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A NEW KEY TO THE MOSQUITOES OF NEW JERSEY¹

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Most of the newer keys used to identify mosquitoes are either national in scope, such as the recent work by Carpenter and La Casse (1955), or regional. While the national type is very useful it requires considerable time and effort to work with keys which include all the species of mosquitoes in North America, and the value of a regional type key is limited to those species within a particular area, i.e., the keys in the Mosquitoes of Southern United States East of Oklahoma and Texas (1946), may be of limited value for those species with a more northerly distribution.

A third type of key is a classification according to specific taxonomic categories, such as the species involved in certain subgenera of mosquitoes. Most of these are scattered throughout the periodical literature and are used mostly by workers dealing with taxonomic problems of a rather confined nature.

The existing keys to the adult mosquitoes of New Jersey as they appear in *The Mosquitoes of New Jersey and Their Control* (Headlee, 1945) while still useful have become outdated for two major reasons: the addition of new species to the New Jersey list and recent revisions of scientific names. Specifically, in Headlee's book, seven species names are now synonymous with other species, and ten additional species found in New Jersey are not recorded therein. These seventeen are as follows:

Synonymous List

Headlee 1945	Revised Names
1. <i>Aedes implacabilis</i>	<i>Aedes abserratus</i>
2. <i>Culex apicalis</i>	<i>Culex territans</i>
3. <i>C. territans</i>	<i>C. restuans</i>

Synonymous List continued:

4. <i>Megarhinus septentrionalis</i>	<i>Toxorhynchites rutilus septentrionalis</i>
5. <i>Psorophora columbiae</i>	<i>Psorophora confinnis</i>
6. <i>Theobaldia moristans</i>	<i>Culiseta morsitans</i>
7. <i>T. melanura</i>	<i>Culiseta melanura</i>

Additional Species Since Headlee (1945)

8. *Aedes communis*
9. *A. dorsalis*
10. *A. fitchii*
11. *A. mitchellae*
12. *A. punctator*
12. *Anopheles atropos*
14. *Culiseta minnesotae*

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15. *Culiseta inornata*
16. *Orthopodomyia alba*
17. *Psorophora varipes*

This new key here presented includes the 48 species now listed for the state. The validity of the characters it utilizes have been fairly well proven and used by most mosquito taxonomists with one exception, those for *Culiseta minnesotae*, a new species of mosquito which has not appeared in any taxonomic key yet published. Many of the couplets in the key are from Carpenter and La Casse's new book, The Mosquitoes of North America (1955). Further advantages of this new key are: species identification can be made directly instead of first locating the genera and the species are confined to those found in New Jersey. The construction of the key allows for easy addition of further species as they are identified. The key should be of most use to mosquito workers in New Jersey and surrounding states and can be used in teaching and mosquito studies at the New Jersey Agricultural Experiment Station.

MOSQUITOES OF NEW JERSEY

KEY TO ADULT FEMALES

1. a. Palpi as long as beak (*Anopheles*) 2
- b. Palpi much shorter than beak 7
2. a. Wings with areas of pale scales 3
- b. Wings entirely dark-scaled 4
3. a. A pale patch of scales on front margin of wing
 near tip *Anopheles crucians* and *An. bradleyi*
- b. Two pale patches of scales on front margin of wing,
 one about two-thirds from base of wing, and the other
 at about the tip of the wing *Anopheles punctipennis*
4. a. Wings without patches or dark scales, small species *Anopheles barberi*
- b. Wing with patches of dark scales, more or less distinct;
 medium sized species 5
5. a. Wing with 4 distinct dark patches;
 palpi entirely dark scaled *Anopheles quadrimaculatus*
- b. Wing with indistinct dark spots; palpi with or without distinct white rings .. 6
6. a. Halter knobs pale-scaled *Anopheles walkeri*
- b. Halter knobs dark-scaled *Anopheles atropos*
7. a. Beak of about uniform diameter throughout and
 never strongly curved downward 8
- b. Beak stout on basal half, apical half tapered
 and strongly curved downward *Toxorhynchites rutilus septentrionalis*
8. a. Postnotum with a tuft of setae *Wyeomyia smithii*
- b. Postnotum without a tuft of setae 9
9. a. Wing with second marginal cell less than half as long
 as its petiole *Uranotaenia sapphirina*
- b. Wing with second marginal cell as long as or longer than its petiole 10
10. a. Abdomen blunt and gradually rounded at tip 11
- b. Abdomen pointed at tip 13
11. a. Wing scales predominantly narrow 12
- b. Wing scales broad, mixed brown and white 38
12. a. Spiracular bristles present (*Culiseta*) 39
- b. Spiracular bristles absent (*Culex*) 42
13. a. Both spiracular and post spiracular bristles present (*Psorophora*) 14
- b. Spiracular bristles absent and post spiracular bristles present (*Aedes*) 18

14. a.	Wing scales mixed dark and white; hind femur with a narrow subapical band of white scales	15
b.	Wing scales all dark or only a few inconspicuous white scales on costal and subcostal veins; hind femur without a subapical band of white scales	16
15. a.	Segment 1 of hind tarsus with band of white scales at base and at middle; wings speckled with no definite pattern	<i>Psorophora confinnis</i>
b.	Segment 1 of hind tarsus largely pale-scaled no definite banding; wings with definite areas of white and dark scales	<i>Psorophora discolor</i>
16. a.	Hind legs including apical part of femora with long erect scales, very shaggy, fifth segment of hind tarsus never entirely white; very large species	<i>Psorophora ciliata</i>
b.	Hind legs not particularly shaggy, apices of femora without erect scales; medium sized species	17
17. a.	Segment 4 of hind tarsus white scaled, at least on one side, segment 5 dark	<i>Psorophora variipes</i>
b.	Segments 4 and 5 and often tip of segment 3 of hind tarsus white scaled	<i>Psorophora ferox</i>
18. a.	Tarsal segments, at least on hind legs with white bands	19
b.	Tarsal segments without banding	30
19. a.	Tarsal segments white-banded on basal part of segment only	20
b.	Tarsal segments white-banded, both basally and apically	28
20. a.	Beak with white band near middle	21
b.	Beak without a white band near middle	23
21. a.	Abdomen with a white to yellow dorsal median longitudinal stripe or row of disconnected spots	22
b.	Abdomen without a white to yellow dorsal median longitudinal stripe or row of discontinuous spots, having only transverse bands of white scales	<i>Aedes taeniorhynchus</i>
22. a.	Wing entirely dark-scaled	<i>Aedes mitchellae</i>
b.	Wing with intermixed dark-brown and white scales	<i>Aedes sollicitans</i>
23. a.	Basal white bands of tarsal segments narrow. Wing scales uniform in color no whitish or yellowish scaling	24
b.	Basal white bands of tarsal segments broad, especially on hind legs. Wings usually with some light-colored scales	25
24. a.	Abdominal segments 2 to 7 each with a conspicuously indented basal white band. Segment 4 of palpi with some white scales at base and at tip	<i>Aedes vexans</i>
b.	Abdominal segments 2 to 7 with basal white bands narrowed medially and widened laterally with last two abdominal segments largely pale-scaled. Segment 4 of palpi dark	<i>Aedes cantator</i>
25. a.	Wing scales very large, broad, triangular-shaped, with dark and pale scales rather evenly intermixed	<i>Aedes grossbeckii</i>
b.	Wing scales moderate in size, narrow, ligulate, with dark and white scales unevenly distributed or with pale scales absent	26
26. a.	Tarsal claws with main tooth abruptly bent near the base of the lateral tooth, main tooth and lateral tooth parallel with each other	<i>Aedes excrucians</i>
b.	Tarsal claws with the main tooth bent beyond the base of the lateral tooth	27
27. a.	Abdominal tergites with broad basal bands of pale scales and tergites 3 or 4 to 7 with broad apical bands of pale scales. Apical and basal banding may run together in terminal segments of the abdomen	<i>Aedes fitchii</i>
b.	Basal banding as above, but apical half of abdominal tergites dark-scaled with only a few scattered pale scales. Apices of terminal segments 6 and 7 pale scaled	<i>Aedes stimulans</i>
28. a.	Wing with dark and white scales intermixed unevenly	<i>Aedes dorsalis</i>
b.	Wing with dark scales or few white scales on anterior veins	29
29. a.	Wing with a patch of white scales at base of costa	<i>Aedes atropalpus</i>
b.	Wing with base of costa dark-scaled	<i>Aedes canadensis</i>
30. a.	Scutum with a broad median, longitudinal stripe or patch of silver-white or pale-yellow scales or with the sides and anterior margin clothed with silver-white scales	31
b.	Scutum not marked with silver-white scales	33

31. a. Scutum with a broad median stripe of dark-brown scales, this stripe broader posteriorly, sides and anterior margin with silver-white scales *Aedes triseriatus*
 b. Scutum with a broad median stripe or patch of silver-white or pale-yellow scales 32
32. a. Small species; occiput with a narrow median stripe of narrow white scales bounded submedially by a patch of broad white scales *Aedes dupreei*
 b. Medium-sized species; occiput dorsally with a median stripe of narrow white scales bounded submedially by a patch of broad dark scales *Aedes atlanticus*
33. a. Scutum with a pair of broad submedian white or yellowish-white stripes separated by a brown stripe of about the same width *Aedes trivittatus*
 b. Scutum not marked with a pair of broad submedian white or yellowish stripes 34
34. a. Scutum lacking contrasting lines or stripes *Aedes cinereus*
 b. Scutum with contrasting lines or stripes 35
35. a. Lower mesepimeral bristles present 36
 b. Lower mesepimeral bristles absent 37
36. a. Wing usually with a patch of white scales at base of costa *Aedes communis*, (*A. punctor* in part)
 b. Wing usually lacking a patch of white scales at base of costa *Aedes abserratus*, (*A. punctor* in part)
37. a. Abdomen with basal white bands on more than half of the segments *Aedes sticticus*
 b. Abdomen without basal white bands or with narrow bands on less than half of the segments *Aedes aurifer*
38. a. Mesonotum with fine longitudinal lines of white scales; 4th segment of fore tarsus as long as wide *Orthopodomyia alba*, *O. signifera*
 b. Mesonotum without lines of white scales; 4th segment of fore tarsus longer than wide *Mansonia perturbans*
39. a. Hind tarsi with pale rings on some segments 40
 b. Hind tarsi entirely dark 41
40. a. Abdominal tergites with light basal banding only *Culiseta morsitans*
 b. Abdominal tergites with light basal and apical banding *Culiseta minnesotae*
41. a. Wing costa with mixed white and dark scales *Culiseta inornata*
 b. Wing costa entirely dark-scaled *Culiseta melanura*
42. a. Abdominal segments with a dorsal narrow, apical band of white scales *Culex territans*
 b. Abdominal segments with pale scales basal when present 43
43. a. Abdominal segments each with a rather broad basal band of whitish scales dorsally 44
 b. Abdominal segments usually with narrow dingy-yellow basal bands dorsally and with the apices of the segments more or less blended with yellowish scales, segment 7 mostly clothed with dingy-yellow scales *Culex salinarius*
44. a. Abdominal bands broadly rounded on posterior margin and constricted laterally, rather narrowly joining or entirely disconnected from the lateral patches *Culex pipiens*
 b. Abdominal bands with posterior margin nearly straight and broadly joining the lateral patches, scutum usually with a pair of pale-scaled submedian spots near middle *Culex restuans*

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