SIGHT IDENTIFICATION KEY FOR MOSQUITOES OF THE GREAT SALT LAKE BASIN

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Mosquitoes were collected during May to October, annually from 1965 to 1967, from the Great Salt Lake Basin of Tooele and Juab counties, Utah, in support of an arbovirus survey. A simplified mosquito key was needed for positive identification of mosquitoes prior to virus isolation studies. Using the mosquito list of Linam (1960), a key was prepared from the general keys of Carpenter and La Casse (1955), Nielsen and Rees (1961), and Stojanovich (1965). Samples of species that did not fit this simplified key were set aside and later checked by D. Elmer Johnson and Dr. Lewis T. Nielsen, University of Utah, to whom grateful appreciation is expressed. These species, when different, were then added to the key.

The subsequent additions not listed by Linam were: *Anopheles franciscanus, A. earlei, A. freeborni, Culex erythrothorax, C. pipiens, Aedes melanimon, A. flave-*

SIGHT IDENTIFICATION KEY TO NINETEEN SPECIES OF MOSQUITOES

(Characters in parenthesis cannot be seen without stereomicroscope; capitalized species are common species).

PLATE I

Males: Densely haired antennae and long branched palps (Fig. 1).
Females: Sparsely haired antennae (Fig. 2).

1. Palps as long as proboscis (Fig. 3)..... 2.
   Palps much shorter than proboscis (Fig. 4)..... 4.
2. White-spotted palps (Fig. 5); wing with white-spotted margins.....
   Anopheles franciscanus.
   Black palps (Fig. 6); wing without white-spotted margins..... 3.
3. Wing fringe entirely dark (Fig. 7).....*ANOPHELES FREEBORNI.*
   Wing fringe with light-colored spot at tip (Fig. 8).....*Anopheles earlei.*
4. Tip of abdomen blunt (Fig. 9)..... 5.
   Tip of abdomen pointed (Fig. 10). (SEE PLATE II)..... 9.
5. Proboscis with white ring (Fig. 11); tarsi with white band at both ends of segments.....*CULEX TARSALIS.*
   Proboscis without white ring (Fig. 12); tarsi without white band at both ends of segments..... 6.
6. Thorax and coxal segments bright reddish-brown (Fig. 13).....
   CULEX ERYTHROTHORAX.
   Thorax and coxal segments brown or dark brown (Fig. 14)..... 7.
7. Small with short straight proboscis (Fig. 15); (base of subcosta without tuft of setae on underside).....*Culex pipiens.*
   Large with long inward-curved proboscis (Fig. 16); (base of subcosta with tuft of setae on underside)..... 8.
8. Wing without black spots (Fig. 17); abdominal white bands extending posteriorly on lateral margins.....*CULISETA INORNATA.*
   Wing with four black spots (Fig. 18); abdominal white bands straight....
   Culiseta incidens.

scens, and *A. vexans.* The only species that was not collected was *Anopheles earlei* which was included because larvae were collected previously in Juab county Utah (Nielsen and Rees, 1961). Using this key, untrained military technicians adequately identified and pooled mosquitoes by species after a few hours of supervised experience. Key characters have been summarized in an illustrated key (Plates I & II), illustrations for which were modified from those of Nielsen and Rees (1961).

Collections were made by CDC Miniature Light Traps each year, by aspirating from humans in 1965, and by aspirating from livestock-baited stable traps in 1966. During 1965, mosquitoes were identified by sight, pooled by species, and sealed in vials in the field; there was no subsequent verification of identifications as these vials were stored in an insulated box containing dry ice until transferred to an ultra-low temperature cabinet (−65° C) at the Dugway Processing Laboratory for isolation studies. During 1966 and 1967, field-caught mosquitoes were placed in vials which were sealed, and similarly stored at ultra-low temperatures; at the Dugway Processing Laboratory, mosquitoes were identified by sight, and pooled by species on a CDC chill table (Sudia, Chamberlain, and Collier, 1965); all identifications were

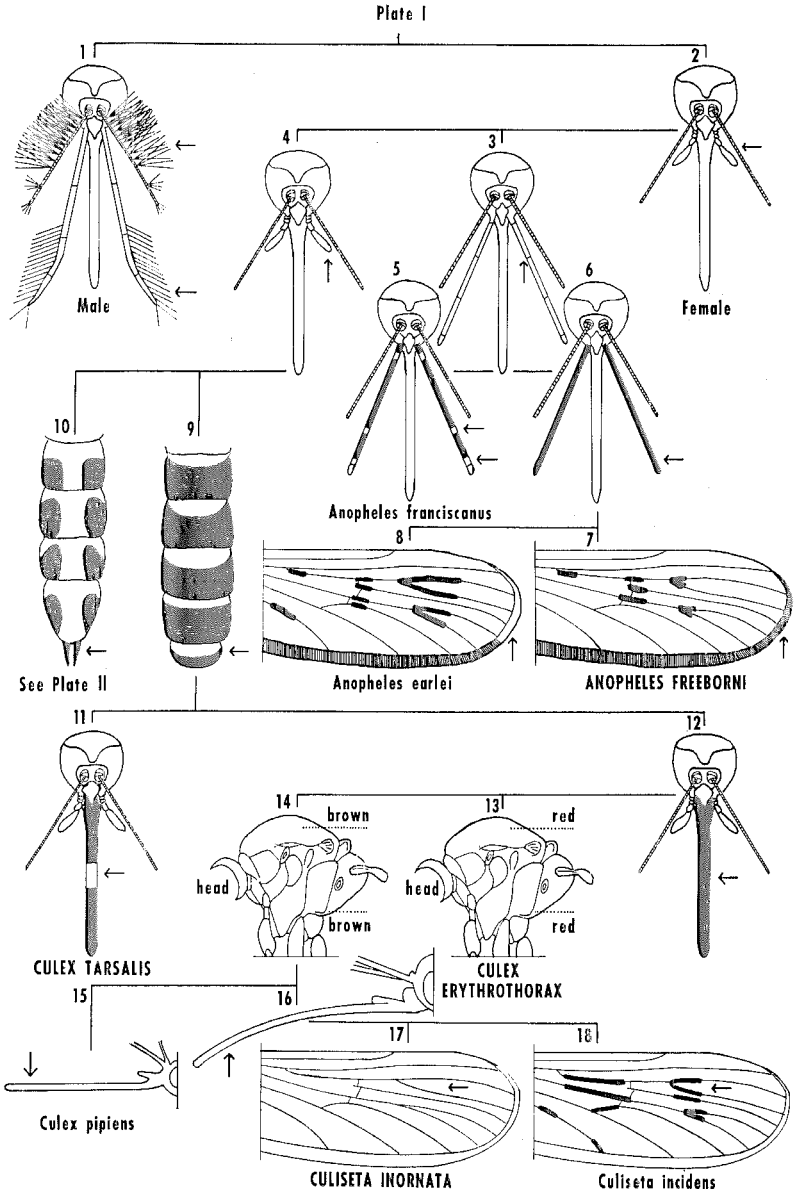
Plate I
1
2
Male
Female
4
3
5
6
Anopheles franciscanus
10
9
See Plate II
8
7
Anopheles earlei
ANOPHELES FREEBORNI
11
12
14
brown
head
brown
13
red
head
red
CULEX TARSALIS
CULEX ERYTHROTHORAX
15
16
17
18
Culex pipiens
CULISETA INORNATA
Culiseta incidens

PLATE II

9. Tarsi with white bands (Fig. 19)..... 10.
Tarsi entirely dark (Fig. 20)..... 16.
10. Tarsi with white bands at both ends of segments (Fig. 21)..... 11.
Tarsi with white bands at base of segments (Fig. 22)..... 12.
11. Wing scales mostly pale (dark scales on third vein and forks of fourth and fifth; costa pale) (Fig. 23); abdomen with small paired black spots..... *AEDES DORSALIS.*
Wing scales mostly pale (dark scales uniformly scattered) (Fig. 24); abdomen white.....*Aedes campestris.*
Wing scales mostly dark (costa dark) (Fig. 25); abdomen with large paired black spots.....*Aedes melanimon*
12. Proboscis entirely dark (Fig. 26)..... 14.
Proboscis with white ring (Fig. 27)..... 13.
13. Wing fringe entirely dark (Fig. 28); abdomen with paired black spots.... *AEDES NIGROMACULIS.*
Wing fringe white-spotted (Fig. 29); abdomen white with black specks... *Psorophora signipennis.*
14. Abdomen with narrow white bands, often indented medially (Fig. 30)... *AEDES VEXANS.*
Large and entirely yellow above (Fig. 31).....*Aedes flavescens.*
Abdomen with large paired black spots (Fig. 32)..... 15.
15. (Hypostigmal scale patch present) (Fig. 33)..... *AEDES NIGROMACULIS.*
(Hypostigmal scale patch absent) (Fig. 34).....*Aedes fitchii.*
16. Abdomen with paired black spots (Fig. 35).....*Aedes niphadopsis.*
Abdomen with white bands (Fig. 36)..... 17.
17. (Hypostigmal scale patch present) (Fig. 37).....*Aedes cataphylla.*
(Hypostigmal scale patch absent) (Fig. 38).....*Aedes schizopinax.*

verified under a stereomicroscope placed on a chill table (Olson, Elbel, and Smart, publication in progress).

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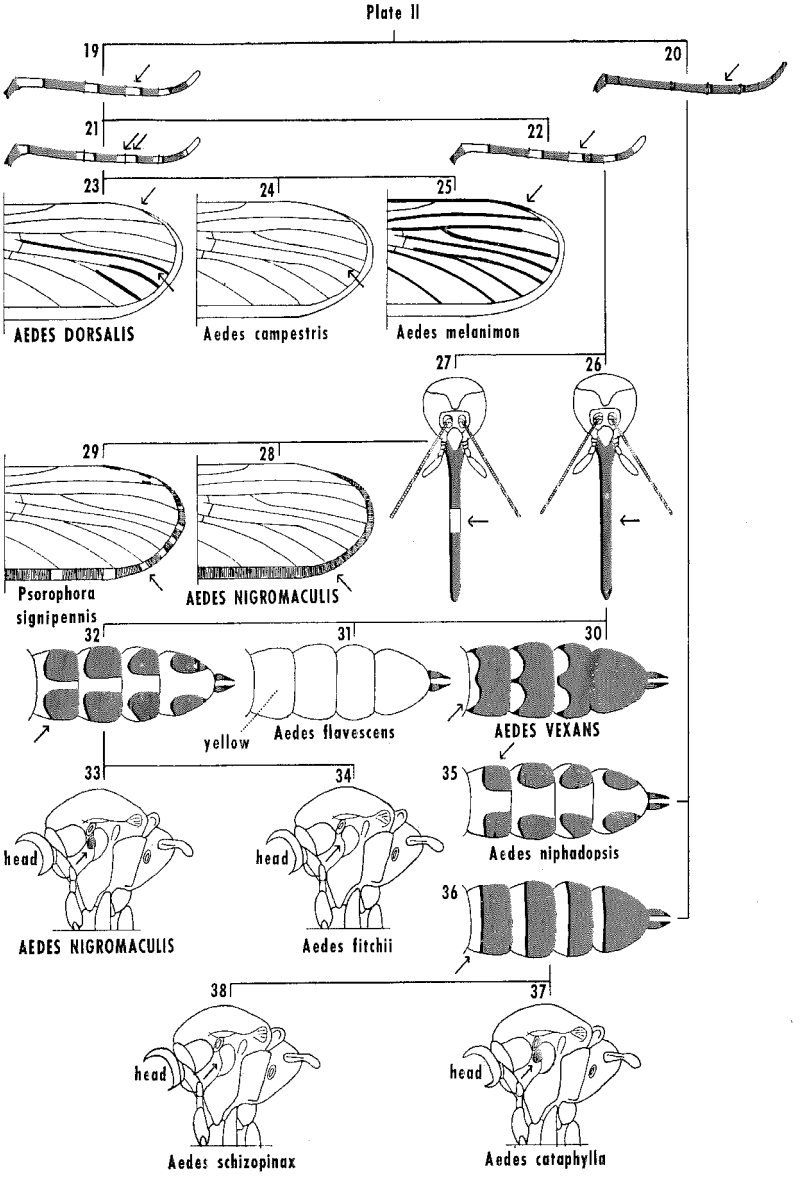
Plate II


19
20
21
22
23
24
25
AEDES DORSALIS
Aedes campestris
Aedes melanimon
27
26
29
28
Psorophora signipennis
AEDES NIGROMACULIS
32
31
30
yellow
Aedes flavescens
AEDES VEXANS
33
34
35
head
head
Aedes niphadopsis
36
AEDES NIGROMACULIS
Aedes fitchii
38
37
head
head
Aedes schizopinax
Aedes cataphylla