

**CULEX (CULEX) THRIAMBUS DYAR A NEW MOSQUITO
RECORD FOR CALIFORNIA**

(Diptera, Culicidae)

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Culex thriambus was described by Dyar in 1921 from adults and larvae collected at Kerrville, Texas. A year later, however, he stated: "The species (*thriambus*) is close to *stigmatosoma* and may be an eastern race of it." Finally in view of the similarity of the male terminalia of the two forms, *thriambus* was placed by its describer (1928) as a synonym of *Culex stigmatosoma* Dyar, but in a discussion of the latter species he added: "The Texas form *thriambus* has the hairs single on the air-tube of the larva, and is presumably entitled to subspecific rank."

Aitken (1940) reported several records of *Culex restuans* Theobald (as *territans* Walker) from California, but stated that females and larvae from this state differ in several respects from typical eastern *restuans*. On the other hand, males, females and larval skins collected by one of us (P.G.) in southern California agree well with descriptions of *C. restuans*, except for the presence of very narrow tarsal rings, which, according to Dr. Alan Stone (*in litt.*), are also present in a good number of eastern specimens of this species. Suspecting that Aitken (*loc. cit.*) had a mixture of two species, the authors reexamined his material and found only two females of *C. restuans* (Riverside, Calif., W. C. Reeves coll.) the rest being all *C. thriambus* Dyar, a mosquito previously unknown outside of Texas.

CULEX (CULEX) THRIAMBUS DYAR

Culex (Culex) thriambus Dyar, 1921, *Ins. Ins. Mens.*, 9:33. Dyar, 1922, *Proc. U. S. Nat. Mus.*, 62:22.

Culex (Culex) stigmatosoma var. *thriambus*, Edwards, 1932, *Gen. Insect. Fasc.* 194:206.

Culex (Culex) stigmatosoma, Dyar, 1928 (partim), *Mosq. of the Amer.*, p. 368. Aitken, 1942 (partim), *Proc. Calif. Acad. Sci.*, 24:169.

Culex stigmatosoma, Matheson, 1929 (partim), *Handbook Mosq. No. Amer.*, p. 176.

Culex territans, Aitken, 1940 (nec. Walker), *Proc. Ent. Soc. Wash.*, 42:146.

Notes on California Material. Female. As described by Dyar. The white patch on the underside of the proboscis is seen to extend around the sides in some specimens, but a complete ring is never formed. The extent and color of the pale rings on the hind tarsi vary; specimens from Riverside and Orange Counties have very narrow and brownish rings similar to those present in *C. restuans*, while specimens from Kern County show rather broad whitish rings and the fifth tarsal joint is occasionally entirely white as in *C. tarsalis* Coquillett. The markings on the venter are as described by Dyar for Texas specimens, and appear to be rather constant.

Male terminalia. As stated by Dyar (*loc. cit.*) the male terminalia of *thriambus* is very similar to that of *stigmatosoma*; there are, however, some constant differences which justify the separation of these two mosquitoes as distinct species. The subapical lobe of the basistyle is rounded in *stigmatosoma* and there is a long seta between the three rods and the leaf-like appendage; in *thriambus*, on the other hand, the subapical lobe is conically produced, and the seta between the three rods and the leaf-like appendage is absent. Dr. Alan Stone, who has examined Dyar's types of *C. thriambus* and other specimens of this species collected by Lt. E. S. Ross in Texas, informs us that male specimens in this material also lack the long seta between the rods and the leaf.

Larva. The larva of *C. thriambus* undoubtedly offers the best characters for the separation of the species. The air-tube is long; in 38 specimens examined the average siphonal index was 6.2; in the same number of *stigmatosoma* larvae measured the average siphonal index was only 5.0. The tufts on the air-tube are reduced to single hairs in *thriambus*, although some specimens collected in the Kern River Canyon show one and, rarely two, 2-haired tufts; in *stigmatosoma* the tufts on the tube are always multiple. The lateral abdominal hairs of segments III to VI also differ in these two species, being triple in *stigmatosoma* and double in *thriambus*.

Dr. Alan Stone kindly compared some of our larvae with Ross' material from Texas and found them identical.

Discussion of the Species. *Culex thriambus* Dyar has often been confused in California with *Culex restuans* Theobald, due to the reduction of the siphonal tufts of the larva to single hairs,

and to the unbanded proboscis of the female. The species is, however, a closer relative of *C. stigmatosoma* Dyar as evidenced by male terminalia characters. Dyar's opinion that *thriambus* represents an eastern race of *stigmatosoma* is no longer acceptable, since both forms occur in California where they may be separated with certainty on larval, adult, and male terminalia characters. In view of these facts the writers feel justified in elevating *thriambus* to specific rank again.

Following are the known records of *C. thriambus* in California: Marysville, Butte County, (U. S. Pub. Health Service), October, 1942; San Luis Obispo, San Luis Obispo County, (Aitken, Reeves, Domes), July 31, 1940; Nipannawasee, Madera County, (T. H. G. Aitken), (No date); Kaweah River, Tulare County, (T. H. G. Aitken), May 11, 1939; Bakersfield, Kern County, (F. L. Hayes), February 7, 1941; Kern River Canyon, Kern County, (Galindo, Kelley, Aarons), August 1, 1942; San Juan River, Orange County, (P. Galindo), September 2, 1942; Santa Rosa Summit (elev. 5,000 ft.), Riverside County, (P. Galindo), September 4, 1942.

KEY TO CALIFORNIA SPECIES OF CULEX WITH RINGED TARSI

Females

1. Proboscis ringed with white, tarsal rings broad.....2
 Proboscis with a white patch underneath, not completely ringed; tarsal rings usually narrow.....3
2. With a white line on outside of femora and tibiae; a V-shaped dark marking on venter of each abdominal segment.....*tarsalis*
 Without white line on outside of femora and tibiae; an oval dark spot on venter of each abdominal segment.....*stigmatosoma*
3. Tarsal rings brownish and very narrow, venter of abdominal segments II to VI white basally, black apically.....*restuans*
 Tarsal rings usually white, variable in size; venter of abdominal segments II to VI with triangular dark markings.....
*thriambus*

Larvae

1. Air-tube with several single hairs, and at most a single pair of 3-haired tufts.....2
 Air-tube with several pairs of multiple hair-tufts.....3
2. Antennae evenly tapered, antennal tufts at or near the middle of antennae; lateral abdominal hairs of segments IV and V single; subdorsal hairs of these segments also single.....*restuans*
 Antennae not evenly tapered, antennal tufts distinctly beyond the middle of antennae; lateral abdominal hairs of segments IV and V double; subdorsal hairs of these segments 3- or 4-branched.....*thriambus*

3. Air-tube evenly tapered; all tufts of tube in a line, basal tuft beyond the pecten.....*tarsalis*
 Air-tube not evenly tapered; penultimate tuft moved laterad out of line, basal tuft within the pecten.....*stigmatosoma*

Male Terminalia

1. Leaf of subapical lobe of basistyle modified, club-like; outer spines of paraprocts blunt and broad.....*tarsalis*
 Leaf of subapical lobe of basistyle normal; outer spines of paraprocts pointed2
2. Subapical lobe of basistyle with three rods, a leaf and a seta.....*thriambus*
 Subapical lobe of basistyle with three rods, a long seta, a leaf and a seta.....3
3. Lobes of the ninth tergite well developed, mound-like. Lateral plate of the phallosome with a curved, spine-like inner arm and a short and blunt outer arm; some small denticles between the two processes.....*restuans*
 Lobes of the ninth tergite rudimentary, represented by rows of long hairs; lateral plate of the phallosome with an erect and pointed inner arm with a slight knob at about the middle; outer arm rounded at tip, with serrated inner border, four hooks on the dorsal aspect and a long, club-like arm from the base.
*stigmatosoma*

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