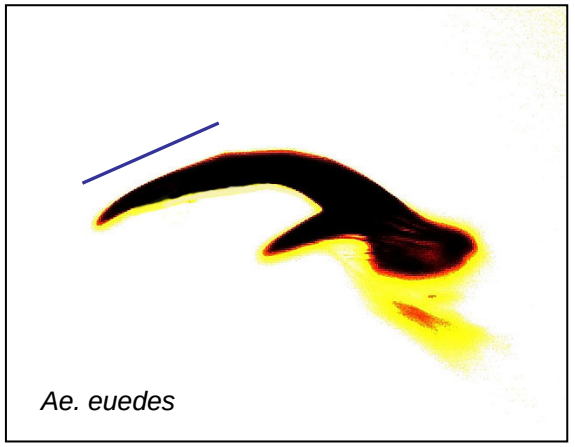


Fig. 172

Proboscis (Fig. 173), cercus, and first tarsomere beyond pale basal band usually without pale scales; foreclaw shorter and strongly curved (Fig. 174) .. ***Aedes (Ochlerotatus) fitchii***

Fig. 173

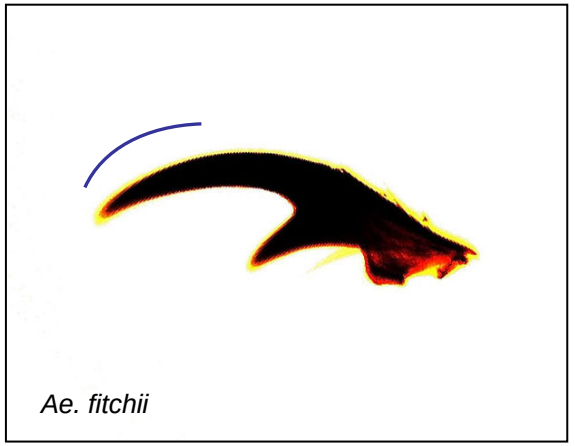


Fig. 174

25. Postprocoxal membrane with patch of pale scales (Fig. 175) …… 26

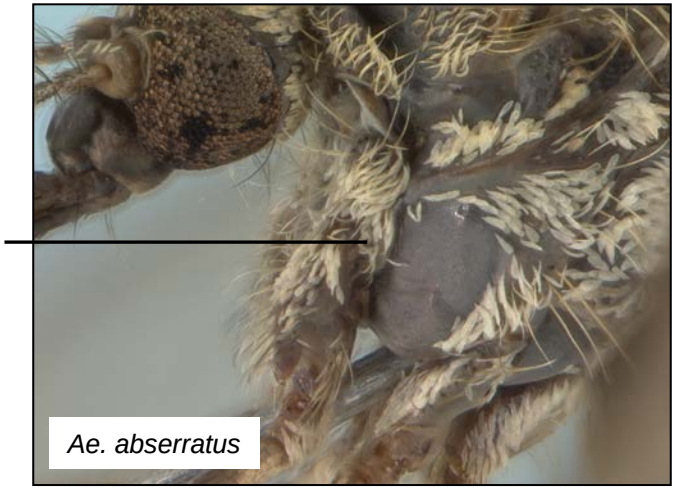


Fig. 175

Postprocoxal membrane without scales (Fig. 176) …… 36

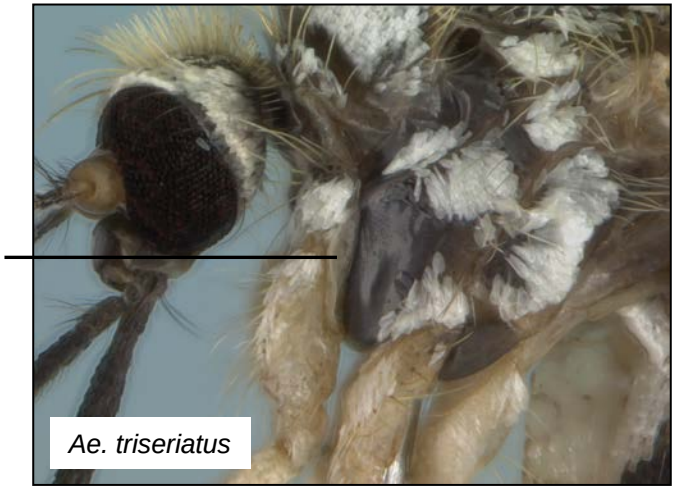


Fig. 176

Note: do not confuse the scales of the proepisternum (the adjacent dorsal region) with the scales of the postprocoxal membrane

26. Wing veins mostly pale-scaled, particularly R_2, R_3, M, and A (Fig. 177); abdominal tergites with a median longitudinal stripe of white scales in addition to the basal bands, with apical tergites sometimes completely pale-scaled (Fig. 178) …….. ***Aedes (Ochlerotatus) spencerii***

Fig. 177

Fig. 178

Wing veins mostly dark-scaled (Fig. 179) with pale scales, when present, confined to base; abdominal tergites with pale basal bands only (Fig. 180) …….. 27

Fig. 179

Fig. 180

27. Postpronotum with numerous setae arising randomly from posterodorsal half (Fig. 181); scutum also with numerous scattered setae, imparting a hairy appearance ……..28

Note: these setae can be very difficult to see, and are often missing in specimens captured in light traps. Look for black holes (pits) from where they once originated, usually hidden beneath the scales of the postpronotum. If unsure, try removing scales from postpronotum to check for presence of pits.

Fig. 181

Postpronotum with setae arising from one, sometimes two, irregular rows along posterior margin (Fig. 182); scutal setae long and sparse …….. 29

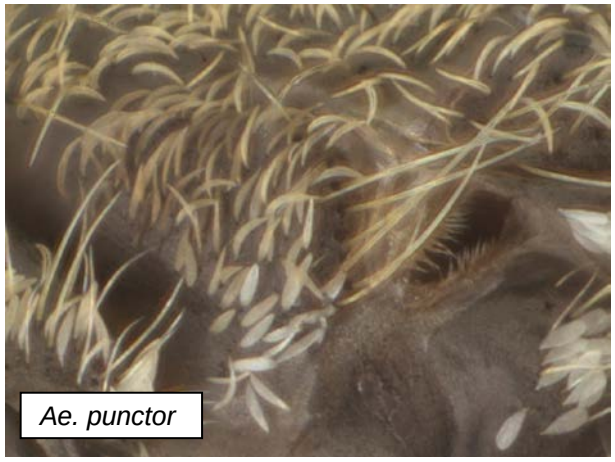


Fig. 182

28. Hindclaw nearly parallel to and sharply bent just beyond a long subbasal tooth (Fig. 183); pale pollinose band present on scutum below scales; postspiracular setae numbering 10 or less ….. …… ***Aedes (Ochlerotatus) impiger***

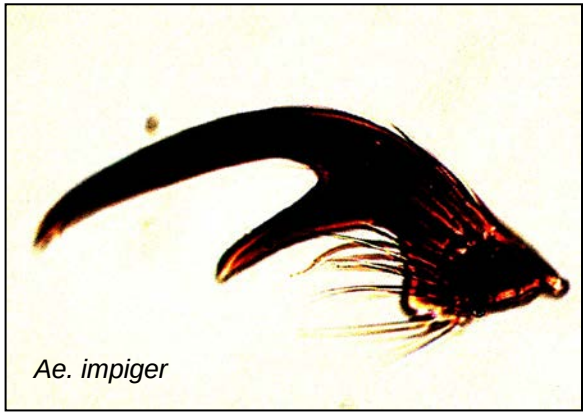


Fig. 183

Hindclaw not nearly parallel to and not strongly curved beyond short subbasal tooth (Fig. 185); scutum below scales velvety black with no pale pollinose band; 14 or more postspiracular setae …… ***Aedes (Ochlerotatus) nigripes***

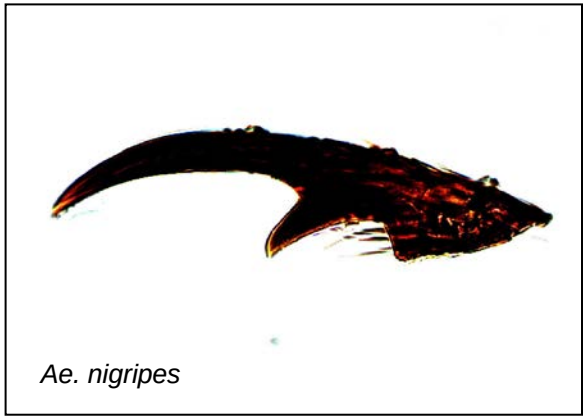


Fig. 184

29. Anepisternum densely covered with whitish scales, with bare spots only in a small area in centre of subspiracular area, below hypostigmal area (Fig. 185); hypostigmal area with scales ..…….. 30

Fig. 185

Anepisternum with pale scales confined to posterior region of postspiracular area and ventral region of subspiracular area (Fig. 186); hypostigmal area usually bare……..... 31

Fig. 186

30. Wing veins C, Sc, and R_1 mostly dark-scaled, with pale scales scattered over most veins (Fig. 187); foreclaw short and strongly curved …… ***Aedes (Ochlerotatus) cataphylla***

Fig. 187

Most wing veins entirely dark-scaled (Fig. 188), with pale scales confined to base of costa; foreclaw longer and not as strongly curved …… ***Aedes (Ochlerotatus) provocans***

Fig. 188

31. Anterodorsal corner of katepisternum and lower fifth of mesepimeron without scales (Fig. 189); pale scales of head and scutum whitish (Fig. 190) ……. ***Aedes (Ochlerotatus) implicatus***

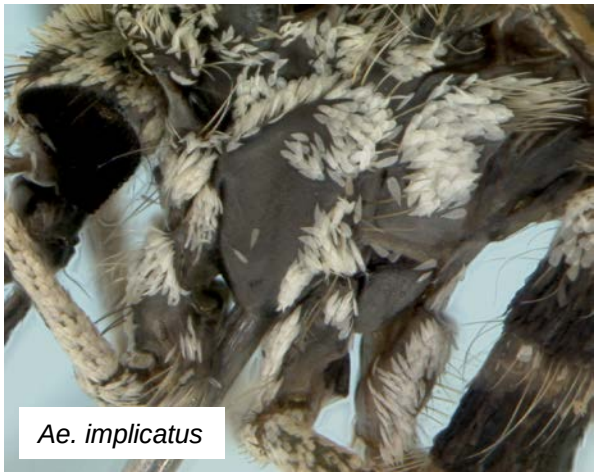


Fig. 189

Fig. 190

Katepisternum with scales extending to anterodorsal corner and mesepimeron completely covered with scales (Fig. 191); pale scales of head and scutum yellowish (Fig. 192) ……. 32

Fig. 191

Fig. 192

32. Scutum with dark brown-scaled submedian bands separated by a narrow pale-scaled median band and sharply contrasting with the pale yellowish-scaled lateral and sublateral areas (Fig. 193); …….. ***Aedes (Ochlerotatus) pionips***

Fig. 193

Scutum with dark-scaled median and submedian bands forming a single broad middorsal stripe, not contrasting strongly with the pale-scaled lateral and sublateral areas (Fig. 194) ……. 33

Fig. 194

33. Probasisternum completely covered with pale scales (Fig. 195); base of costa usually with patch of pale scales ……..…….. 34

Fig. 195

Probasisternum usually without scales (Fig. 196), sometimes a few scattered scales present on dorsal half; costa usually dark-scaled at base ……..…… 35

Note: some *Ae. punctor* may have some scales on probastisternum

Fig. 196

34. Underside of proboscis with pale scales (Fig. 197); abdominal tergite VII entirely pale-scaled (Fig. 198)…… ***Aedes (Ochlerotatus) schizopinax***

Fig. 197

Fig. 198

Underside of proboscis entirely dark-scaled (Fig. 199); abdominal tergite VII with pale scales on apical half only (Fig. 200) …….…….. ***Aedes (Ochlerotatus) hexodontus***

Fig. 199

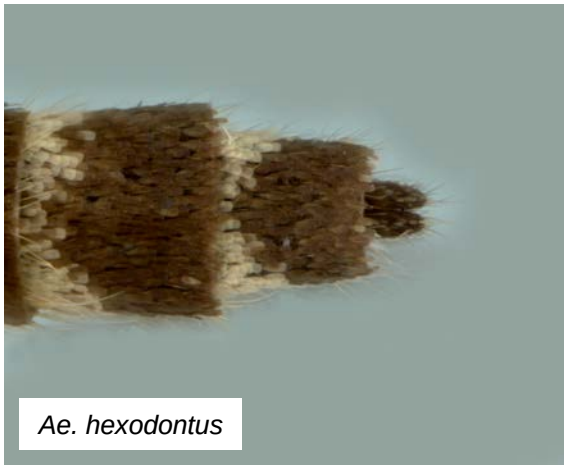


Fig. 200

35. Scutum with median and submedian bands forming a single broad middorsal stripe contrasting with pale scales of sublateral areas (Fig 201) ……..***Aedes (Ochlerotatus) punctor***

Fig. 201

Scutum with uniform medium brown scales (Fig. 202); dark integument and narrower scales may cause submedian stripes to appear darker ……
…… Coastal British Columbia – ***Aedes (Ochlerotatus) aboriginis***
Manitoba eastward – ***Aedes (Ochlerotatus) abserratus***

Fig. 202

36. Ventral margin of anepisternum without scales (Fig. 203); fore coxa dark-scaled (Fig. 204) …….. ***Aedes (Aedes) cinereus***

Fig. 203

Fig. 204

Ventral margin of anepisternum with numerous pale scales (Fig. 205); fore coxa pale-scaled (Fig. 206) (except *Aedes (Ochlerotatus) aurifer*) …….. 37

Fig. 205

Fig. 206

37. Lateral margin of first abdominal tergite and paratergite (Fig. 207) without scales; median, submedian, and lateral bands of scutum with reddish brown scales, contrasting with pale scales of sublateral bands (Fig. 208) …….…….. ***Aedes (Ochlerotatus) trivittatus***

Fig. 207

Fig. 208

Lateral margin of first abdominal tergite and paratergite (Fig. 209) with pale scales (silvery white or yellow); scutum with sublateral and lateral bands pale-scaled (Fig. 210) …… 38

Fig. 209

Fig. 210

38. Abdominal tergites with pale-scaled basal bands (Fig. 211) …… 39

Fig. 211

Abdominal tergites without bands but with pale-scaled basolateral patches (Fig. 212) (may be joined by narrow basal bands on apical segments) …… 44

Fig. 212

39. Scales of katepisternum extending to anterodorsal corner (Fig. 213) …… 40

Note: scales originating in this region are directed toward wing base; scales displaced from other regions sometimes adhere to this area in an unorganized manner

Fig. 213

Scales of katepisternum not extending to anterodorsal corner (Fig. 214) …… 42

Note: if scales are abraded, the specimen will not have any of the next combination of characters; if the scutum is also bare, consider specimen unidentifiable beyond genus level.

Fig. 214

40. Reddish brown scales of median and submedian bands of scutum forming a single broad middorsal stripe (Fig. 215); dorsal half of postpronotum also with reddish brown scales (Fig. 216); lower mesepimeral setae absent …… ***Aedes (Ochlerotatus) sticticus***

Fig. 215

Fig. 216

Dark brown scales of submedian bands of scutum usually separated by a paler, yellowish median band (Fig. 217); dorsal half of postpronotum with yellowish brown scales (Fig. 218); lower mesepimeral setae present ……..…… 41

Fig. 217

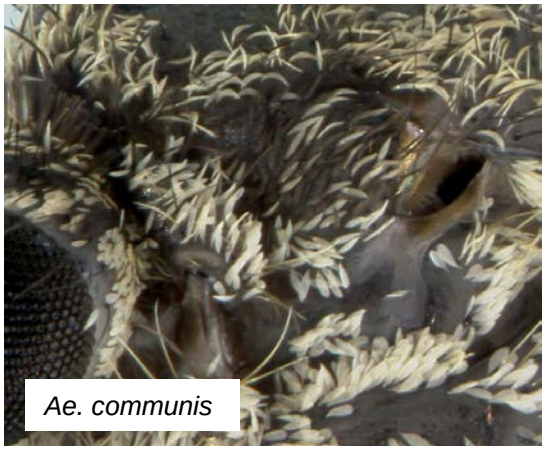


Fig. 218

41. Subbasal tooth of hindclaw long and narrow (Fig. 219) …… ***Aedes (Ochlerotatus) communis***

Fig. 219

Subbasal tooth of hindclaw strongly thickened at base (Fig. 220) ……..
…… Alberta and Manitoba – ***Aedes (Ochlerotatus) churchillensis***
South Central British Columbia (Brust and Munsterman 1992) ***Aedes (Ochlerotatus) nevadensis***

Fig. 220

42. Scutum with scales uniformly bronzy or yellowish brown, without darker submedian bands (Fig. 221); vertex usually with both erect and recumbent scales yellow (Fig. 222) …….. ……***Aedes (Ochlerotatus) intrudens***

Fig. 221

Fig. 222

Scutum with submedian bands of dark brown scales, separated by pale scales of median band (Fig. 223); vertex with dark erect scales contrasting with interspersed whitish recumbent scales (Fig. 224) …….. 43

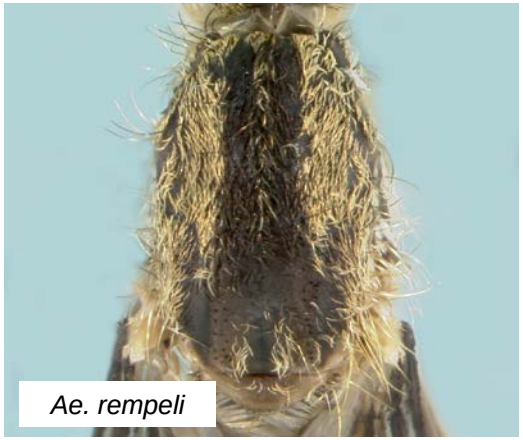


Fig. 223

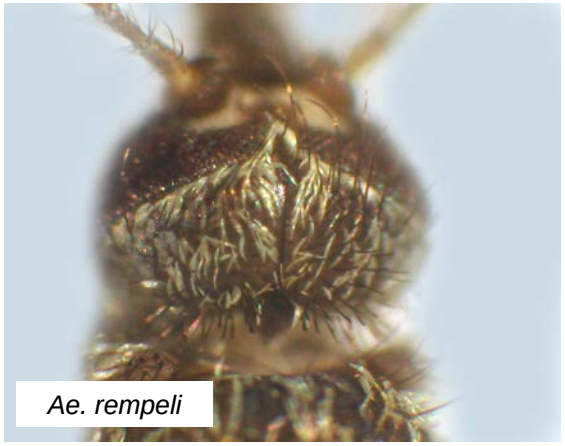


Fig. 224

43. Hypostigmal area usually with patch of pale scales (Fig. 225a); mesepimeron entirely covered with pale scales (Fig. 225b); foreclaw evenly curved and with a long subbasal tooth .... ***Aedes (Ochlerotatus) pullatus***

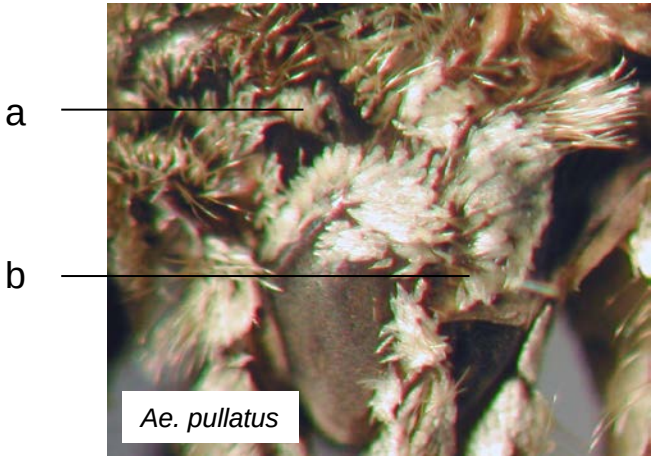


Fig. 225

Hypostigmal area usually without scales (Fig. 226a); mesepimeron with ventral third lacking scales (Fig. 226b); foreclaw not strongly curved and with a short subbasal tooth .... ***Aedes (Ochlerotatus) rempeli***

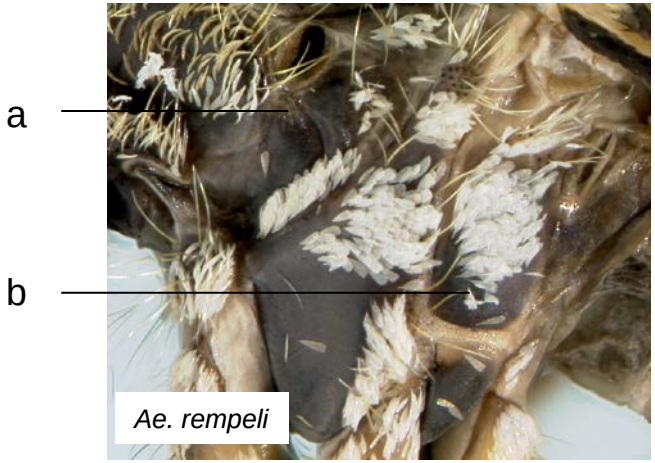


Fig. 226

44. Pale scales of abdomen (Fig. 227), scutum, and pleuron silvery white; scales of postpronotum rounded and overlapping, concealing underlying integument (Fig. 228) ..…….…….. 45

Fig. 227

Fig. 228

Pale scales of abdomen (Fig. 229), scutum, and pleuron yellowish; scales of postpronotum narrow and not overlapping, revealing underlying integument (Fig. 230) ……46

Fig. 229

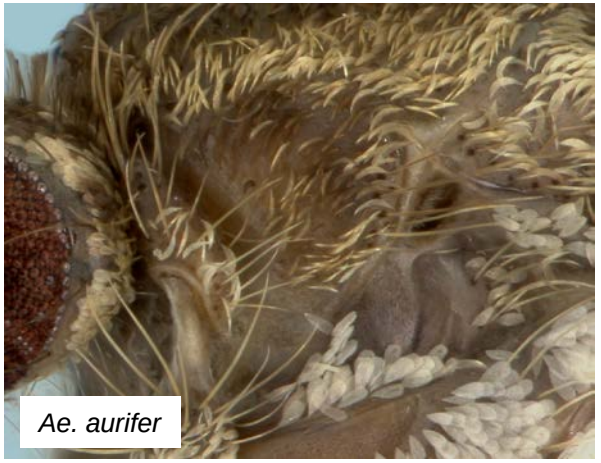


Fig. 230

45. Foreclaw rather straight and strongly bent just beyond long subbasal tooth (Fig. 231); scutum with middorsal stripe of dark scales gradually widening posteriorly and with numerous silver scales present anteriorly (Fig. 232) …… ***Aedes (Ochlerotatus) hendersoni***

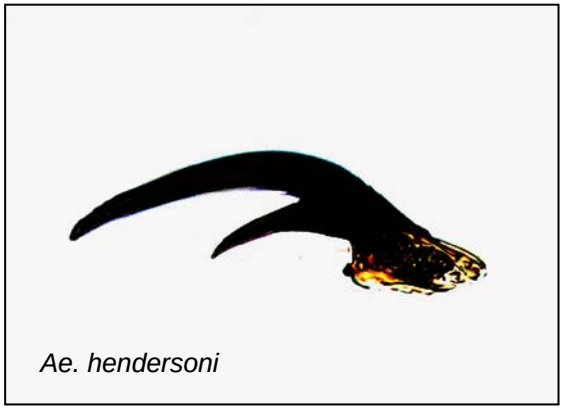


Fig. 231

Fig. 232

Foreclaw evenly curved with short subbasal tooth (Fig. 233); scutum with middorsal stripe of dark scales abruptly widened in middle and with few silver scales present along anterior margin (Fig. 234) …… ***Aedes (Ochlerotatus) triseriatus***

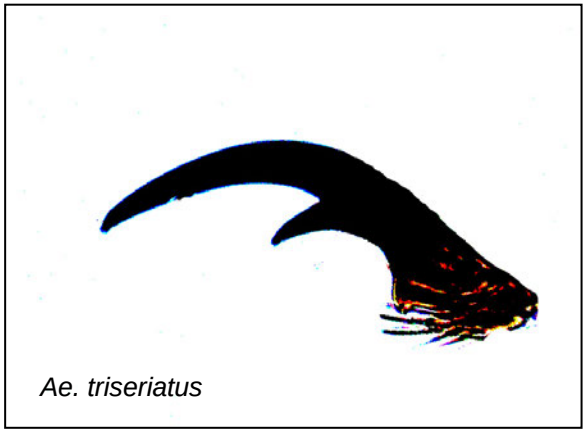


Fig. 233

Fig. 234

46. Anterior half of the scutum with median, submedian, and part of the sublateral bands dark-scaled, forming a broad middorsal stripe that is widened posteriorly (Fig. 235); fore coxa dark-scaled (Fig. 236) …… ***Aedes (Ochlerotatus) aurifer***

Fig. 235

Fig. 236

Anterior half of scutum with lateral and sublateral bands entirely pale-scaled, dark scales confined to submedian and median areas (Fig. 237); fore coxa pale-scaled (Fig. 238) ……. 47

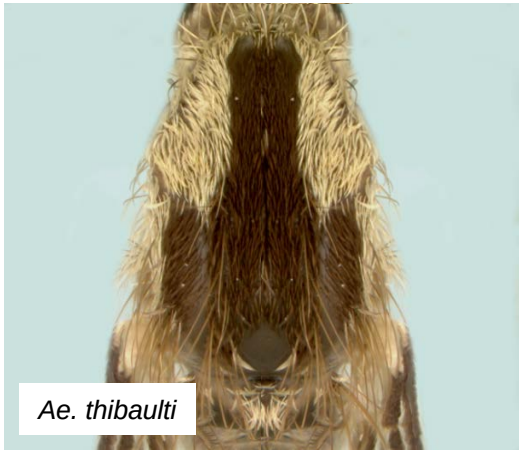


Fig. 237

Fig. 238

47. Scutum with dark brown submedian stripes not separated by median band of pale scales (Fig. 239); dark-scaled sublateral bands posterior to transverse suture not separated from submedian bands by pale scales (Fig. 239); scales surrounding prescutellar depression mostly dark (Fig. 240) ……. ……..……***Aedes (Ochlerotatus) thibaulti***

Fig. 239

Fig. 240

Scutum with dark brown submedian stripes separated by median band of pale scales (Fig. 241); dark-scaled sublateral bands posterior to transverse suture separated from submedian bands by pale scales (Fig. 241); scales surrounding prescutellar depression mostly pale (Fig. 242) …. 48

Fig. 241

Fig. 242

48. Vertex with yellow scales (Fig. 243); metameron with patch of scales (Fig. 244); foreclaw long, slender, and rather straight …… ***Aedes (Ochlerotatus) diantaeus***

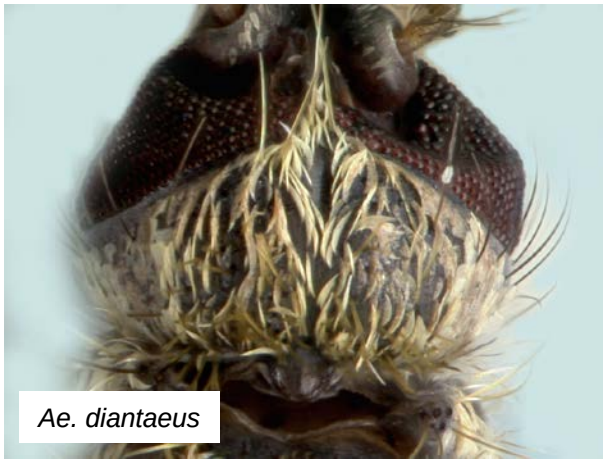


Fig. 243

Fig. 244

Vertex with two submedian patches of dark scales (Fig. 245); metameron bare (Fig. 246); foreclaw strongly curved …….…… ***Aedes (Ochlerotatus) decticus***

Fig. 245

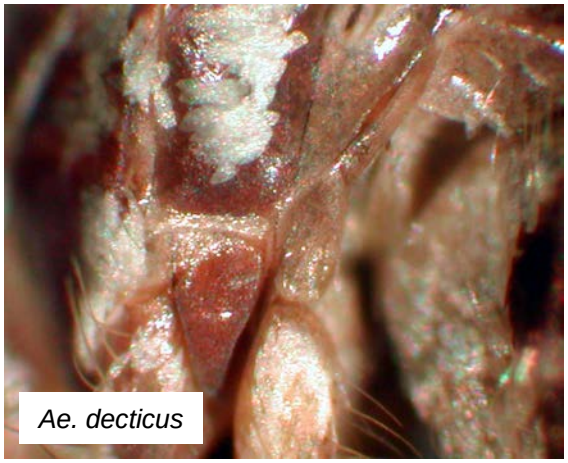


Fig. 246

Coquillettidia

The only known species in Canada is *Cq. perturbans.* This species was formerly assigned to the genus *Mansonia* and there remains disagreement about whether the current assignment is a warranted change.

Proboscis usually with well-defined ring of pale scales at midlength (Fig. 247); integument of thorax with dark and light areas (Fig. 248); wing veins with mixed broad dark and pale scales (Fig. 249); abdomen with scattered pale scales in addition to pale-scaled basal bands (Fig. 250) …….. ***perturbans***

Fig. 247

Fig. 248

Fig. 249

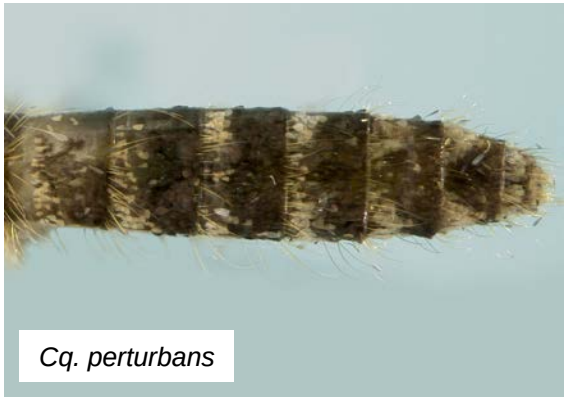


Fig. 250

Note: many specimens of *Cq. perturbans* with entirely pale-scaled legs were collected during the Ontario West Nile virus mosquito surveillance (2003-2005)

See *Appendix*

Key to the species of *Psorophora*

***Psorophora* species are rare relative to *Culex, Aedes,* and *Anopheles* species.**

1. Palpus approximately one-third length of proboscis (Fig. 251); apices of hind tibia, femur, and tarsomeres with broad bands of long, dark, erect, shiny scales (Fig. 252); postpronotum without scales; scutum with bands of white and gold scales on anterior half and dark-scaled bands on posterior half …… ***ciliata***

Fig. 251

Fig. 252

Palpus approximately one-quarter or less length of proboscis (Fig. 253); leg scales short and recumbent, without distinct bands of erect scales (Fig. 254); postpronotum and scutum evenly clothed with scales that are usually uniform in colour, without distinct bands …… 2

Fig. 253

Fig. 254

2. Proboscis and palpus entirely dark-scaled (Fig. 255); legs mostly dark-scaled except for last two tarsomeres of hind legs which are white-scaled (Fig 256); wings, legs, abdomen and proboscis mostly dark-scaled with purple metallic reflections; tarsal claws with subbasal teeth …… ***ferox***

Fig. 255

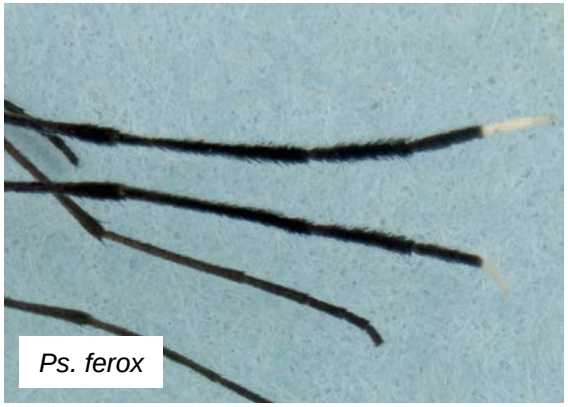


Fig. 256

Proboscis with broad, pale-scaled band near middle (Fig. 257); most tarsomeres with broad basal bands of pale scales (Fig. 258); wings, femora, tibiae and abdomen with pale and dark scales intermixed; tarsal claws without subbasal teeth …… 3

Fig. 257

Fig. 258

3. First hind tarsomere with bands of pale scales at base and near middle (Fig. 259); dark and pale wing scales intermixed over all wing veins (Fig. 260) ……..***columbiae***

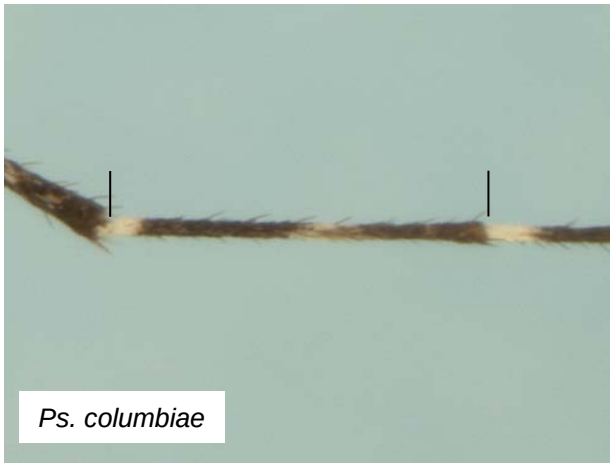


Fig. 259

Fig. 260

First hind tarsomere almost entirely pale-scaled (Fig. 261); wing veins C, Sc, and R with alternating patches of pale and dark scales (Fig. 262) …….. ***signipennis***

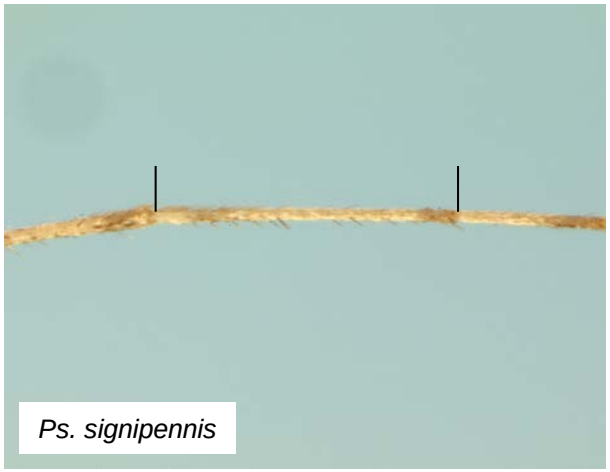


Fig. 261

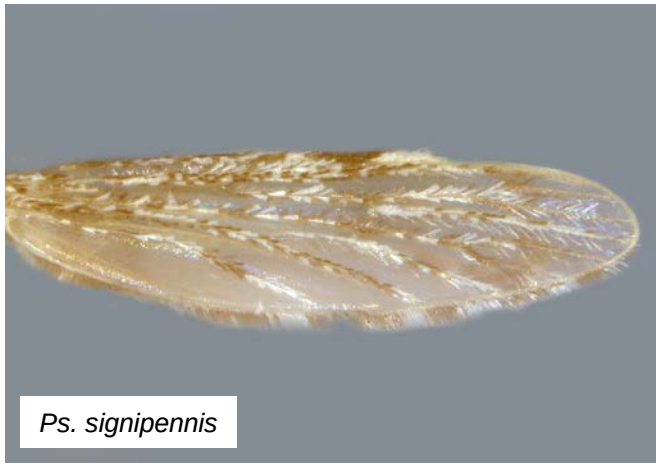


Fig. 262

Uranotaenia

The only known species in Canada is *Ur. sapphirina.* The male palpus is the same length as the female, but males can be distinguished from females by their plumose antennae.

Scutum with median band of metallic blue scales (Fig. 263); scales of occiput flat, round, and metallic blue (Fig. 264); antepronotum, paratergite, and katepisternum with metallic blue scales (Fig. 265); base of wing vein CuA with metallic blue scales (Fig. 266); abdomen mostly dark-scaled except for small, middorsal spots of white scales sometimes present on tergites III and V ……..……***sapphirina***

Fig. 263

Fig. 264

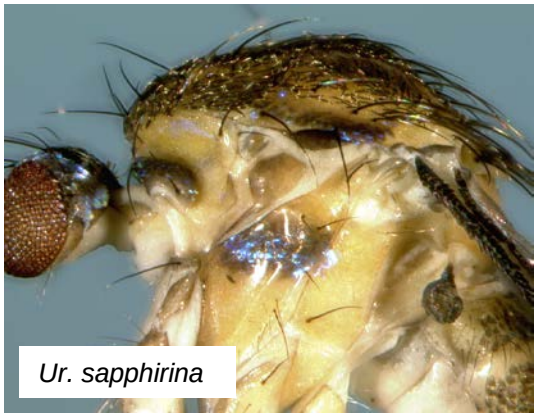


Fig. 265

Fig. 266

Wyeomyia

The only species known from Canada, *Wy. smithii*, is a small mosquito whose larvae develop in water that collects in leaves of the pitcher plant, *Sarracenia purpurea.* Both males and females have reduced palpi and males lack plumose antennae, making them indistinguishable from females except by genitalia.

Scutum entirely covered with flat, recumbent, dark scales (Fig. 267); proboscis, palpus, vertex (Fig. 268) and dorsal surfaces of femora, tibiae, tarsi, wing veins, and abdomen dark-scaled, sometimes with metallic reflections; pleuron covered with shiny pale scales (Fig. 269); coxae and ventral surfaces of femora, tibia, tarsi and abdomen (Fig. 270) with round, flattened, silvery scales ……..…….. ***smithii***

Fig. 267

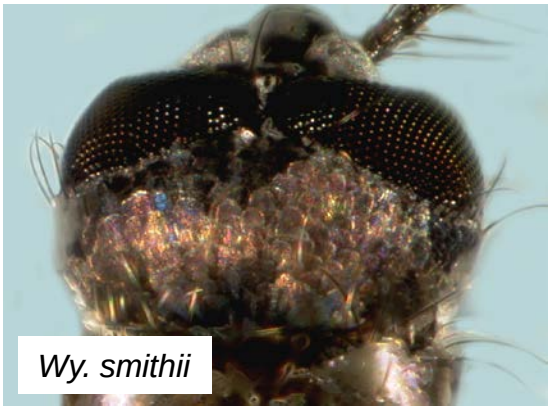


Fig. 268

Fig. 269

Fig. 270

Key to the Species of *Orthopodomyia*

Only two species are known to occur in Canada, *Or. alba* and *Or. signifera,* and the adult females are almost indistinguishable. Unlike other genera of Canadian mosquitoes, every part of the body and nearly every appendage has lines and patches of narrow white scales, which are very conspicuous against the dark brown integument (Fig. 271). Fore and midtarsi have a few white scales, but hind tarsi are conspicuously banded both apically and basally (Fig. 272). Larvae are found mainly in tree holes.

Fig. 271

Fig. 272

1. Wing with white-scaled patches at base of vein R_{4+5} (Fig. 273a) and veins M_{1+2} and CuA_1 (Fig. 273b) form a broad white spot approximately one-third width of wing (Fig. 273b)….. ……..…. ***signifera***

Fig. 273

Wing with dark scales at base of vein R_{4+5} (Fig. 274a), the white-scaled patches on M_{1+2} and CuA_1 forming a smaller rounded spot less than one-quarter width of wing (Fig. 274b) ……..…… ***alba***

Fig. 274

Toxorhynchites

These mosquitoes are extremely rare in Canada. The only species known from Canada, *Tx. rutilus*, was collected from a tree hole in Point Pelee National Park (Parker 1977). Larvae are very large, live in tree holes, and are predaceous on the larvae of other tree hole mosquitoes (Wood *et al.* 1979).

Proboscis strongly bent downward (Fig. 275); dark scales of palpus with metallic reflections; median and lateral bands of scutum (Fig. 276) and the lateral margin of occiput with metallic yellow scales; abdomen with metallic blue-green scales dorsally and yellow scales laterally and ventrally (Fig. 277); pleuron and coxae yellow-scaled (Fig. 278); hind tarsi with purple metallic reflections……..……***rutilus***

Fig. 275

Fig. 276

Fig. 277

Fig. 278

Recently Introduced Species

- ***Aedes (Ochlerotatus) japonicus***

The first record of this species in North America – a native of east Asia (Tanaka *et al.* 1979) – is from New Jersey, USA (Peyton *et al*. 1999). It has quickly extended its range and appears to have become established in Southern Ontario (Thielman and Hunter 2006). While the numbers of adults collected in light traps during West Nile virus surveillance are low, larvae have been found in very large numbers in artificial breeding sites (such as used tires, rain water-filled buckets, etc.) in the Niagara Region. The low number in light traps is likely due to the fact that females are day-time biters and the light traps used in the surveillance program only collected insects from dusk until dawn. Because of their ability to transmit pathogenic organisms, such as the West Nile virus, they should be considered a public health concern. While studies have shown that wild-caught *Ae. japonicus* are primarily bird-biters (Apperson *et al.* 2004), reared specimens readily fed on humans in the lab (pers. obs.)…… **pg 99**

- ***Aedes (Aedes) albopictus***

Also known as the Asian Tiger Mosquito, this species was recently introduced from Asia (Arshad and Nayar 1997). The first record of this species in continental North America was from Houston, Texas in 1985 (Arshad and Nayar 1997). To date, despite continued attempts, only two specimens have been collected. They were found in the Niagara region as part of the West Nile virus surveillance program only in 2001, suggesting that they have not become established in this country. Because they are potential vectors of several diseases, they should be considered a public health concern should they ever become well established in an area…….... **pg 100**

continued pg 98

Newly Introduced Species

- ***Culex erraticus***

This species was recently collected during WNv surveillance in Southern Ontario, representing the first records of its occurrence in Canada. One female was collected in the Peel Region in 2001 and another in the Windsor area in 2002. A larva was collected from the Windsor area in 2005. In the USA, its distribution is from the southeastern states to the southwestern shores of Lake Erie, near Windsor, Ontario (Darsie and Ward 2005). While they are potential vectors of diseases such as Eastern Equine Encephalitis and that caused by West Nile virus, their extremely low numbers in Canada do not render them a public health concern at this time ……. **pg 101**

- ***Anopheles crucians***

This species was recently collected during WNv surveillance in Southern Ontario, representing the first record of its occurrence in Canada. One female was collected in Point Pelee Provincial Park in 2002 and another from the Toronto Zoo in 2003. Their previous known distribution in the USA includes most southeastern states with its northern limits recorded as Indiana, Illinois, Ohio, and the southern regions of Pennsylvania and New York (Darsie and Ward 2005). While they have tested positive in the USA for West Nile virus, their extremely low numbers in Canada do not make them a current public health concern ……..…**pg 102**

Note: *An. crucians* is now recognized as a complex of six cryptic species based on ribosomal DNA ITS2 sequences, including named species *An. crucians. An. bradleyi, An. georgianus* and three unnamed species (Wilkerson *et al.* 2004).

Aedes (Ochlerotatus) japonicus

Scutum with five gold-scaled longitudinal bands (Fig. 279); abdominal tergites dark-scaled with middorsal spots of pale scales (Fig. 280) and square-shaped, silvery blue-scaled basolateral patches; pale-scaled patches on side of thorax with a silvery and/or light blue reflection (Fig. 281); abdominal sternites with pale basal bands (Fig. 282); hind tarsomeres 1, 2, and sometimes 3 with broad, pale-scaled basal bands and tarsomeres 4 and 5 usually entirely dark-scaled (Fig. 283)

Fig. 279

Fig. 280

Fig. 281

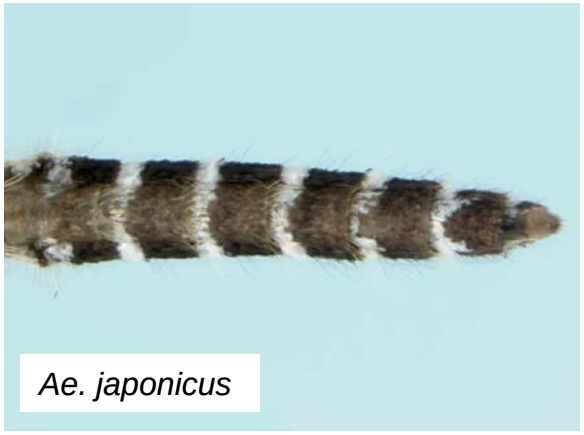


Fig. 282

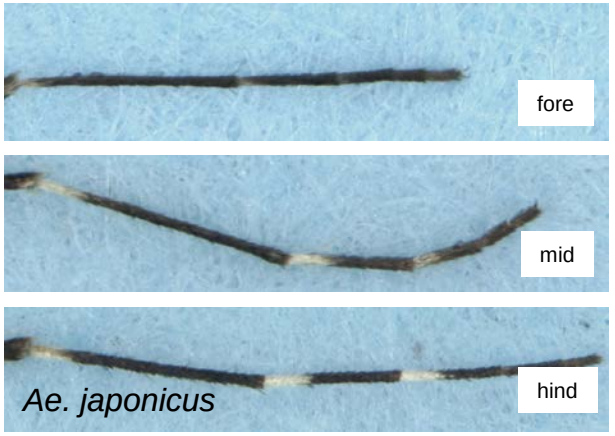


Fig. 283

Aedes (Aedes) albopictus

Scutum with a distinct single band of white scales (Fig. 284); abdominal tergites dark-scaled with narrow, basal bands of white scales (Fig. 285) and triangular, silvery white-scaled basolateral patches; pale-scaled patches on side of thorax silvery white (Fig. 286); abdominal sternites with white scales organized into distinct groups, not bands (Fig. 287); hind tarsomeres 1 to 4 with broad, white-scaled basal bands and tarsomere 5 entirely white-scaled (Fig. 288)

Fig. 284

Fig. 285

Fig. 286

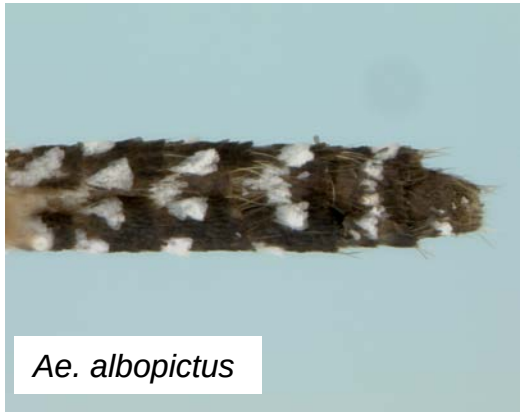


Fig. 287

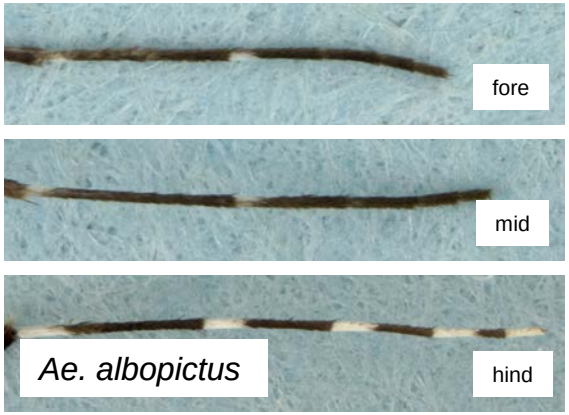


Fig. 288

Culex erraticus

Eyes completely bordered by broad appressed scales (Fig. 289); proboscis and palpi dark-scaled; scutum with dark brown integument and narrow, curved, golden-brown scales, without acrostichal setae (Fig. 290); scutellum with narrow gold scales and brown setae on lobes; katepisternum and mesepimeron each with a small patch of pale scales (Fig 291); wing with broad scales on veins R_2 and R_3 (Fig. 292); tergites mostly dark-scaled with metallic reflection, sometimes with narrow, white-scaled, basal bands (Fig. 293)

Fig. 289

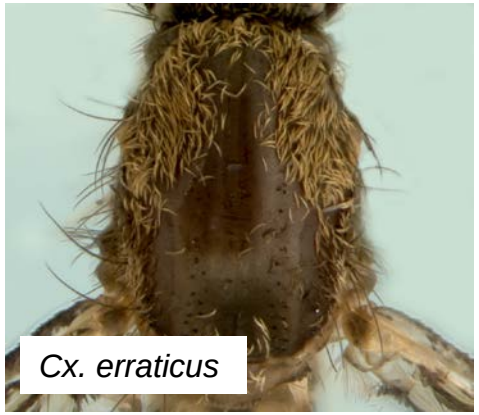


Fig. 290

Fig. 291

Fig. 292

Fig. 293

Anopheles crucians

Proboscis dark-scaled; palpi mostly dark-scaled with pale scales at base of segments 3 and 4 and segment 5 entirely pale-scaled (Fig. 294); integument of scutum mottled brown and gray (Fig. 295); most wing veins with numerous pale scales organized into a pattern of spots (Fig. 296); costa entirely dark-scaled except at apex (Fig. 296); wing vein A with three dark spots (Fig. 296); integument of abdomen dark brown to black with numerous yellow and brown setae (Fig. 297)

Fig. 294

Fig. 295

Fig. 296

Fig. 297

Appendix

• *Culex salinarius*

Cx. salinarius has been collected during WNv surveillance in Southern Ontario since 2002. In 2007, they were collected as far north as Thunder Bay. Their previous known distribution includes the eastern half of the United States, extending north to the Canadian border (Darsie and Ward 2005). They are often similar in appearance to *Cx. pipiens* and sometimes resemble *Cx. restuans* as well. The presence of fine brown scales on the scutellum may prove to be a useful characteristic in their identification (Apperson *et al.* 2002)…… **pg 104**

• *Aedes vexans nipponii*

Aedes vexans have distinct, bilobed basal bands on abdominal tergites. However, many specimens were collected during WNv surveillance which had a middorsal longitudinal stripe of pale scales in addition to the pale-scaled basal bands. This character is used to separate Asian subspecies *Aedes vexans nipponii* and *Aedes vexans vexans* (Lee *et al.* 2002). Further studies are required ..... **pg 105**

• *Coquillettidia perturbans* (pale legs)

Cq. perturbans are common throughout Canada. An important character for their identification is the presence of broad, pale-scaled bands on their otherwise dark-scaled legs. However, many specimens were collected during WNv surveillance (2001-2004) which had entirely pale-scaled legs. Further studies are required …….. **pg 106**

Culex salinarius

Abdominal tergites usually dark-scaled, metallic blue-green reflection, and narrow, dingy yellow or coppery basal bands (Fig 298); degree of pale scaling may vary from being scarcely present on apical tergites only (Fig. 299) to having basal bands and tergites VI to VIII being entirely pale-scaled; tergites VI and VII usually have additional apical bands of pale scales and tergite VIII entirely pale-scaled (Fig. 300); vertex (Fig. 301), scutum (Fig. 302), and scutellum (Fig. 303) usually with dark scales and setae (but may be golden)

Fig. 298

Fig. 299

Fig. 300

Fig. 301

Fig. 302

Fig. 303

Aedes vexans nipponii

Specimens of *Ae. vexans* with a median longitudinal stripe in addition to the bilobed bands may be a recently introduced subspecies, *Ae. vexans nipponii* from East Asia (Lee *et al.* 1998). Further studies are required.

Abdominal tergites with pale scales forming a median, longitudinal stripe in addition to pale-scaled basal bands (Fig. 304), sometimes obscuring indentations in basal bands

Note: the degree of pale scaling can vary. Specimens with small extensions of the basal bands (small, triangular-shaped peaks on adjacent tergites) should not be considered *Ae. vexans nipponii*, but rather intraspecific variation of *Ae. vexans vexans*.

Fig. 304

Coquillettidia perturbans (pale legs)

Proboscis mostly pale-scaled, particularly basally (Fig. 305); wings with more pale scales than dark (Fig. 306); tergites with numerous pale scales in addition to the basal bands (Fig. 307); hind tibia and first tarsomere (Fig. 308) and all other tarsomeres (Fig. 309) mostly pale-scaled.

Note: the degree of paleness can vary – some specimens are almost completely pale-scaled while others have some slightly darker scales visible on legs and wings

Fig. 305

Fig. 306

Fig. 307

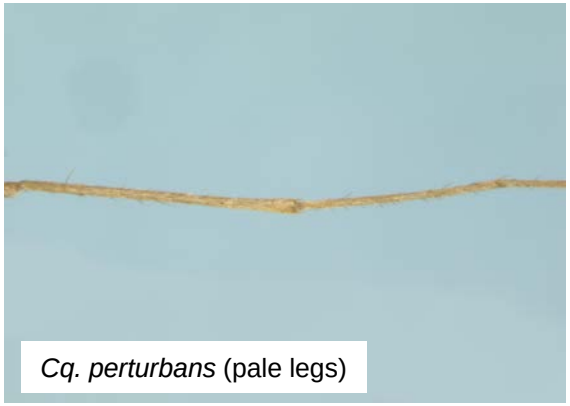


Fig. 308

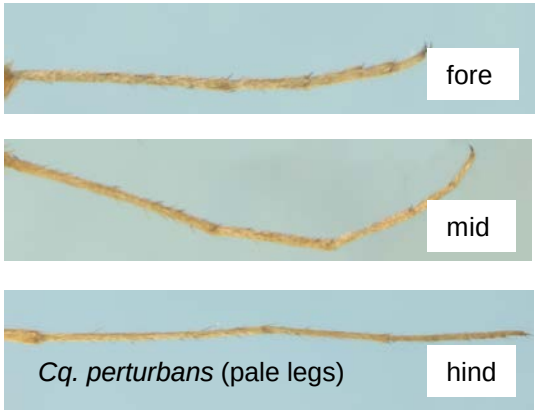


Fig. 309