

Bromegrass, roadside	15	Mutillidae:	
Dropseed	11	Pseudomethoca oceola (Blake),	
Panic grass	5	May, sweetclover	1
Native hay I	4	Dasymutilla occidentalis (L.),	
Overgrazed pasture	2	April, dropseed	1
Sweetclover	1	Dasymutilla vesta (Cress.),	
Alfalfa, new stand	1	April, dropseed	1
Scelionidae:		Sphecidae:	
Trimorus sp., April, alfalfa		Chlorion (Priononyx) atratum	
old stand	1	(Lep.), May, bromegrass	
		pasture	1

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CONTRIBUTIONS TO THE KNOWLEDGE OF THE PSYLLIDAE OF MEXICO

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INTRODUCTION

Recorded knowledge of the Mexican forms of this family of homopterous insects is very incomplete. Not only have very few species been described and named but much confusion exists as to the identity of some of these. The great diversity of the forms described plus the abundance of these insects in the portion of the United States which borders Mexico indicate that psyllids probably are very abundant throughout the country. The number of species

and genera new to science which has been encountered in studying the available material fully justifies this belief.

Dr. Alfonso Dampf very kindly sent me, some time ago, approximately 3500 specimens of Psyllidae collected throughout Mexico over a period of years. As most of these insects were collected by Dr. Dampf personally, all specimens cited herein without other indication of collector may be assumed to be his collections. In addition I have had for study a small number of specimens from the United States National Museum. This material furnishes the basis for the following taxonomic treatment. There is no question but that a great many yet undiscovered psyllids occur in Mexico, throughout the entire country. An attempt is made here to furnish a solid foundation for further work by resolving some of the confusion concerning the named forms and providing keys to the entities now known to occur in this area. Only those species actually known to occur in Mexico are treated in the keys and described. However, other known species which almost surely will be found to occur in this fauna are listed under the discussion of each genus. It is hoped that other workers will find this essay helpful. The species recently described by Caldwell are included in the keys wherever possible but are not described or figured as I have not been able to see them.

The author regrets that he is not sufficiently proficient in Spanish to have used that language in writing this work which must necessarily be of greatest interest to entomologists of Spanish speaking countries.

Because of the difficulty of obtaining publication for large and inclusive works it has been thought advisable to publish this paper in parts.

PART I — SUBFAMILY TRIOZINAE

1879 Triozinae Löw, Verh. zool.—bot. Ges. Wien 23: 605, 609.

1886 Triozaria Puton, Cat. Hém. Faune Palea. 93.

1896 Triozidae Edwards, Hemip.—Homop. Br. Is. 227, 251.

Head more or less deflexed, usually small and narrower than thorax. Vertex with medial suture prominent, usually with 2 discal sulci, usually distinctly margined. Genae produced, processes usually conical, sometimes merely swollen, more or less pubescent. Frons covered by genae except small portion bearing median ocellus (perhaps not in **Triozoida**). Eyes hemispherical. Antennae ten-segmented, slender. Thorax strongly arched usually (not in **Leuronota**). Propleurites not equal, suture not extending to middle of pronotum. Forewings membranous, hyaline, typically angulate apically, sometimes narrowly rounded, radius, media and cubitus arising from common base at same point or nearly so (except **Ceropsylla**), no pterostigma, usually 3 radular areas on margin, in cell M_2 , in cell M_1 and cell Cu_1 . Metacoxae with meracanthi present, often with spinose or flattened anterior processes. Metatibiae usually with basal spur or serrate carina, with 1 outer and 2 or 3 inner apical spines (except in **Triozoida** 2 or 3 outer). Proximal segment of metatarsi without spines. Male proctiger usually with caudal lobes.

Type genus: **Trioza** Förster.

As the name indicates one of the prime characters of this subfamily is the trichotomous branching of the basal vein of the forewing. The shape of the forewings, the size and shape of the head and the lack of black spines on the proximal segment of the metatarsi are other distinctive features.

KEY TO THE GENERA OF TRIOZINAE

1. Branching of basal vein strictly trichotomous; vertex with abrupt anterior margin (usually) 2
 Branching of basal vein variable, commonly not trichotomous; vertex rounded down anteriorly, more or less smoothly continuous with genae 6
2. Head wider than thorax **Metatrioza**
 Head narrower than thorax 3
3. Thorax scarcely arched; pronotum long, flat, with a prominent median epiphysis on anterior margin **Leuronota**
 Thorax well arched; pronotum shorter, descending cephalad, without median anterior epiphysis 4
4. Genae produced as usually conical processes 0.5 as long as vertex or longer **Trioza**
 Genae spherically swollen, produced as very small cones or pads or not produced at all 5
5. Genae spherically swollen; female genital segment elongate, dorsal valve nearly straight; male proctiger straight or roundly produced caudad, without elongate caudal lobes **Kuwayama**
 Genae not spherically swollen, with small conical or pad like lobes or not at all produced; female genital segment very short, dorsal valve strongly downcurved; male proctiger with long slender caudal lobes **Paratrioza**
6. Genal processes short, appressed; R + M of forewing with prominent common base **Ceropsylla**
 Genal processes large, not touching; branching of basal vein trichotomous or nearly so 7
7. Vertex bulging; only 1 outer apical spine on metatibiae .. **Myrmecephala**
 Vertex strongly concave, more than 1 outer apical spine on metatibiae **Triozoida**

Genus **Trioza** Förster

- 1848 **Trioza** Förster, Verh. natur. Ver. preuss, Rhein, 5:37
 1915 **Megatrioza** Crawford, Phil. Jour. Sci. 10:253, 164
 1926 **Spanioza** Enderlein, Ent. Mitt. 15:400
 1926 **Colopelma** Enderlein, Ent. Mitt. 15:400
 1926 **Phyllopecta** Ferris, Can. Ent. 58:16
 1938 **Phyllopecta** Caldwell, Ohio Biol. Surv., Bull. 34:248

Head usually narrower than thorax, sometimes as wide, deflexed. Vertex much broader than long, usually deeply impressed discally, medial suture prominent, more or less emarginate on anterior margin. Genae produced as processes of varying length and shape, usually conical, more or less divergent, depressed from plane of vertex and usually deflexed. Antennae slender, variable in length from no longer than width of head to several times as long. Eyes hemispherical. Thorax usually strongly arched. Pronotum short, descending cephalad, often depressed below plane of head and mesonotum. Prescutum usually about as long as head, sometimes longer. Forewings membranous, hyaline, usually acute apically, sometimes rounded; radius, media and cubitus arising from basal vein at same point, no pterostigma. Metatibiae often with basal spur or carina, 1 outer and either 2 or 3 inner apical spines. Metatarsi without black clawlike spines. Metacoxae often more or less developed anteriorly. Male proctiger usually with caudal lobes.

Logotype: *Trioza urticae* (Linnaeus)

This genus is very large and widespread in its distribution, being found all over the world. The structure is quite varied. A natural group of species which Crawford has considered worthy of generic rank and designated as *Megatrioza* is of a distinctive habitus and in the area of the Western Pacific, whence most of the species are known, it can be distinguished readily from the more typical *Trioza* species. When the American species are also considered however, there is no single character which is constant throughout the group nor any group of characters which will serve to separate it satisfactorily from *Trioza*. One of the most distinctive characters of *Megatrioza* is the reduction in size of the hind wings which in some species is almost complete and yet the type does not show any reduction in size of the hind wings at all. Similar exceptions occur with respect to all the characters on which the genus was established. After examining several of the Pacific species and the one which occurs in continental America I am convinced that this complex is most properly considered a subgenus.

The only American species of this subgenus, *diospyri*, may be distinguished by the reduced hind wings which are less than half as long as the forewings. It is very characteristic of the group in general appearance and most characters.

Undoubtedly other described species of this genus occur in Mexico. *T. chlora*, *T. lobata*, *T. maura* and *T. nicaraguaensis* are the ones most likely to be found. Some species of the *T. frontalis* complex are also almost surely present.

I have been unable to fit Caldwell's species *rugosata* and *zogoda* into the key.

KEY TO THE SPECIES OF TRIOZA

- | | |
|--|---|
| 1. Metatibiae with 2 inner apical spines | 2 |
| Metatibiae with 3 inner apical spines | 7 |
| 2. Antennae twice as long as width of head | 3 |
| Antennae distinctly less than twice as long as width of head | 4 |

3. Genal processes 0.5 as long as vertex; cubital cell of forewing much larger than medial **magnoliae**
 Genal processes 0.75 as long as vertex; marginal cells equal, small **bifurca**
4. Anal margin of forewing brown **minuta** var. **arizonae**
 Forewings without brown margin 5
5. Rs of forewing long, sinuate **rubra**
 Rs of forewing short, curved to costa 6
6. Pronotum depressed below vertex; cubital cell much larger than medial **russellae**
 Pronotum not depressed below vertex; marginal cells approximately equal **anceps**
7. Antennae twice as long as width of head or longer 8
 Antennae not over 1.66 times as long as width of head (except in **mexicana** sometimes almost twice as long) 18
8. Large species, over 4 mm. to tip of folded wings 9
 Smaller species, less than 4 mm. to tip of folded wings 15
9. Forewings with large brown maculae **inuitata**
 Membrane of forewings immaculate 10
10. Genal processes very short, 0.6 as long as vertex, female genital segment with long styliform apical portion **collaris**
 Genal processes longer, at least 0.8 as long as vertex 11
11. Antennae 2.0 times as long as width of head, female genital segment styliform **apartata**
 Antennae at least 2.33 times as long as width of head, female genital segment, of those known, not styliform 12
12. Membrane of forewings yellow, 5 black spots on margin from base of clavus to apex; antennae 2.33 times as long as width of head **bella**
 Membrane of forewings clear, margin without spots, antennae 2.8 times as long as width of head or more 13
13. Forewings broadly rounded; male forceps shorter than proctiger, in lateral view broad **dampfii**
 Forewings angulate; male forceps as long as proctiger, in lateral view slender 14
14. Apex of male forceps as seen from dorsal view roundly truncate **grandipennis**
 Apex of male forceps as seen from dorsal view produced cephalad as sharp black tooth **grandipennis propinqua**
15. Genal processes as long as vertex **nigriconus**
 Genal processes 0.5 as long as vertex 16
16. Cubital cell of forewing much larger than medial **maritima**
 Marginal cells equal 17
17. Larger species, 3.5-4.5 mm.; female genital segment 0.5 as long as rest of body, abruptly narrowed to styliform portion **collaris**
 Smaller species, 3-3.5 mm.; female genital segment 0.75 as long as rest of body, tapered to styliform portion **proximata**

18. Genal processes as long as vertex 19
 Genal processes shorter than vertex 24
19. Body unicolorous yellowish green or with thoracic dorsum and antennae black 23
 Body color not as above 22
20. Branching of basal vein of forewing trichotomous 21
 Cubitus arising from basal vein separately *cpiphita*
21. Length to tip of forewing 3.75-4.0 mm. *nigriscutum*
 Length to tip of forewing 2.8-3.0 mm. *stroma*
22. Cubital cell of forewings larger than medial *longigenae*
 Cubital cell of forewings somewhat smaller than medial 23
23. Forewings slender, acutely angled *nigriconus*
 Forewings broad, rounded apically *psyllihabit*
24. Antennae at least 1.5 times as long as width of head 25
 Antennae not over 1.25 times as long as width of head 30
25. Female genital segment without styliform apical portion; vertex with distinct anterior margin 23
 Female genital segment with styliform apical portion, vertex without distinct margin anteriorly, rounded to genae 23
26. Medial cell of forewing much larger than cubital; hind wings less than 0.5 as long as forewings *diospyri*
 Marginal cells of forewing equal; hind wings more than 0.5 as long as forewings 27
27. Pronotum depressed below plane of vertex; genal processes acute, divergent, Rs usually long, sinuate, marginal cells small *allifrons*
 Pronotum not depressed below plane of vertex; genal processes blunt, divergent only at apex; Rs short, curved to costa, marginal cells large *anceps*
28. Male forceps notched apically; female genital segment very sharply constricted to styliform portion *incidata*
 Male forceps entire; female genital segment tapering to styliform portion 29
29. Large, 3.75 mm. *mexicana*
 Smaller, 3 mm. *mexicana minor*
30. Genal processes 0.75 as long as vertex *hidalgoensis*
 Genal processes not over 0.50 as long as vertex 31
31. Anterior margin of vertex smoothly rounded *mexicana curtigena*
 Anterior margin of vertex deeply notched *thoracia*

***Trioza magnoliae* (Ashmead)**

Figs. 1, 2, 3.

1881 *Psylla magnoliae* Ashmead, Can. Ent. 13: 2241885 *Trioza magnoliae* Riley, Proc. Biol. Soc. Wash. 2:701911 *Allotrioza magnoliae* Crawford, Pom. Coll. Jour. Ent. 3:444, 4451914 *Trioza magnoliae* Crawford, U. S. Nat. Mus., Bull. 85:96

1919 *Trioza magnoliae* Barber, Proc. Ent. Soc. Wash. 21:59

Length to tip of folded wings 3.5 to 4.5 mm.

Color: General color green to light brown. Sometimes with longitudinal brown stripes on thoracic dorsum. Tips of antennae dark. Eyes reddish. Wings hyaline.

Structure: Head large, as broad as thorax, scarcely deflexed. Vertex large, flat except for discal impressions, medial suture prominent, strongly excavate posteriorly. Genal processes short, blunt, divergent, about 0.5 as long as vertex. Antennae twice as long as width of head. Vertex and thoracic dorsum with more or less short pubescence, most evident near eyes. Thorax moderately arched, long. Pronotum not depressed below plane of vertex, caudal margin upcurved, carinate. Prescutum distinctly longer than wide, anterior angle very sharp and abrupt. Forewings large, straight, sharply angulate, almost 3 times as long as wide; Rs long, somewhat sinuate, cubital cell much larger than medial. Hind wings 0.6 as long as forewings. Metatibiae with large, serrate basal carina, 1 outer and 2 inner apical spines. Metacoxae moderately produced anteriorly.

Male proctiger small, arcuate on caudal margin from near apex. Forceps slightly longer than proctiger; in lateral view broad, somewhat pyriform, anterior margin strongly curved caudad, apex blunt, black, in line with posterior margin; in caudal view stout, almost straight, slightly arcuate, apices touching. Female genital segment large, 0.66 as long as rest of abdomen, valves almost equal in length, acute.

The above description is from specimens taken in Florida. The only specimen at hand from Mexico is a male from San Pedro Yaneri, Oaxaca, collected at light, June 19, 1935 by Francisco Reyes. This specimen differs from the above description in several respects. It is larger 5.5 mm.; the genal processes are longer (they are somewhat malformed); the forceps are shorter than the proctiger. I believe this specimen is the same species as the differences while definite are not great if the distance separating the localities is considered. The nymphs form galls on the leaves of the host, which is possibly *Persea* spp. instead of *Magnoliae* as it seems that Ashmead may have been confused as to the identity of the tree from which he took the originally described specimen (see Barber, *loc. cit.*)

Host: *Magnoliae* sp. (doubtful)

Type, no. 14819 United States National Museum

***Trioza bifurca* n. sp.**

Figs. 4, 5, 6.

Length to tip of folded wings 3.50 mm.

Color: Thorax and head more or less fuscous. Antennae whitish except tip black. Abdomen green. Male darker than female.

Structure: Head large, almost as wide as thorax. Vertex deeply concave discally, sharply margined posteriorly and anteriorly, median suture prominent. Genal processes slender, acute, not touching, 0.75 as long as vertex.

Additional small rounded processes beneath eyes. Antennae twice as long as width of head. Thorax moderately arched. Pronotum depressed much below vertex. Prothoracic episterna strongly produced and extending forward behind eyes. Forewings over 2.5 times as long as wide, straight, bluntly angled; Rs long, somewhat sinuate, marginal cells small, equal. Hind wings large, 0.75 as long as forewings. Metatibiae with serrate basal carina, 1 outer and 2 inner apical spines. Metacoxae strongly produced anteriorly, apices free, caudal metacoxal spurs long, cylindrical, truncate.

Male proctiger short, with extremely long, slender, terete caudal lobes, enclosing forceps. Forceps short, stout, in caudal view swollen, bowed, narrowed toward apex, apically enlarged and divided into two divergent, pointed lobes. Female genital segment much shorter than rest of abdomen; dorsal valve swollen, overhanging, pointed; ventral valve shorter, tapered to acute apex.

Holotype, male **allotype**, female, one male and one female paratype swept from low vegetation above timberline on the summit of Telapon Mountain (app. 4000 meters), Tlaloc-Ixtachihuatl range in the Valley of Mexico July 25, 1937. One additional male paratype swept from grass in an open pine forest between 3000 and 3400 meters on Telapon Mountain, same date.

Host: Unknown

The name refers to the forked male forceps.

Holotype, allotype and paratype in author's collection, paratypes in Dampf's collection.

***Trioza minuta* var. *arizonae* Aulman**

Figs. 7, 8, 9.

1910 ***Trioza marginata*** Crawford, Pom. Coll. Jour. Ent. 2: 232, 356.

[non] ***Trioza marginata*** Löw, Verh. zool. -bot. Ges. Wien 32: 242, 1882.

1912 ***Trioza arizonae*** Aulmann, Ent. Rund., heft 22.

1941 ***Trioza arizonae*** Caldwell, Ohio Jour. Sci. 41:422

1943 ***Trioza minuta* var. *arizonae*** Tuthill, Ia. St. Coll. Jour. Sci. 17:563

1944 ***Trioza arizonae*** Caldwell, Ohio Jour Sci. 44:62

Length to tip of folded wings 3 mm.

Color: Head orange with black markings to entirely black. Genal processes black. Thorax orange, more or less infuscated. Abdomen white ventrad, brown dorsad. Forewings narrowly embrowned on anal margin from base to apex.

Structure: Head narrower than thorax. Vertex plane with shallow discal impressions, margins abrupt, protruding over anterior ocellus. Genal processes 0.6 as long as vertex, conical. Antennae about 1.6 times as long as width of head. Thorax strongly arched. Pronotum depressed below vertex. Forewings slender, angulate, 2.7 times as long as wide; Rs long, slightly sinuate, marginal cells small, cubital flattened. Hind wings 0.75 as long as forewings. Metatibiae with small basal spur or serrate carina, 1 outer and 2 inner apical spines. Metacoxae produced anteriorly.

Male proctiger shorter than forceps, with short, blunt, caudal lobes. Forceps in lateral view slender, bent cephalad apically, tapering to acute tip; in caudal view broad basally, slightly arched to acute apices, moderately pubescent, dorsal margin brown. Female genital segment shorter than rest of abdomen; dorsal valve downcurved, black tipped, acute; ventral valve shorter than dorsal, thin and upturned apically, in ventral view produced medially as rounded tooth.

Specimens of this *Salix* inhabiting species are at hand bearing the following data: Xochimilco, D. F., swept from willows, *Urtica*, etc., September 30, 1923 and June 13, 1933; Chapingo, Mexico, July 11, 1924; Nainari, near Cajeme, Sonora, swept from willow leaves, March 17, 1927; Hacienda Fresno, near Torreon, Coahuila, June 11, 1931; swept from weeds on the sandy shore of the Grijalva River near Tuxtla Gutierrez, Chiapas, May 27, 1926; at the railway station Papalopam, Vera Cruz, swept from shrubs and weeds on the banks of the river, December 21, 1937; San Jacinto, D. F., taken at light, April 28, May 16 and 26, June 4 and 29, 1932. It has been reported from Tamazunchale, San Luis Potosi, Orizaba, Veracruz and Zamora, Michoacan by Caldwell.

The typical subspecies is not known to occur in Mexico but probably does, at least in the northern portion.

Host: *Salix*

Type no. 18087, United States National Museum

***Trioza rubra* Tuthill**

Figs. 10, 11, 12.

1939 *Trioza rubra* Tuthill, Ia. St. Coll. Jour. Sci. 13:185

1944 *Trioza albanigra* Caldwell, Ohio Jour. Sci. 44:62

Length to tip of folded wings 3.5 mm.

Color: General color of male from light reddish brown to chocolate brown. Antennae whitish except three apical segments black. Mesoscutum with two prominent longitudinal chocolate stripes. Female lighter.

Structure: Head large, narrower than thorax. Vertex slightly concave posteriorly, all margins abrupt, anterior margin sharply excavate medially, discal impressions broad, medial suture prominent. Genae and anterior ocellus beneath overhanging vertex. Genal processes short, slightly over 0.5 as long as vertex, divergent, blunt. Antennae 1.7 times as long as width of head. Thorax moderately arched. Pronotum short, strongly depressed, below plane of vertex. Proepisternum strongly produced and extending forward. Mesoscutum flat dorsally. Forewings 2.5 times as long as wide, broadly angulate; Rs long, somewhat sinuate, marginal cells rather small, equal. Hind wings 0.7 as long as forewings. Metatibiae with serrate basal carina, 1 outer and 2 inner apical spines. Metacoxae strongly produced anteriorly as blunt lobe.

Male genitalia small. Proctiger short, with large caudal lobes as long as axial portion. Forceps longer than proctiger; in lateral view slender,

slightly bent cephalad, tapering to very slender, sharp apices, anterior margin sinuate; in caudal view swollen basally, lateral margin straight to acute tip, mesal margin with triangular tooth midway. Female genital segment much shorter than rest of abdomen; dorsal valve rounded down to blunt apex; ventral valve shorter than dorsal, sharp apically.

Five males and three females (one pair on slide) swept from low vegetation, chiefly grass, at 3600 meters on Cerro de Hongos near Cerro San Miguel, southwest of Mexico City, April 5, 1925. One additional pair swept from grass on summit of Mount Ajusco, treeless, south of Mexico City, at 4000 meters, May 10, 1925.

This species was described from Colorado, United States and is known from New Mexico, Arizona and Oregon. The specimens at hand show minor differences from the more northern specimens.

Host: Unknown

Type in author's collection.

The specimens which Caldwell described as *T. albanigra* are apparently this species which exhibits a considerable range of color as well as locality. I presume *albanigra* var. *aurodorsa* to be a color variant as Caldwell indicates. His specimens were taken on Popocatepetl and at Rio Frio, Puebla.

***Trioza russellae* n. sp.**

Figs. 13, 14, 15.

Length to tip of folded wings 3 mm.

Color: General color chocolate brown. Legs, antennae, genal processes, pleurites and venter more or less yellow.

Structure: Entire body pubescent. Head large, almost as wide as thorax. Eyes unusually large. Vertex narrow, with longitudinal sulcus each side of medial suture, produced anteriorly each side of medial suture, margin overhanging antennal sockets, posterior margin deeply concave. Genae produced as small, blunt lobes, 0.3 as long as vertex. Antennae slender, short, 1.4 times as long as width of head. Thorax strongly arched. Pronotum very short, strongly depressed below plane of vertex. Thoracic dorsum finely rugose. Forewings 3 times as long as wide, somewhat constricted opposite furcation of basal vein, origin of R, M and Cu variable, typically trichotomous, occasionally R or Cu arising separately; basal vein long, Rs short, curved to costa, medial cell apical, small, cubital much larger. Hind wings large, 0.63 as long as forewings, covered with minute setae. Metatibiae with basal spur, 1 outer and 2 inner apical spines. Metacoxae slightly produced anteriorly.

Male genitalia small. Proctiger straight, short, rounded caudally. Forceps shorter than proctiger; in lateral view broad, straight, tapered apically to sharp apex, in caudal view broad, strongly arched, apically tapered to sharply upturned, contiguous apices. Female genital segment short, valves about equal, black tipped, sharp.

The furcation of the basal vein is quite variable in this species. A majority of the specimens at hand have the three veins arising together but several

show a distinct radio-medial petiole while one has a short medio-cubital petiole. In this and other features such as the length of the basal vein, the shape of the forewings, the genal processes, this form shows affinities to *Ceropsylla*.

Holotype, male, **allotype**, female, 3 male and 1 female paratypes, Finca "La Fortuna", Chiapas, October 30, 1938, collected at light by Dr. R. Nettel. Other paratypes are from Finca "La Fortuna," Chiapas, taken by Dr. Nettel on the following dates in 1938, October 16 (1 male), 17 (1 male), 29 (2 females) and from Finca Esperanza, Chiapas, collected by Dr. Nettel on June 10 (2 males and 2 females), June 16 (1 male), November 2 (1 male), November 4 (1 male), 1938, all taken at light.

Host: Unknown

Holotype, **allotype** and paratypes in author's collection, paratypes in Dampf's collection.

This species is named in honor of Louise M. Russell of the United States National Museum who has greatly assisted the author by comparing specimens and in other ways.

***Trioza anceps* n. sp.**

Figs. 16, 17.

1914 *Trioza koebelei* Crawford, U. S. Nat. Mus., Bull. 85:97

[non] *Trioza koebelei* Kirkaldy, Can. Ent. 37:290, 1905

Length to tip of folded wings 3.75 to 4 mm.

Color: General color testaceous. Dorsum darker. Abdomen brown. (Probably greenish when alive).

Structure: Head narrower than thorax. Vertex plane, raised above eyes, margins rounded, discal impressions round, shallow, medial suture prominent. Genal processes short, stout, divergent apically, 0.5 as long as vertex, parallel to plane of vertex. Antennae almost 1.5 times as long as width of head. Eyes small, hemispherical. Thorax strongly arched. Pronotum moderately long, not depressed below vertex. Forewings nearly 3 times as long as wide, bluntly angular; Rs short, curved to costal margin, marginal cells equal. Hind wings 0.7 as long as forewings. Metatibiae with small serrate basal carina, 1 outer and either 2 or 3 inner apical spines. Metacoxae but slightly produced anteriorly.

Female genital segment 0.66 as long as rest of abdomen; dorsal valve straight, acute; ventral valve nearly as long as dorsal, acute, somewhat swollen basally.

Holotype, female, no. 56931 United States National Museum and 4 female paratypes bearing the data "Morelos, Koebele", are at hand. I think it probable that these are the specimens Koebele found forming galls on aguacate, the data for which was erroneously assigned to specimens of *diospyri* by Kirkaldy. These specimens have been compared with one of those from Cuernavaca, taken on aguacate, which Crawford assigned to the name *koebelei*. The latter is identical with the series at hand.

Only one complete antenna remains on any of the specimens. The number

of inner apical spines on the metatibiae, usually quite constant, is variable in these specimens. The holotype and one other specimen have 2 on one tibia and 3 on the other. A third specimen has 2 on each tibia and the tibiae of the other two specimens are covered with glue. The name *anceps* is given because of this irregularity.

Host: *Persea americana*, avocado or aguacate.

***Trioza inusitata* n. sp.**

Figs. 18, 19.

Length to tip of folded wings 5 mm.

Color: General color yellow with dark brown markings as follows: broad vitta each side of thorax from eye back onto abdomen, abdominal tergites, margin of abdominal sternites, most of thoracic venter and femora. Forewings hyaline except dusky basally, dark brown vittae as shown in figure.

Structure: Body evenly clothed with short sparse pubescence. Head narrower than thorax. Vertex angularly emarginate posteriorly, with deep, sulcate discal impressions, rounded down anteriorly to genal processes. Genal processes slender, separated, not divergent, nearly as long as vertex. Antennae 2.5 times as long as width of head. Thorax rather flat. Pronotum long, with blunt, median, anterior epiphysis. Forewings acutely angled, 3 times as long as wide; Rs moderately long, rather abruptly turned to costa, M somewhat sinuate, marginal cells large. Hind wings large, 0.66 as long as forewings. Metatibiae with serrate basal carina, 1 outer and 3 inner apical spines. Metacoxae moderately produced anteriorly.

Female genital segment 0.5 as long as rest of abdomen; dorsal valve swollen dorsally, rounded down to apex, split apically to allow ovipositor to protrude; ventral valve of almost equal length, sharp.

Holotype, female, Cordoba, Mexico, December 23, 1907, Fredrik Knab. This unique specimen is in the United States Museum, Catalogue Number 56962.

Host: Unknown

This species shows affinities to the species of *Leuronota*.

***Trioza bella* n. sp.**

Figs. 20, 21.

Length to tip of folded wings 5 mm.

Color: General color stramineous. Dorsum and vertex orange, black margins on pronotum and prescutum, prescutum and scutum with slight median line, metathorax and abdomen with wide black dorsal band. Anal margin of forewing more or less embrowned, definite spots midway and at apex of clavus, midway of each marginal cell and between them, membrane yellowish.

Structure: Pubescent. Thoracic dorsum and vertex with numerous very long setae. Head almost as wide as thorax, strongly deflexed. Vertex plane, very shallow discal impressions, median suture very prominent, produced anteriorly at each side at base of antennae. Genal processes large, slender, acute, not at all contiguous, slightly curved forward, 0.8 as long as vertex. Antennae slender, 2.33 times as long as width of head. Thorax strongly

arched. Pronotum below plane of vertex. Prescutum almost as long as wide. Forewings very large, broad, 2.33 times as long as wide, blunt apically; Rs very long, somewhat sinuate, marginal cells equal. Hind wings large, 0.66 as long as forewings. Metatibiae with slight basal tubercle, 1 outer and 3 inner apical spines. Metacoxae not produced anteriorly.

Male proctiger short, stout, roundly produced caudad. Forceps almost as long as proctiger; in lateral view stout, straight, slightly produced on caudal margin near apex; in caudal view stout, nearly straight, produced mesad at apex as truncate black tooth; in dorsal view apices broadly truncate, black.

Holotype, male, collected in dense and humid virgin forest at 2750 meters on Zontehuitz Mountain, north of San Cristobal las Casas, Chiapas, June 20, 1926, in Dampf's collection.

Host: Unknown

***Trioza dampfi* n. sp.**

Figs. 22, 23, 24.

Length to tip of folded wings 4.50-5.0 mm. Females slightly larger than males.

Color: Females uniformly greenish yellow. Males darker, stramineous with brown on abdomen, venter of thorax and more or less on lateral margins of thoracic dorsum. Wings hyaline.

Structure: Body pubescent, including thoracic dorsum. Head wider than mesoscutum, not strongly deflexed. Vertex with sharp transverse sulcus connecting large, deep discal foveae; rounded down anteriorly but sharply divided from genae. Genal processes large, slender, acute, not touching, 0.75 as long as vertex, nearly parallel to plane of vertex. Antennae 2.8 times as long as width of head. Thorax strongly arched. Pronotum depressed below vertex. Forewings large, very broad, 2.25 times as long as wide, broadly rounded apically; Rs long, slightly sinuate, medial cell somewhat larger than cubital. Hind wings almost 0.66 as long as forewings. Metatibiae without basal armature. 1 outer and 3 inner apical spines. Metacoxae not produced anteriorly.

Male genitalia large. Proctiger roundly produced caudad, below small apical epiphysis. Forceps shorter than proctiger; in lateral view stout, evenly curved cephalad to truncate apices; in caudal view stout, nearly straight, medially produced at apex at blunt black tooth. Female genital segment as long as rest of abdomen, broad basally, tapered; dorsal valve somewhat attenuate in apical third, sharp; ventral valve nearly as long as dorsal, sharply upturned midway, apex acute.

Holotype, male, **allotype**, female, and 27 male and female paratypes swept from **Senecio** sp. in a mountain forest near Mexico City, Desierto de los Leones, at 3000 meters, January 8, 1933.

Additional specimens, mostly mutilated, are at hand with the following data: 5 males and 2 females swept from bush (**Senecio**, **Salvia**, etc.) in Desierto de los Leones, wood covered mountains 20 km. southwest of Mexico City, mostly **Pinus** and **Abies** with luxuriant undergrowth, at 2800 meters, Septem-

ber 23, 1923 (1 male and 1 female mounted on slide); 2 males and 1 female same data, December 9, 1923; 3 males and 2 females swept from shrubs and low vegetation in the barranca del Rio Tepazulco at 3000 meters, Desierto de los Leones, July 20, 1924; 2 males and 2 females, same data, January 25, 1925.

Host: Unknown

Holotype, allotype and paratypes in author's collection, paratypes and others in Dampf's collection.

It is with pleasure that I name this species in honor of Dr. Alfonso Dampf, the collector.

***Trioza grandipennis* n. sp.**

Figs. 25, 26, 27.

Length to tip of folded wing 5 mm.

Color: Stramineous to green, antennae darker, apical portion of each segment black. Wings hyaline.

Structure: Body with long sparse pubescence. Head small, narrower than thorax. Vertex deeply emarginate anteriorly and posteriorly, very deep, sulcate discal impressions. Genal processes slightly longer than vertex, divergent, acute, parallel to plane of vertex. Antennae 3 times as long as width of head. Thorax narrow, strongly arched. Pronotum long, more or less produced as median epiphysis, scarcely deflexed anteriorly, below plane of vertex. Forewings very large, angled at apex, 2.66 times as long as wide; Rs long, slightly sinuate, marginal cells equal. Hind wings over 0.5 as long as forewings. Metatibiae with small serrate basal carina, 1 outer and 3 inner apical spines. Metacoxae not produced anteriorly.

Male genitalia large. Proctiger strongly produced caudad below slender apical epiphysis. Forceps as long as proctiger; in lateral view slender, straight to apical third then enlarged and turned caudad to blunt apex; in caudal view slender, nearly straight, apically turned in, sharp, black tipped; in dorsal view tips black, truncate. Female genital segment large, nearly as long as rest of abdomen; dorsal valve attenuate in apical third, to blunt tip; ventral valve nearly equalling dorsal, upturned, sharp.

Holotype, male, **allotype**, female swept from dense bush in pine and oak forest on the summit of Cerro Vista Hermosa, 2400 meters, in the Moshbiquil range near San Cristobal Las Casas, Chiapas, July 17, 1926. Paratypes as follows: 1 male and 1 female, swept from shrubs growing between rocks in mixed forest on Cerro Ecatepec, 2400 meters, near San Cristobal Las Casas, June 24, 1926; 1 male and 1 female swept from shrubs and weeds in mixed forest on the road from San Cristobal Las Casas to Huixtan at 2200 meters, July 7, 1926; 1 female swept in an oak forest, over the ground covered with fallen leaves near Hueytepec mountain, 2100 meters, San Cristobal Las Casas, July 23, 1926; 1 additional male, mounted on a slide, which seems to be this species is from Desierto de los Leones, December 9, 1923.

Host: Unknown

Holotype, allotype and paratypes in author's collection, paratypes in Dampf's collection.

***Trioza grandipennis propinqua* n. subsp.**

Length to tip of folded wings 4.5 mm.

Color: Stramineous except apex of antennal segments black, abdomen green.

Structure: Similar to typical subspecies except antennae somewhat less than 3 times as long as width of head. Genal processes shorter. Cubital cell of forewing more slender, Rs straighter.

Male proctiger large, produced caudad from near base almost to apex, a small apical epiphysis. Forceps as long as proctiger; in lateral view slender, curved cephalad then caudad to blunt black tips; in caudal view stout, straight margined mesad with short stout setae, incurved apically, touching, apices black, sharp; in dorsal view apices obliquely truncate, produced anteriorly as sharp black tooth. Female genitalia similar to typical subspecies.

Holotype, male, **allotype**, female, 2 male paratypes swept from grass, low vegetation and **Alnus** bushes in open pine forest, Lagunas de Zempoala, Morelos, appr. 2800 meters, September 2, 1937.

This form in addition to the distinctive male genitalia differs from the typical subspecies in numerous minor structures. The differences are mostly of degree. It is hoped that more extensive future collecting may serve to clarify its relationship.

Holotype and allotype in author's collection, paratypes in Dampf's collection.

***Trioza nigriconus* n. sp.**

Figs. 28, 29.

Length to tip of folded wings 3 mm.

Color: General color yellow, darker dorsad. Legs white except tibiae and tarsi of pro and mesothorax black. Genal processes and occiput black, rest of head lighter, vertex brown. Wings hyaline.

Structure: Head as wide as thorax. Vertex smooth, concave posteriorly, rounded down anteriorly, very strongly raised laterally above level of eyes. Genal processes large, conical, touching, acute, as long as vertex. (Antennae lacking in specimens at hand). Thorax small, very strongly arched. Pronotum short, nearly vertical. Forewings slender, acutely angled, 3 times as long as wide; Rs short, straight, R and M with short common petiole, medial cell larger than cubital. Hind wings slender, over 0.5 as long as forewings. Metatibiae with small basal spur, 1 outer and 3 inner apical spines. Metacoxae not produced anteriorly.

Male genitalia small. Proctiger slender, rounded on caudal margin. Forceps shorter than proctiger; in lateral view enlarged from base to black roundly truncate apex; in caudal view slender, scarcely bowed to blunt black apices; in dorsal view tips black, curved, serrate on mesal margin.

Holotype, male, one male paratype, swept from shrubs near Finca Vergel, slope to the Huixtla Valley, Chiapas, June 5, 1935.

Host: Unknown

Holotype in author's collection, paratype in Dampf's collection.
The name refers to the prominent black conical genal processes.

***Trioza maritima* n. sp.**

Figs. 30, 31, 32.

Length to tip of folded wings 3.5 mm.

Color: General color stramineous with some more yellow markings dorsally. Abdomen of female darker.

Structure: Head fully as wide as thorax. Vertex broad, very strongly depressed discally, abruptly emarginate anteriorly, produced strongly each side of median ocellus, latter visible from above. Genal processes small, conical, 0.5 as long as vertex, divergent. Eyes somewhat flattened posteriorly. Antennae 2.66 times as long as width of head. Thorax quite flat. Pronotum large, not depressed below vertex. Mesothoracic prescutum as long as wide. Forewings large, slightly over 2.5 times as long as wide, angulate apically; Rs long, nearly straight, marginal cells large, cubital much larger than medial, base of Cu very short. Hind wings 0.66 as long as forewings. Metatibiae with basal spur, 1 outer and 3 inner apical spines. Metacoxae not produced anteriorly.

Male proctiger in lateral view slender, parallel sided. Forceps less than 0.5 as long as proctiger; in lateral view very broad, slightly narrowed apically to truncate apex; in caudal view stout, nearly straight, sharply turned in apically, a small sharp black tooth mesad, before apex. Female genital segment large, stout, almost as long as rest of abdomen; dorsal valve large, swollen, extending far down on sides, apex with long slit through which ovipositor projects; ventral valve nearly as long as dorsal, acute, black tipped, serrate apically.

Holotype, male swept from *Salsola kali* and low mangrove bushes on the sea shore at Ciudad del Carmen, Campeche, January 15, 1939. **Allotype** female taken on light at Ciudad del Carmen, Campeche in the suburb Guanal, January 16, 1939.

This very distinctive species shows marked affinities to the genus **Meta-trioza** which was established for a species taken in the state of Arizona, United States.

Host: Unknown

Holotype in author's collection, allotype in Dampf's collection.

***Trioza collaris* Crawford**

Figs. 33, 34, 35.

1910 ***Trioza collaris*** Crawford, Pom. Coll. Jour. Ent. 2:229, 347

1910 ***Trioza longistylus*** Crawford, Pom. Coll. Jour. Ent. 2:233

1941 ***Trioza longistylus*** Caldwell, Ohio Jour. Sci. 41:422

Length to tip of folded wings 3.5 to 4.5 mm.

Color: General color green to yellowish green, occasionally with some darker markings on dorsum of thorax. Tip of antennae, styliform portion of female genitalia and apex of male forceps, dark.

Structure: Head large, only slightly narrower than thorax. Vertex scarcely plane, discal impressions prominent. Genal processes short, not over 0.5 as long as vertex, appressed, blunt to acute. Antennae twice as long as width of head. Thorax large, flat. Pronotum long, strongly descending cephalad, not depressed below vertex. Forewings large, angular to somewhat rounded apically, about 2.5 times as long as wide; Rs long, somewhat sinuate, marginal cells about equal. Hind wings 0.66 as long as forewings. Metatibiae with basal tubercle bearing 2 small spines, 1 outer and 3 inner apical spines. Metacoxae scarcely produced anteriorly.

Male proctiger roundingly produced on caudal margin. Forceps about as long as proctiger, slender, bent cephalad, slightly bowed, apices sharp, black. Female genital segment large, about twice as long as rest of abdomen, about 0.5 as long as remainder of body, consisting of large basal portion and styliform projection, latter about as long as base, black; basal portion produced ventrad just before constriction.

Apparently this is one of the most abundant species of psyllids in Mexico. It is represented in the material at hand by very many specimens (several hundred) from widely scattered localities. The data are given below. It is quite closely related to *Triozia proximata*. The females of the two species are quite distinct but it is impossible to separate the males with certainty. I do not believe that the specimen which Crawford described as *longistylus* represents a distinct species.

The greatest numbers of specimens are from San Jacinto, D. F., Lomas de Chapultepec, D. F., and near San Cristobal Las Casas, Chiapas. The largest single collections are from the latter locality. The San Jacinto specimens were taken at light on April 28 and 29, May 2, 4, 8, 16, 24 and 26, June 4, 7, and 15, July 1, 26 and 28, September 5, 7, 20 and 30, 1932, and on March 21, May 26, and 29, June 5, 6, and 13, July 1, 2 and 26 and September 25, 1933. The specimens taken at Lomas de Chapultepec were either taken at a light or swept from lawns or other low vegetation on April 17 and July 25, 1939, May 29, 1940, May 31, June 1 and 29, July 27, September 25, and November 20, 1941; April 13, May 7 and 16, 1942.

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NOTE

Change of Name in Diptera (Tachinidae). Mr. Owen Bryant, Steamboat Springs, Colorado, has informed me that *Orthosia* Reinhard (Jr. Kans. Ent. Soc., 17:60, 1944) is preoccupied by Ochsenheimer (Schmett. Eur., IV, 79, 1816). I therefore propose the name *Orthosimyia* in place of *Orthosia* cited above.—H. J. Reinhard.