

PSYLLIIDÆ FROM TROPICAL AND SEMITROPICAL AMERICA (HOMOPTERA)*

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Much of this material consists of species set aside and studied over a period of time because many are not generically distinct, that is they possess characters common to more than one genus according to the present interpretations. Rather than attempt to revise several genera which would be no more than my personal interpretation and quite artificial, I believe the true nature of the generic situation may be represented by a series of frequency curves with the generic types and closely related species near the crown, and the less related species farther down the curves. This way it seems possible that two species belonging in separate genera may be very closely related, which is the true situation at present between *Rhinopsylla* and *Kuwayama*.

The writer takes this opportunity to express his appreciation to Miss Louise M. Russell of the U. S. Department of Agriculture for comparing much of this material with specimens in the D. L. Crawford collection. Dr. Leonard Tuthill has kindly examined some of this material and expressed his opinion concerning its validity. Unless stated to the contrary all types are in the writer's collection.

Calophya arcuata new species, (Fig. 5)

Length 2 mm., forewing 1.7 mm. Deep orange over all with black eyes and genæ and yellow legs.

Head broad. Vertex smooth, impressed discally making posterior ocelli greatly elevated; cephalic half rounded downward and forward. Genæ widely separated, acute, one-third as long as vertex. Thorax scarcely arched; pronotum as long as vertex, deflexed, appearing tricarinate. Membrane of forewing minutely rugose; pterostigma long, open at base; Rs long; M highly arched around large cubital cell.

* Zoologically speaking, *Chermes alni* L., 1758, is the same insect now known as *Prociphilus tessellatus* (Fitch) [Data from Pehr Kalm, 1756]; hence Kirkaldy's *Psyllia*, type *pyri* L., is the type genus of the family Psylliidæ.

Female genital segment as long as rest of abdomen; dorsal valve bulbose in basal half, apical half deflexed, extreme apex acute; ventral valve subequal in length to dorsal.

Holotype: female from Bonefish Key, Florida, 2-24-40 (Caldwell).

Kuwayama striata new species, (Fig. 6)

Length 2.5 mm., forewing 2.1 mm. Greyish-yellow species with four prominent red stripes on mesoscutum.

Vertex rather small, flat, somewhat rounded in front. Genæ subspherical. Prescutum as long as broad, longer than scutum, rounded cephalad. Forewings three times as long as broad, Rs reaching as far as furcation of M.

Female genital segment three-fourths as long as rest of abdomen; dorsal valve straight dorsad, suddenly blunted apically; ventral valve somewhat stylate in apical fourth.

Holotype: female from Saltillo, Coahuila, 9-23-41 (DeLong, Good, & Caldwell).

Kuwayama hyalina new species, (Fig. 2)

Length 2.9 mm., forewing 2.3 mm. Yellow over all with black eyes. Wings very milky white, hyaline.

Vertex scarcely deflexed, short, emarginate caudad; foveæ shallow. Genæ roundly swollen. Clypeus visible from front but not prominent. Pronotum nearly vertical; prescutum flat dorsad, acute cephalad. Forewings two and a half times as long as broad, not especially acute apically; Rs reaching to furcation of M.

Female genital segment abruptly styliform in apical half; anal opening located well caudad on dorsal valve.

Female holotype and paratype from Tasquillo, Hidalgo, 10-24-41, Km. 172 (DeLong & Good).

Kuwayama mexicana new species, (Fig. 1)

Length 4 mm., forewing 3 mm. Vertex cream excepting elongate foveæ. Pronotum cream; thoracic dorsum red with light cream median stripe. Antennæ, legs and abdomen black.

Robust species. Vertex relative horizontal, flat. Eyes prominent. Genæ produced into minute cones, blunt. Antennæ twice as long as width of head. Pronotum small, depressed to level of vertex; prescutum high, acute cephalad; scutum short. Forewings large, over twice as long as broad, not acute. Hind wings small, not reaching to furcation of M in forewings. Pubescence prominent on legs.

Forceps of male simple, slender, as long as proctiger.

Holotype: male from Mexico, D. F., west 18 Kms., 9-1-39 (DeLong).

Kuwayama lateralis new species, (Fig. 3)

Length 3.5 mm., forewing 2.7-3 mm. General color grey with faint red laterally on prescutum and scutum. Venter of head and thorax black to dusky. Abdomen black dorsad, dusky ventrad with light lateral stripe on either side for full length.

Vertex deflexed, fovæ deep, ocelli raised. Antennæ twice as long as width of head. Genæ swollen. Thorax rather flat, not robust. Forewings almost three times as long as broad.

Proctiger of male longer than forceps. Forceps produced on cephalic margins at midlength. Female genital segment almost as long as rest of abdomen; dorsal valve straight, somewhat styliform apically; ventral valve abruptly styliform in apical third.

Male holotype, female allotype, and paratypes from Mexico, D. F., west Km. 20, 11-24-38 (Caldwell).

Trioza rhinosa new species, (Fig. 4)

Length 4.5 mm., forewing 3.5 mm. Shining black over all with white genæ.

Head broad; eyes prominent; postocular areas large. Vertex sloped inward toward median line, rolled roundedly forward; medial ocellus prominent. Genal cones acute, divergent, one-fourth as long as vertex. Pronotum vertical; rest of thorax scarcely arched. Femora prominent, metatibiæ with apical spur ratio of 3-1. Forewings twice as long as broad, rounded; cubital cell smaller than medial; Rs scarcely separated from and paralleling M in basal fourth.

Forceps of male slender, incurved in caudal aspect. Proctiger long, broad in lateral aspect.

Holotype: male from Tehuacan, Puebla, 10-17-41 (DeLong, Good, Caldwell, & Plummer).

The peculiar formation of the head and forewings places this species close to the *Rhinopsylla*. In general appearance it is close to *T. diospyri* Ashm.

Metatrioza neotriozella new species

Length 2.5-2.7 mm., forewing 2-2.2 mm. Head and genal cones black. Mesonotum with red center and two black stripes on either lateral margin. Costal margin of forewing black basally.

Head as broad as thorax. Vertex strongly concave between eyes, median suture prominent. Genal cones slender, as long as vertex, closely appressed. Antennæ scarcely as long as width of head. Thorax scarcely arched. Forewings almost three times as long as broad. Hind tibiæ with three closely appressed spurs at apex.

Forceps of male of even width throughout, truncate apically, evenly arcuate in caudal aspect.

Dorsal valve of female genital segment styliform in apical half, inflated in basal half; ventral valve somewhat styliform.

Male holotype, female allotype, and paratypes from Tucson, Arizona, 8-16-40, (D. J. & J. N. Knull) are in the Ohio State University collection at Columbus, Ohio.

Except for the unique form of the vertex this species would belong in *Neotriozella* Crawford.

Optomopsylla new genus

Head including eyes much broader than pro and mesonotum, as broad as metathorax. Vertex smooth except for median groove, vertical, rounded gently caudad. Posterior ocelli projecting laterad, almost touching the compound eyes. Pronotum much sunken below level of mesonotum and vertex. Propleurites much compressed, somewhat transversely concave. Forewings with Cu branched from main stem before R and M.

Related to *Ceropsylla* but differentiated by the structure and form of head and thorax.

Type: **Optomopsylla formiciformis** n. sp.

Optomopsylla formiciformis new species, (Figs. 7, 7-A & 7-B)

Length 3.5 mm., forewing 3.1 mm. Black with the exception of basal fourth of antennæ, lateral and ventral portion of pro and mesothoracic femora, all of metathoracic legs, venter of abdomen and genital segment, most of mesothorax, scutum of mesothorax and dorsum of metathorax whitish. Forewings clear with R+M+Cu and R heavily darkened.

Genal cones heavy, blunt, divergent, almost as long as vertex. Head vertical. Thorax scarcely arched, flat in profile; pronotum greatly depressed. Metatibiæ with apical spur ratio of 3-1. Forewings three times as long as broad, acute; cubital cell long, flat.

Female holotype from Zamora, Michoacan, 10-2-41 (DeLong, Good, Caldwell, & Plummer), on willow.

The form combined with the deceptive markings gives this psyllid the appearance of a black ant in dorsal or lateral aspect. The genæ appear as mandibles, the fore part of the thorax is much narrowed and the color on the last thoracic segment and base of the abdomen form the optical illusion of a narrow waist. The metathoracic legs are white and scarcely visible but the heavily embrowned vein in the forewings completes the illusion of a walking leg. This specimen was swept from willow along

with a net full of ants about the same size. Whether accidental or not, to me this is a remarkable example of mimicry.

Euphalerus dubius new species, (Fig. 9)

Length 4 mm., forewing 3 mm. General color green variegated with gray.

Head as broad as thorax, almost perpendicular. Vertex twice as broad as long, flat, median suture very smooth. Genal cones scarcely differentiated from vertex, short, blunt, contiguous on basal third. Antennæ one and a half times as long as width of head. Thorax strongly arched, very smooth, sutures very fine between thoracic segments and between head and pronotum. Pleurites of prothorax subequal. Forewings long, somewhat rhomboidal; pterostigma long and broad.

Female genital segment as long as rest of abdomen.

Female holotype from Davis Mts., Texas, 7-2-40 (D. J. & J. N. Knull). Type in Ohio State University collection at Columbus, Ohio.

Psyllia martorelli new species, (Figs. 8 & 8-A)

Length 2.5-3.5 mm., forewing 2-2.5 mm. Specimens in preservative color unknown. Mesoscutum with broad light stripes.

Head broader than thorax; eyes somewhat stalked; posterior ocelli greatly elevated. Vertex scarcely deflexed, rolled somewhat roundedly forward. Genæ scarcely swollen; frons much sunken but not covered by genæ. Antennæ almost as long as entire insect. Thorax scarcely arched. Forewings little over twice as long as broad; apical margins almost flat; pterostigma not apparent; costal margins pubescent.

Apices of male forceps slightly bifurcate. Female genital segment as long as rest of abdomen; both valves very slender, stylate in apical half.

Holotype male, allotype female, and paratypes from Villalba, Puerto Rico, May 1940, on "Inga Inga" (L. F. Martorell).

This species shows some relationship to the *Pauropsyllinæ*.

The writer dedicates this outstanding species to his friend Dr. Luis F. Martorell.

Psyllia berryi new species, (Figs. 11 & 11-A)

Length 5.4 mm., forewing 4.4 mm. Greenish-yellow over all.

Vertex very small, cephalic margin compressed between genæ. Genæ greatly developed, larger than vertex, inner margins contiguous, apices blunt. Antennal insertion in front of ventral margins of eyes. Eyes very small; postocular area large. Pronotum strongly descending, prominent; prescutum rounded, longer than scutum. Forewings almost three times as long as broad; pterostigma very narrow, elongate; cubital cell twice as large as medial.

Female genital segment short; dorsal valve rounded, somewhat bulbous apically; anal opening with serrate margins; ventral valve short, thick.

Female holotype from Santaram, Para, Brazil, October 1942 (L. A. Berry).

The gigantic development of the genæ sets this species apart from any psyllid known to me; however, the structure of the entire insect is true to the genus. Too many of the present genera of Psylliidae have been established on gradational characters for me to add another when there are no fundamental differences on which to base a decision.

The writer takes great pleasure in naming this unique species in honor of his friend Lawrence A. Beery, Jr.

***Psyllia cedusa* new species, (Fig. 10)**

Length 2.5 mm., forewing 2.1 mm. General color orange-yellow. Forewings with four black marginal spots.

Vertex twice as broad as long; foveæ sharp, deep; posterior ocelli greatly elevated. Genal cones three-fourths as long as vertex, divergent. Whole head deflexed, as broad as thorax. Thorax not especially arched yet pronotum is nearly vertical. Hind tibiæ with small basal spur. Forewings little over twice as long as broad; cubital cell very highly arched; pterostigma, small, equilaterally triangular.

Female genital segment as long as rest of abdomen; dorsal valve straight, stylate in apical third with apex turned up; ventral valve narrowed in apical half, curved dorsad.

Female holotype from Jesus Carranza, Veracruz, 10-14-41 (DeLong, Good, Caldwell, & Plummer).

PLATE XII

- Figure 1. *Kuwayama mexicana*. Lateral view of male genitalia.
Figure 2. *Kuwayama hyalina*. Lateral view of female genitalia.
Figure 3. *Kuwayama lateralis*. Lateral view of male genitalia.
Figure 4. *Trioza rhinosa*. Lateral view of male genitalia.
Figure 5. *Calophya arcuata*. Lateral view of female genitalia.
Figure 6. *Kuwayama striata*. Lateral view of female genitalia.
Figure 7. *Optomopsylla formiciformis*. Lateral view of female genitalia.
Figure 7-A. Profile of head and thorax.
Figure 7-B. Dorsal view of head and thorax.
Figure 8. *Psyllia martorelli*. Lateral view of female genitalia.
Figure 8-A. Caudal view of male forceps.
Figure 9. *Euphalerus dubius*. Profile of head and thorax.
Figure 10. *Psyllia cedusa*. Lateral view of female genitalia.
Figure 11. *Psyllia beeryi*. Lateral view of female genitalia.
Figure 11-A. Dorsal view of circum-anal ring.

