

TRUE-FALSE KEY TO SPECIES OF ALASKAN BITING MOSQUITOES

KATHRYN M. SOMMERMAN

Arctic Health Research Center, U. S. Public Health Service, Department of Health, Education, and Welfare, 945 Sixth Avenue, Anchorage, Alaska 99501

This true-false key is designed to speed identification of unmounted specimens by reducing the printed matter and reading time involved in using a couplet key. Since dead mosquitoes usually lie with the side or venter up, the distinguishing characters most obvious in those positions are preferred. Characters that require high magnification or turning the specimen dorsum up, are used only when necessary. For an explanation of the terminology see Figures 1 to 5.

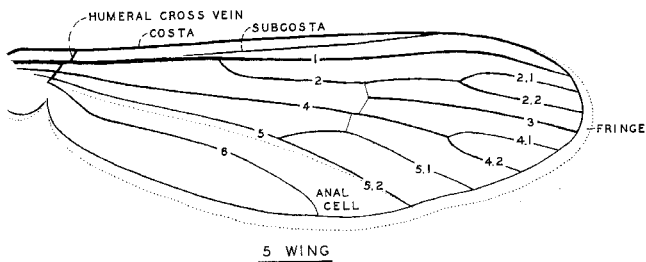
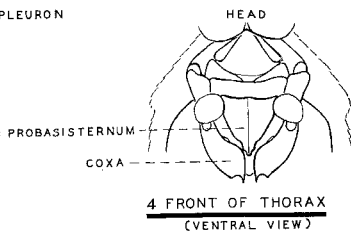
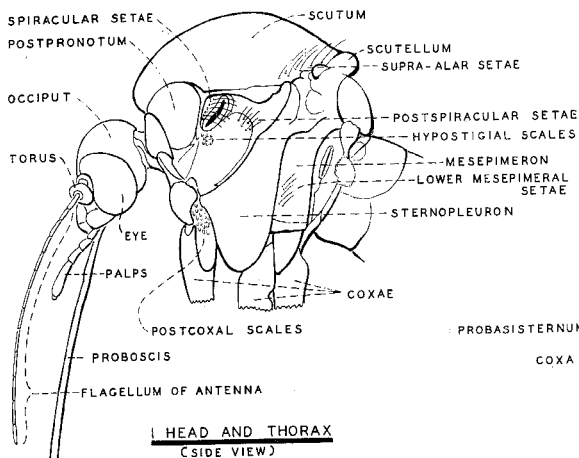
At the end of each numbered statement there is a "T" and an "F", both followed by a number or a scientific name. If the statement is true of the specimen, proceed to the statement indicated by the number after the "T". If the statement is false

proceed to the statement indicated by the number after the "F". The scientific name indicates the identity of the species agreeing with the true or false concept, as indicated.

The following species are not known to occur in Alaska but do occur in neighboring Canadian Provinces: *Anopheles freeborni* Aitken, *occidentalis* D&K, *punctipennis* (Say), and *walkeri* Theobald; *Culex pipiens* Linnaeus, *restuans* Theobald, and *tarsalis* Coq.; *Culiseta inornata* (Williston) *Aedes campestris* D&K, *dorsalis* (Meigen), *incredibilis* Dyar, *sticticus* (Meigen), *trichurus* (Dyar), and *vexans* (Meigen). These are included in the key (marked with an asterisk) just in case they should be taken in Alaska.

TRUE-FALSE KEY TO SPECIES OF ALASKAN BITING MOSQUITOES

- 1 Palps short, less than half as long as proboscis. T-2, F-37
- 2 Tip of abdomen pointed, not blunt. T-3, F-28
- 3 Some tarsi with bands of pale scales around segments. T-4, F-13
- 4 Tarsal segments with band of light scales around basal end only. T-5, F-11
- 5 Postcoxal scales present. T-6, F-*Aedes vexans** (Meigen)
- 6 Abdomen completely or almost completely dull yellow-scaled; on front tarsus, distance between distal tips of claw and tooth about three times length of tooth, Fig. 11. T-*Aedes flavescens* (Muller), F-7
- 7 Tarsal claws with long parallel tooth; distance between distal tip of tooth and side of claw, less than half length of tooth, Fig. 10. T-*Aedes excrucians* (Walker), F-8
- 8 Hypostigial patch of scales present; on front tarsus, distance between distal tips of claw and tooth about twice length of tooth, tooth stout, Fig. 19. T-*Aedes riparius* D&K, F-9
- 9 Palps with band of white scales around distal end of segments; tori lacking white scales on dorsal surface; abdominal sternites with lateral patches of black scales. T-*Aedes increpitus** Dyar, F-10
- 10 Usually three or more lower mesepimeral setae present. T-*Aedes stimulans* (Walker), F-*Aedes fitchii* (F&Y)
- 11 Postcoxal scales absent. T-*Aedes canadensis* (Theobald), F-12
- 12 Pleural scales narrow, curved and yellowish-white; on front tarsus, distance between distal tips of claw and tooth about equal to (not twice, as in Fig. 9) length of tooth, Fig. 6. T-*Aedes campestris** D&K, F-*Aedes dorsalis** (Meigen)
- 13 Total length of first three flagellar segments of antennae about twice as long as palps. T-*Aedes cinereus* Meigen, F-14



[FIGURES 6 TO 19 ARE
FRONT TARSAL CLAW]

- 14 Postcoxal scales absent. T-15, F-21
- 15 Most or all of abdominal tergites without a band of light scales; some sternites with distal band of dark scales. T-16, F-17
- 16 Occiput with anterior patches of narrow, dark brown, appressed scales; tori dark brown to black. T-*Aedes decticus* (H, D&K), F-*Aedes dianiaetus* H, D&K
- 17 Lower quarter of mesepimeron bare. T-18, F-19
- 18 Scutum rather uniformly covered with brownish-yellow scales; head without a spot of dark scales in the lateral patch of broad appressed white scales. T-*Aedes intrudens* Dyar, F-*Aedes sticticus** (Meigen)
- 19 Hypostigial patch of scales present and conspicuous; sternopleural scales not reaching upper front margin; a patch of pale scales extending from base of costa and vein 1 to humeral cross vein. T-*Aedes pullatus* (Coq.), F-20
- 20 Scutellar and supra-alar setae brownish black; abdominal sternites lacking median brown scales; on front tarsus, distance between distal tips of claw and tooth about twice (not three times as in Fig. 18) length of tooth, Fig. 8. T-*Aedes communis* (DeGeer), F-*Aedes* sp?, possibly *puncator* complex
- 21 Scutum appears furry because of many long, rather fine, erect setae; post-pronotal setae scattered, Fig. 2 (not arranged in a single or double row along rear margin as in Fig. 3). T-22, F-23
- 22 Sternopleural scale patch usually reaches upper front margin; on front tarsus, claw elongate, distance between distal tips of claw and tooth about twice (not approximately equal as in Fig. 13) length of tooth, Fig. 15. T-*Aedes nigripes* (Zett.), F-*Aedes impiger* (Walker)
- 23 Lower part of probasisternum with many scales. T-24, F-25
- 24 Scutum covered with yellowish or greyish-white scales except for two sharply defined, rather broad submedian stripes and half stripes of dark brown scales; torus light brown on outer surface; most or all of supra-alar and scutellar setae dark; on front tarsus, distance between distal tips of claw and tooth about twice (not three times or more as in Fig. 12) length of tooth, Fig. 16. T-*Aedes pionips* Dyar, F-*Aedes hexodontus* Dyar
- 25 Broad extension (several scales wide) of sternopleural scale patch reaches upper front margin; mesepimeral scale patch reaches front lower margin. T-26, F-27
- 26 Hypostigial patch of scales absent; outer side of tori and scutellar and supra-alar setae pale yellowish-brown; on front tarsus, distance between distal tips of claw and tooth three or more times length of tooth, Fig. 17. T-*Aedes aboriginis* Dyar and *Aedes punctor* (Kirby), F-*Aedes trichurus** (Dyar)
- 27 Scutum covered with white scales on the periphery and golden brown scales on the middle (without narrow lines and half-lines of fine reddish-brown scales); pale scales extend from bases of costa and vein 1 to humeral cross vein (not limited to just a round spot at base of costa); tooth on front tarsal claw about twice as long as its width at base, Fig. 7 (not with length and width about equal as in Fig. 14). T-*Aedes cataphylla* Dyar, F-*Aedes implicatus* Vockeroth
- 28 Spiracular setae present. T-29, F-34
- 29 Some scales on wing veins clumped, forming pronounced dark spots. T-30, F-32
- 30 Band of white scales around femora near distal end; wing membrane fumose near clumped scales. T-*Culiseta particeps* (Adams), F-31
- 31 Both broad and narrow bands of light scales around tarsi; scales on cross veins. T-*Culiseta alaskaensis* (Ludlow), F-*Culiseta incidens* (Thomson)
- 32 Uniformly narrow bands of pale scales around tarsi, bands about as wide as segment; line projected through forking of veins 2 and 4, crosses vein 5.2 and anal cell. T-*Culiseta morsitans* (Theobald), F-33

- 33 Wing with costa entirely dark-scaled; on abdominal tergites band of pale scales uniform in width (not widened to cover sides). T-*Culiseta impatiens* (Walker), F-*Culiseta inornata** (Williston)
- 34 Abdominal tergites with band of light scales on distal margin. T-*Culex territans* Walker, F-35
- 35 Proboscis and some tarsal segments with band of pale scales. T-*Culex tarsalis** Coq., F-36
- 36 Abdominal tergites, especially third, fourth, and fifth, each with median basal band of pale scales narrowly joining, or separate from, the lateral patches. T-*Culex pipiens** Linnaeus, F-*Culex restuans** Theobald
- 37 Tip of wing with pale silver or copper-colored fringe scales. T-38, F-39
- 38 On stem of vein 2, between forking and dark scale patch, scales raised (not appressed). T-*Anopheles earlei* Vargas, F-*Anopheles occidentalis** D&K
- 39 Palps with narrow band of white scales around distal end of some segments. T-*Anopheles walkeri** Theobald, F-40
- 40 Wing veins with contrasting patches of black scales and pale yellowish scales. T-*Anopheles punctipennis** (Say), F-*Anopheles freeborni** Aitken

With more intensive collecting throughout the State and further use of the characters of the claws, probasisternal and post-coxal scales, and limits of the pleural scales, the recorded distribution and relative abundance of some of the Alaskan species may be shown to be in error.

I am especially grateful to the authors whose publications are listed below, as well as to their predecessors, for without their painstaking work this key could not have been made. My thanks also go to Dr. Alan Stone for the privilege of examining specimens in the collection at the U. S. National Museum.

References

CARPENTER, S. J. and W. J. LACASSE. 1955.

Mosquitoes of North America. University of California Press, Berkeley.

GJULLIN, C. M. *et al.* 1961. The Mosquitoes of Alaska. Agriculture Handbook No. 182, USDA, Washington, D. C.

MATHESON, R. 1944. Handbook of the Mosquitoes of North America. 2nd ed. Comstock Publishing Co., Ithaca, N. Y.

SMITH, M. E. 1958. The *Aedes* mosquitoes of New England. Part 1: Key to adult females. Bull. Brooklyn Ent. Soc. 53(2):39-47.

STAGE, H. H. *et al.* 1952. Mosquitoes of the Northwestern States. Agriculture Handbook No. 46, USDA, Washington, D. C.

VOCKEROTH, J. R. 1954. Notes on Northern Species of *Aedes*, with descriptions of two new species. Can. Ent. 86(3):109-116.

———. 1954. Notes on the identities and distributions of *Aedes* species of Northern Canada, with a key to the females. Can. Ent. 86(6):241-255.