

Conocephalothrips tricolor, a New Urothripid from Hawaii

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The superfamily Urothripioidea consists of the single family Urothripidae, comprising seven genera and about 25 species. Of these only the Australian *Octurothrips pulcher* Priesner (Konowia, 10: 10, 1931) and the American *Stephanothrips occidentalis* Hood and Williams (recorded in Proc. Haw. Ent. Soc., 8: 503, 1934) have been found in the Pacific region. It is of interest, therefore, to add to the family a well differentiated eighth genus, the circumstances of whose discovery indicate, if not necessarily its endemicity in Hawaii, at least the probability of its ancient establishment in these islands. The two specimens upon which the new species and genus are based were found at an elevation of some 4,000 feet on the small, swampy and almost continuously rainy plateau which crowns steeply-sloped Mount Kaala and which, until the construction of a cable trolley some four years ago, was the most thoroughly isolated area of its size on the island of Oahu.

Distinguished at once from the rest of the family by the greatly protracted vertex of the head, the new genus is apparently most nearly related to Bagnall's *Urothrips* (Ann. Mus. Nat. Hung., 7: 126, 1909). It is like *Urothrips* in the shape and number of antennal segments, in the lack of tarsal armature of any kind, and in the absence of prominent bristles on the vertex of the head. It is unlike *Urothrips*, on the other hand, in the possession of white subhypodermal pigment, in the lack of heavy reticulation, in having four instead of six major terminal hairs, and in having both the maxillary and the labial palpi unmistakably two-segmented. The description follows:

Conocephalothrips gen. nov.

Antennae inserted ventrally, seven segmented; segment 3 with narrow pedicel; segments 3, 4, 5 broadly joined; segments 4, 5 about as broad as long; segments 6, 7 narrower than long, broadly pedicellate. Vertex conical, produced far forward of eyes and antennal bases, without prominent bristles. Tarsi without claws or spurs. Tube about six times as long as wide and considerably longer than abdominal segment 9; tip of tube with four long hairs separated by minor ones. The genotype is:

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Conocephalothrips tricolor sp. nov. (Plate XXVIII, figs. A, B, C)

Female: Length about 1.4 mm. Color by direct light, light chestnut brown; eyes, dark red. Head, thorax and abdominal segments 1, 2, 3 a shade darker than rest of abdomen; femora, end of tube, antennal segments 6, 7 concolorous with, or darker than head and thorax; tibiae shading from concolorous with head and thorax at base to pale (concolorous with antennal segments 1 to 5) at end. Subhypodermal pigment of two kinds, red and white; red more dense and conspicuous on periphery of head, all of thorax and abdominal segments 2 and 3, and on sides of abdominal segments 1 and 4 to 8; sparse in fore femora and absent from other femora and abdominal segments 9 and 10; white opaque, visible only by direct light and apparently more dorsal in position than red, present across distal half of pterothorax, all of abdominal segment 4, and on median third of abdominal segments 5 to 8. Pseudo-spiracles indistinctly discernible as more or less clear circular areas on sides of abdominal segments 1 to 8. Ventral surface of whole body smooth; dorsal surface rough, with small setigerous tubercles which are most prominent on head and legs. Narrow anastomosing striae faintly visible on tube and legs.

Head slightly wider basally than length from base to eyes, with vertex produced forward of eyes into a cone which is half as long as the rest of head. Eyes small, more or less circular in outline, consisting of about 10 relatively large facets placed entirely dorsad on the anterior angles of the head. Antennae seven-segmented, inserted ventrally a little inward from anterior angles of the head, with their bases separated by a distinct, short, shallowly emarginate inter-antennal costa. Antennal segments shaped as illustrated; 4 and 5 with two more or less dorso- and ventro-lateral sense cones; 6 and 7 with one cone each; the sense cones and antennal hairs thin, colorless and difficult to distinguish. Mouth cone broadly rounded at end and about two thirds as long from basal suture as distance between this suture and inter-antennal costa. Maxillary and labial palpi clearly two-segmented, with basal segment minute in both cases. Labrum dark and blunt at end, much shorter than labium.

Pronotum about seven-ninths as long as head without vertex, somewhat wider in back than front margin; the sides in reality somewhat concave in the middle as illustrated but, because of an optical effect difficult to explain, seemingly sharply notched above the front edge of the coxae; each hind angle armed with a short, stout, apically expanded seta mounted on a prominent tubercle. Pterothorax just a little shorter than prothorax, considerably wider in back than in front, with sides pronouncedly arched; the dorsum clearly divided into two transverse plates of equal length by a dark suture which arches forward at each end. Legs short and thick; the fore pair somewhat incrassate, and all beset with tubercles of which all but one or two on the inner edge of the fore femora are minute and setigerous. All femora with a long strong hair ventrally near the base. Hind coxae somewhat larger than the others and farther apart, as normal to the family. All tarsi normal, with darkened cup and without claws or spurs.

Abdomen widest at second segment, thence gradually and evenly narrowed to base of 9, which is conical, elongate and more acutely narrowed in its distal half. Segments 3 to 8 of about equal length; their hind angles somewhat produced and each armed with one stout seta which is blunt at the end on all but segments 7 and 8; without marginal or intermarginal hairs, except for two rather long strong ones medianly on the hind ventral margin of segment 8. Tube nearly 1.3 as long as segment 9 and only a sixth as wide as long; gradually widening from the middle to the last fifth and thence more suddenly narrowed again to the end; with four long pale hairs at the tip separated by minor setae.

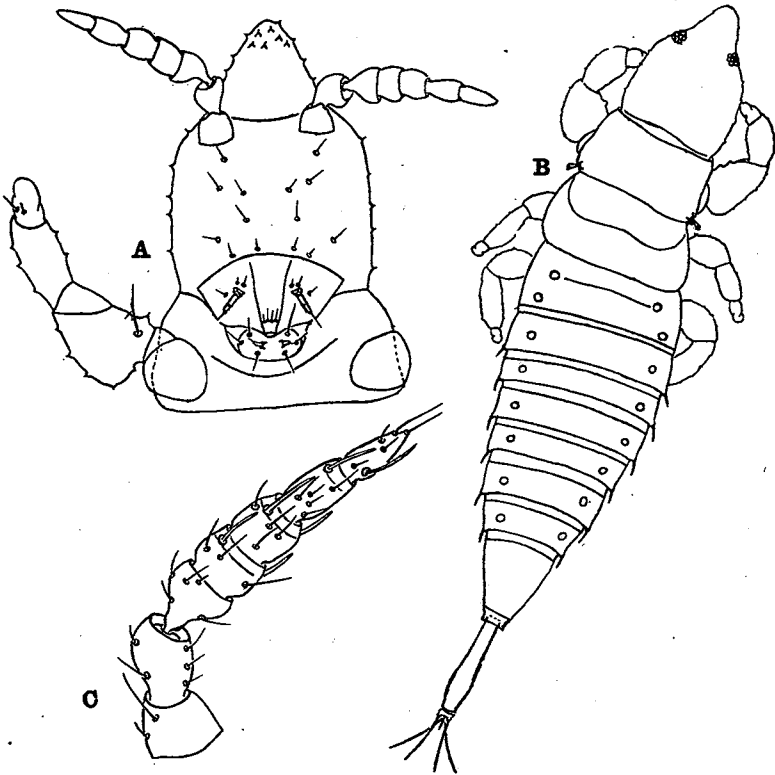


PLATE XXVIII

Conocephalothrips tricolor sp. nov.

- A—Ventral view of head and prothorax, showing antennae and right leg.
- B—Dorsal view of complete insect, with terminal setae abbreviated.
- C—Dorsal view of left antenna.

Measurements of female paratype in mm.:

Antennal segments	1	2	3	4	5	6	7
Length0369	.0287	.0205	.0246	.0287	.0328	
Width0287	.0287	.0287	.0246	.0164	.0123	

Head, median length .225; head, from base to hind corner of eye .147; head width at base .184; head width across eyes .164; mouth cone from basal suture .098; median length of pronotum .114; width of pronotum, including coxae .246; median width of fore femur .073; median length of 9th abdominal segment .143; greatest width of 9th abdominal segment .123; length of tube .192; greatest width of tube, at 4/5 from base, .032; length of longest distal hairs .055; greatest width of abdomen, second segment, .184; length of setae on hind angles of prothorax .020.

Described from two females found on a leaf of *Broussaisia arguta* Gaud., Mt. Kaala, Oahu, on November 3, 1944. Both specimens, type and paratype, have been deposited in the collection of the Hawaiian Sugar Planters' Experiment Station, Honolulu. The male is unknown.

It is of interest to point out that the arrangement of the terminal setae in the new genus is typical of most Tubulifera, unlike that reported in the description of *Urothrips paradoxus* Bagnall. The four major hairs are separated by minor pointed setae dorsally and laterally, and by a pair of minute, blade-like setae (Buffa's "palettes") ventrally. In addition, as further evidence of the now unquestioned tubuliferous nature of the Urothripidae, it is worth noting that the paired pori found on the lateral or dorsal surfaces of the tube in every species of Tubulifera are also plainly visible in the new Urothripid. They are about 4 microns in diameter and close to the sides of the tube, on about the basal third.

As for the unexplained organ which Bagnall noted "on the under side of the ventral plate" of the ninth abdominal segment in *Urothrips paradoxus*, it is also found in my new species and appears to be an internal thickening of the body-wall. Perhaps it serves as a point of attachment for muscles of the ovipositor, or is in some other manner related to this blade-like organ, which in my specimens is visible through the body wall, lying along the midline of the segment and reaching from very near to the above mentioned thickening to the smaller rod-like thickening of the hind ventral margin which marks the genital opening.