

## A NEW SPECIES OF KOHLSIA FROM CENTRAL AMERICA

(SIPHONAPTERA: CERATOPHYLLIDAE)

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Our information on the flea genus *Kohlsia* is recent. Traub (1950) described the genus and five new forms: *K. osgoodi*, *K. cora*, *K. gammonsi*, *K. uniseta* and *K. graphis erana*. He included in this group *K. graphis* (Rothschild, 1915) and *K. campaniger* (Jordan, 1931) which were considered before in other genera. Since the above-mentioned work the following species have been described: *K.ournieri* Vargas, 1951; *K. whartoni* Traub and Johnson, 1952; *K. pelaezi* Barrera, 1954; and *K. felteni* Smit, 1958. With the description given below there are now eleven known members of this genus.

Mr. F. G. A. M. Smit, of the British Museum, confirmed the status of the species which is the subject of this paper. He has been also responsible for valuable comments and the loan of a male specimen (Rothschild collection) from Costa Rica.<sup>3</sup> Lt. Col. Robert Traub has kindly compared our drawings with an undescribed Panamanian *Kohlsia* in his possession and found two species were represented. To these workers we express our gratitude. Our thanks are also due to Dr. Phyllis T. Johnson and Capt. V. J. Tipton for critical review of the manuscript and helpful suggestions.

### *Kohlsia tiptoni*, new species

(Figures 1-11)

*Types*.—Holotype male, from Cerro Azul, Panama, ex *Didelphis marsupialis*, 29, I, 1958, Coll. No. 4034 (U. S. National Museum Type No. 64877). Allotype female, same data as holotype but ex *Tylomys panamensis*, Coll. No. 4031, both to be deposited in the U. S. National Museum. One paratype male from San Geronimo, Pirris, Costa Rica, ex rat, 17, IV, 1931, collected by C. F. Underwood, deposited in the British Museum collection.

*Diagnosis*.—The following characters readily will distinguish this species from all the other described members of the genus: The presence of a large number of subspiniform bristles in the distal arm of ninth sternum (this form possesses more than twelve subspiniforms, about twice as many as occur in any other known *Kohlsia*). This arm also bears a conspicuous apical bristle directed cephalad which seems to be absent in the other species. Another important diagnostic feature is the presence of a tibial comb on each leg. This last character suggests the related genus *Jellisonia* Traub on which the tibial comb is typical.

*MALE*.—*Head* (Fig. 1): Anterior margin of head evenly rounded except for

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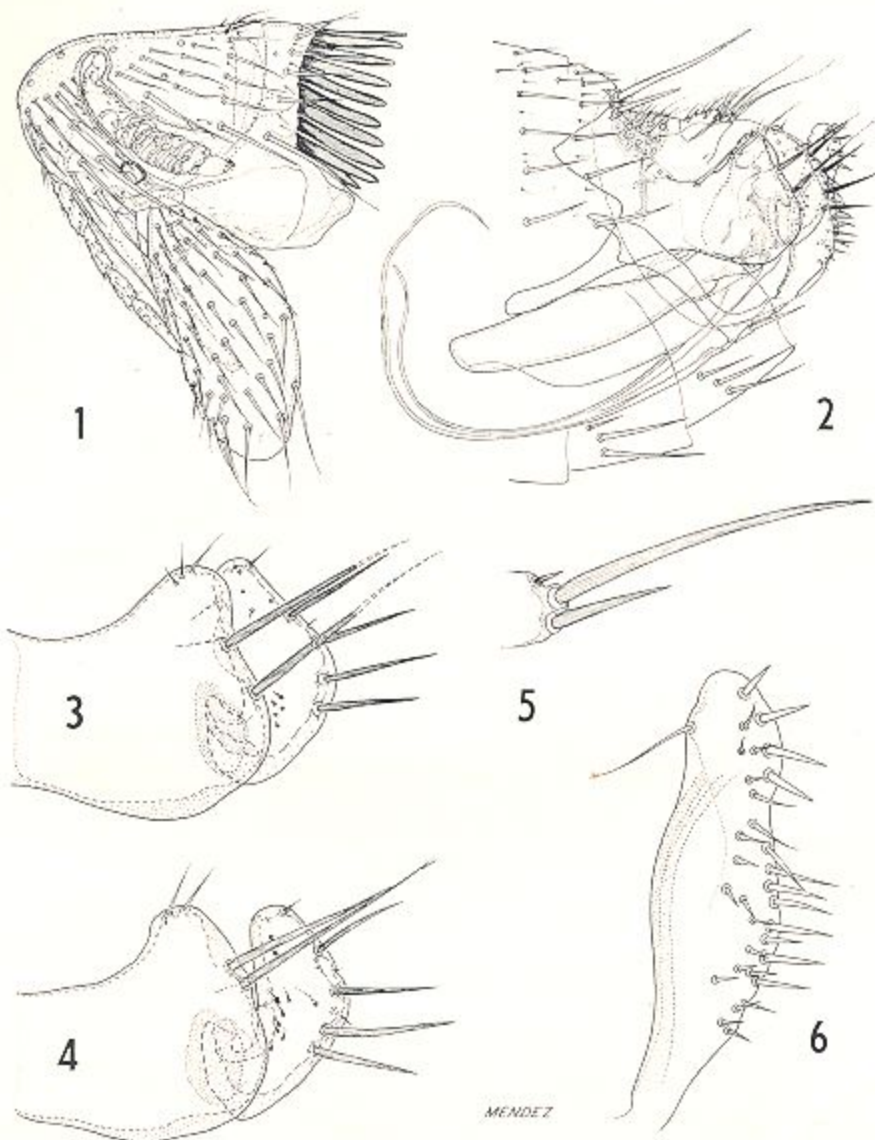
<sup>3</sup>This specimen unfortunately is in poor condition. The head, prothorax and mesothorax are missing, though the metathorax and abdomen are in perfect condition. It constitutes our only paratype.

acute median tubercle; micropores distributed along pre- and postantennal areas preceding rows of bristles. Subgenal region with three very fine bristles: one mesad and two proximad to eye. Eye suboval, well developed, not highly pigmented. Genal process broad at base, suddenly tapering to become subaeuminate. Maxillary lobe acute, reaching first third of fore coxa. Maxillary palpus four-segmented, extended just beyond middle of fore coxa. Labial palpus five-segmented, reaching about four-fifths length of fore coxa. Anterior border of antennal fossa with line of six fine bristles. Antenna as illustrated (Fig. 1). Postantennal region with three irregular rows of bristles consisting of four, five and six bristles respectively; several scattered fine bristles.

*Thorax*: Pronotum with one row of six bristles per side, basal one longer, reaching middle of mesepisternum, with row of intercalary hairs. Mesonotum with two or three rows of bristles per side, posterior one with intercalary hairs. Flange of mesonotum with three pseudosetae on each side. Metanotum with apparently three rows of bristles per side, of which last row has intercalary hairs. Mesepisternum with two bristles. Mesepimere with seven to eight bristles arranged in three rows. Metepisternum with single submedian bristle which reaches apex of hind coxa. Metepimere with seven to eight bristles distributed in three rows. Lateral metanotal area with two bristles; postero-lateral margin dilated, ending at level with middle of dilated pleural arch.

*Legs*: Precoxa with numerous well pigmented bristles distributed along entire surface and few lightly pigmented ones on anterior region. Trochanter with two bristles on anterior margin and three minute subapical hairs. Prefemur with anterior margin provided with one subbasal bristle and one subapical one; with about three median bristles; posterior margin having several marginal and submarginal bristles besides long apical one. Mesocoxa with several marginal, submarginal bristles on anterior margin and patch of minute hairs on basal area close to this margin; posterior region with only two dorso-caudal bristles. Mesofemur with line of dorso-marginal bristles, apical bristle long, strong; anterior margin with two bristles. Meta-coxa having ventral margin with several marginal and submarginal bristles; with about three median basal minute hairs on anterior region; three emarginal minute hairs on anterior half of dorsal margin and two submedian caudal bristles. Metafemur only differs from mesofemur in size. Each tibia with dorsal region provided with line of stout, subequal marginal bristles forming typical comb, apart from three larger ones; submedian row of bristles along entire length; ventral region with one apical, conspicuous stout bristle, few marginals and submarginals. First segment of hind tarsus with row of lateral bristles on each margin, those of posterior margin being more stout, subequal in size and forming comb. Fifth segment of all tarsi with six pairs of plantar bristles, of which four pairs are laterals and two pairs are displaced medially on basal and apical region respectively.

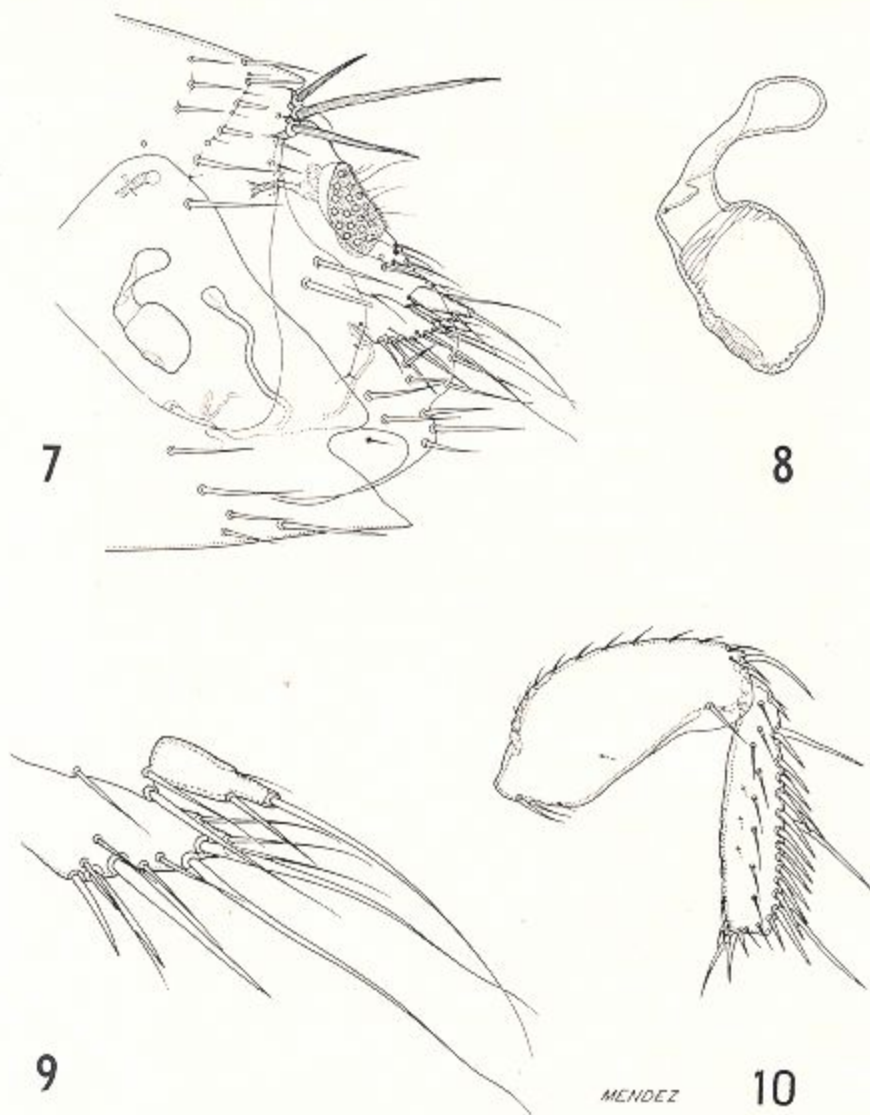
*Abdomen*: Tergum I with three rows of bristles; anterior row has three bristles, shorter than those of remaining rows; middle row represented by four bristles; posterior row with four long bristles and intercalaries. Terga II to VII with two rows of bristles, posterior one having long bristles plus intercalaries. Terga I through V with one or two spinelets per side. Basal sternum with row of two or three ventral bristles. Sterna II to VI with row of two or three ventral bristles. Antesensillial bristles three in number; uppermost being reduced; median one long, more than two times length of lowermost.



MENDEZ

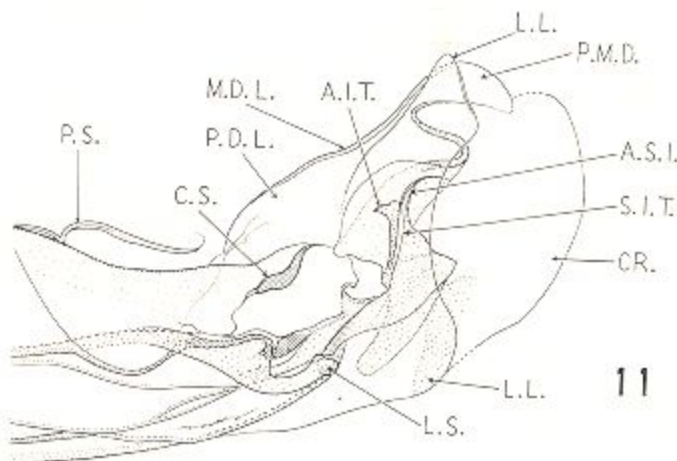
*Kohlsia tiptoni*, new species (Figs. 1 to 3, 5 and 6 of Holotype Male, Fig. 4 of Paratype Male). Fig. 1, head, prothorax and fore coxa; Fig. 2, modified abdominal segments; Fig. 3, movable and immovable process of clasper; Fig. 5, antensensillar bristles; Fig. 6, distal arm of ninth sternum.

*Modified abdominal segments* (Fig. 2): Tergum VIII large, ensheathing most of genitalia, with anterior margin convex and posterior margin sinuate; with two or three outstanding bristles on superior region. Sternum VIII reduced, having single apical bristle. Distal arm of sternum IX longer than proximal arm, with both dorsal and ventral margins sinuate; narrow on basal portion, becoming subsequently



*Kohtsia tiptoni*, new species, Allotype Female. Fig. 7, modified abdominal segments; Fig. 8, spermatheca; Fig. 9, anal stylet and ventral anal lobe; Fig. 10, femur and tibia of hind leg.

broad and then slightly constricted before apex which is rounded. This arm bears multiple short marginal and submarginal subspiniforms and bristles distributed along the first two-thirds of dorsal area and ventral, distinct subapical bristle directed cephalad. Immobile process of clasper (Figs. 3, 4) about as long as broad, becoming gradually dilated from base and projected apically into subrounded lobe, thus forming concave superior margin and convex, dorsocaudal one; this margin bears two median acetabular bristles located close to each other above margin of acetabulum, as appears in male paratype specimen<sup>4</sup> (Fig. 4); apex with three apical bristles. Movable process of clasper subtriangular, more than twice as long as broad, with convex posterior margin having four stout subequal bristles located medially; anterior margin almost straight on superior half and concave on basal area. This process bearing additional marginal, submarginal and median short bristles.



*Kohlsia tiptoni*, new species, Holotype Male. Fig. 11, endchamber of aedeagus.

*Aedeagus*<sup>5</sup> (Figs. 2, 11): Aedeagal apodeme long, about twice length of aedeagus proper, lacking apical appendage. Aedeagus proper longer than broad. Proximal spur (P. S.) well developed, curved backward. Median dorsal lobe (M. D. L.) slightly sinuate, distally divided apically by distinct, sinuate ridge which forms primary median dorsal lobe (P. M. D.) with margin evenly rounded and secondary paradorsal lobe (P. D. L.) slightly convex. Lateral lobes well developed; apical lobe truncate, with anterior projection slightly extended beyond margin of primary median dorsal lobe; basal lobe sinuate. Crochet (CR) not heavily sclerotized, expanded, twice as long as broad, with convex margin. Sclero-

<sup>4</sup>Mr. F. G. A. M. Smit has called our attention to the fact that our male holotype is somewhat abnormal. It has the acetabular bristles widely separated and not close together as is normal in the genus. A further abnormality is the presence of two autensensilial bristles on one side and three on the other side.

<sup>5</sup>Terminology followed is that of Traub (1950).

tized inner tube (S. I. T.) compact, with apex (A. S. L.) slender, curved, extended backward; armature (A. I. T.) ending apically in short, claw-like projection. Crescent sclerite (C. S.) distinct, curved, well sclerotized. Lateral sclerite (L. S. curved upward, with dilated apex.

*Female*.—Closely agrees in morphology with the male, except for following features: head more regularly rounded, details of last abdominal segments and larger size.

*Modified abdominal segments* (Fig. 7): Sternum VII with ventral margin provided with well defined sinus, dorso-caudal margin acuminate; subapical region with six bristles distributed in two rows with following arrangement: one side with four bristles on anterior row, two bristles on caudal row; other side with three bristles on each row. Tergum VIII with two long median bristles below sensillum; posterior margin with five marginal, three submarginal bristles. Sternum IX with three postero-marginal bristles. Dorsal lobe of proetiger with several marginal, submarginal and latero-median bristles preceding anal stylet, three bristles below this structure. Anal stylet (Fig. 9) about three times as long as width of its base; with long apical bristle about three times length of stylet, shorter ventro-marginal bristle, fine dorso-marginal bristle. Ventral anal lobe (Fig. 9) angulate, clothed with several marginal and submarginal bristles of variable length and strength, caudal one stouter. Spermatheca (Fig. 8) with semiglobular body; ventral margin convex; dorsal margin sinuate; tail (unfortunately collapsed in our specimen) longer than body, turned upward.

*Remarks*.—It is our pleasure to dedicate this species to Capt. V. J. Tipton in recognition of his work on taxonomy of ectoparasites.

#### REFERENCES

- Traub, R. 1950. Siphonaptera from Central America and Mexico. A Morphological Study of the Aedeagus, with Descriptions of New Genera and Species. Fieldiana, Zoological Memoirs of the Chicago Natural History Museum 1 (1): 1-127, 54 pls.